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THE DICTIONARY  
OF  
STATISTICS



# THE DICTIONARY OF STATISTICS

BY

MICHAEL G. MULHALL

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*"Je n'impose rien ; je ne propose même rien ; j'expose."*—DUNOYER

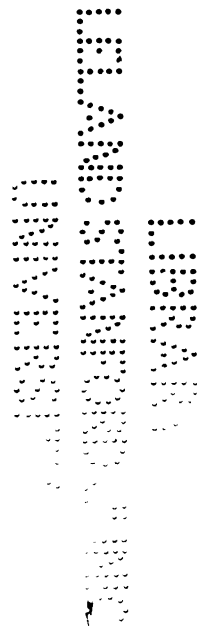
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1903

H. E. V.



HA 46  
M95

TO  
THE MOST IMPARTIAL OF CRITICS  
AND THE BEST OF COUNSELLORS,

*MY WIFE,*

**I Dedicate this Book.**



# P R E F A C E

## TO THE FOURTH EDITION.

THE Dictionary in its present form is one of the largest statistical works ever published, and as regards its utility, there is strong proof in the fact that since the first edition was published, in 1884, no fewer than 6000 copies have been disposed of, chiefly among the libraries of Europe, United States, and the British Colonies. The volume is now greatly enlarged, and will be found to consist of two distinct parts, the first comprising all known statistical data from the time of the Emperor Diocletian down to the year 1890, the second embracing so far the final decade of the century.

270 p. 0.0. 24.4 20  
All civilised nations now devote so much attention to statistics that the field of research becomes vaster year by year, and the work of condensation easier. But when a task of such magnitude devolves, as in the present case, upon a single individual, it cannot be accomplished with the same efficiency as if it were confided to an international bureau under a competent head. The nations of Europe have already seen the convenience of establishing at Berne an International Department of Telegraphs, and another for the Postal Union. It is not, therefore, chimerical to hope that an International Statistical Bureau may be one of the earliest institutions of the twentieth century, publishing every year (in English, French, and German) a Conspectus of the World, with comparative tables for each decade since 1850. I seize this opportunity to thank the various foreign Governments that send me their blue-books, showing thereby the interest which they take in my labours, and their readiness to promote the development of this branch of science.

It is to be deplored that the British Government is indifferent to a matter of this kind, as if international statistics were unimportant. The growth of banking business in Great Britain led to the establishment of Clearing-houses, the advantage of which is unquestionable. What we require is a Statistical Clearing-house, in combination with the rest of mankind: the expense would be a mere trifle, while the benefits to be derived would be immeasurable.

Meantime the Dictionary of Statistics is a step in the right direction, and the success which has attended it is a good omen.

MICHAEL G. MULHALL.

HOTEL BEAU SITE, ROME,  
Feb. 2, 1899.

7 8 9 8 4

### Opinions on the Author's Works.

- "This admirable dictionary."—*Emile de Laveleye.*
- "The quintessence of statistics."—*Leroy Beaulieu.*
- "We want an edition in French."—*Yves Guyot.*
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- "As useful as the Census report."—*Graphic.*
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- "The model of a statistical work."—*Mark Lane Gazette.*



## NOTE.

PART I., down to page 606, comprehends all statistics from the earliest times to 1890; Part II. since 1890.

Money, weights, and measures are in all cases English.

Scandinavia includes Sweden, Norway, and Denmark; Austria the whole Austrian monarchy; Acadia all the maritime provinces of Canada, except Quebec.

## DIAGRAMS.

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# DICTIONARY OF STATISTICS.

## A

### AEROLITES

| Date | Locality        | Weight (lbs.) | Remarks                |
|------|-----------------|---------------|------------------------|
| 1748 | Yenisey . . .   | 1,600         | ...                    |
| 1783 | Gran Chaco . .  | 32,000        | Near Tucuman.          |
| 1784 | Bendego, Brazil | 17,000        | ...                    |
| 1793 | Graf Reinet . . | 300           | South Africa.          |
| 1803 | Normandy . . .  | ...           | 2000 red-hot stones.   |
| 1812 | Prague . . . .  | ...           | 200 hot stones.        |
| 1829 | Bohmelitz . . . | 103           | Bohemia.               |
| 1866 | Kuyahinza . . . | 670           | With 1000 smaller.     |
| 1870 | Greenland . . . | 49,000        | Now at Copenhagen.     |
| 1871 | Greenland . . . | 20,000        | Now at St. Petersburg. |

The last two were found in the years expressed, but may have fallen centuries ago. That of Gran Chaco is 95 per cent. iron. The British Museum has an aerolite weighing five tons.

### AGE

The age of various nations in ratios of 1000 was stated by Wappaeus in 1850 thus :—

| Age     | France | Belgium | Holland | Denmark | Norway | Sweden | Italy | Canada |
|---------|--------|---------|---------|---------|--------|--------|-------|--------|
| Under 5 | 93     | 116     | 113     | 125     | 135    | 126    | 119   | 183    |
| 5-10    | 92     | 109     | 111     | 108     | 114    | 107    | 114   | 144    |
| 10-15   | 88     | 98      | 108     | 95      | 100    | 96     | 107   | 122    |
| 15-20   | 88     | 90      | 93      | 95      | 86     | 98     | 101   | 116    |
| 20-30   | 163    | 166     | 174     | 181     | 174    | 177    | 168   | 169    |
| 30-40   | 148    | 135     | 134     | 130     | 136    | 135    | 134   | 106    |
| 40-50   | 125    | 118     | 106     | 109     | 88     | 100    | 105   | 74     |
| 50-60   | 102    | 78      | 82      | 75      | 78     | 83     | 78    | 47     |
| 60-70   | 65     | 55      | 49      | 53      | 57     | 51     | 51    | 24     |
| Over 70 | 36     | 35      | 30      | 29      | 32     | 27     | 23    | 15     |
| Total   | 1,000  | 1,000   | 1,000   | 1,000   | 1,000  | 1,000  | 1,000 | 1,000  |

The classification by the Bureau of Statistics in 1864 was as follows :—

| Age      | England | France | Belgium | Portugal | Spain | Italy | Medium |
|----------|---------|--------|---------|----------|-------|-------|--------|
| Under 10 | 251     | 186    | 206     | 241      | 249   | 244   | 229    |
| 10-20    | 201     | 169    | 191     | 185      | 193   | 192   | 189    |
| 20-30    | 169     | 164    | 165     | 168      | 171   | 170   | 168    |
| 30-40    | 130     | 144    | 140     | 142      | 151   | 143   | 142    |
| 40-50    | 103     | 125    | 116     | 115      | 107   | 107   | 112    |
| 50-60    | 71      | 101    | 94      | 78       | 72    | 79    | 82     |
| 60-70    | 47      | 72     | 55      | 49       | 42    | 44    | 52     |
| Over 70  | 28      | 39     | 33      | 22       | 15    | 21    | 26     |
| Total    | 1,000   | 1,000  | 1,000   | 1,000    | 1,000 | 1,000 | 1,000  |

According to the Bulletin Statistique the ratios in 1876 stood thus :—

| Age      | France | Belgium | Holland | Prussia | Sweden | Italy | Spain | Switzerland | Hungary |
|----------|--------|---------|---------|---------|--------|-------|-------|-------------|---------|
| Under 15 | 272    | 302     | 329     | 353     | 323    | 323   | 348   | 315         | 372     |
| 15-60    | 610    | 610     | 591     | 577     | 597    | 595   | 590   | 595         | 579     |
| Over 60  | 118    | 88      | 80      | 70      | 80     | 82    | 62    | 90          | 49      |
| Total    | 1,000  | 1,000   | 1,000   | 1,000   | 1,000  | 1,000 | 1,000 | 1,000       | 1,000   |

The following table of age ratios in 1000 of population is from Census reports of the various nations :—

| Country           | Date | Under 5 Yrs. | 5-20 | 20-40 | 40-60 | Over 60 |
|-------------------|------|--------------|------|-------|-------|---------|
| England . . .     | 1881 | 136          | 326  | 297   | 169   | 72      |
| Scotland . . .    | 1881 | 137          | 331  | 290   | 165   | 77      |
| Ireland . . . .   | 1881 | 111          | 348  | 263   | 172   | 106     |
| United Kingdom    | 1881 | 131          | 331  | 292   | 169   | 77      |
| France . . . . .  | 1881 | 92           | 261  | 295   | 226   | 126     |
| Prussia . . . . . | 1880 | 139          | 315  | 290   | 180   | 76      |
| Germany . . . .   | 1871 | 127          | 308  | 298   | 190   | 77      |
| Austria . . . . . | 1880 | 132          | 304  | 298   | 195   | 71      |
| Russia . . . . .  | 1875 | 138          | 318  | 318   | 180   | 46      |
| Finland . . . . . | 1870 | 144          | 299  | 296   | 186   | 75      |
| Italy . . . . .   | 1871 | 123          | 293  | 306   | 196   | 82      |
| Spain . . . . .   | 1866 | 142          | 278  | 343   | 179   | 58      |
| Portugal . . . .  | 1864 | 137          | 289  | 310   | 193   | 71      |
| Sweden . . . . .  | 1870 | 118          | 313  | 312   | 183   | 78      |
| Norway . . . . .  | 1870 | 135          | 299  | 310   | 166   | 90      |
| Denmark . . . .   | 1870 | 125          | 297  | 310   | 184   | 84      |
| Belgium . . . . . | 1880 | 124          | 304  | 282   | 195   | 95      |
| Holland . . . . . | 1870 | 113          | 314  | 309   | 187   | 77      |
| Switzerland . . . | 1880 | 117          | 296  | 289   | 209   | 89      |
| Greece . . . . .  | 1870 | 144          | 332  | 320   | 148   | 56      |
| Brazil . . . . .  | 1870 | 108          | 353  | 306   | 146   | 87      |
| United States . . | 1880 | 137          | 342  | 310   | 155   | 56      |
| Average . . . .   | ...  | 128          | 308  | 306   | 182   | 76      |

In the above table it will be observed that the lowest ratios of children are in France, Brazil, and Ireland. This is explained in the case of Ireland by the fact that the marriage rate is the lowest in the world. Moreover, the highest ratios for people over 60 years are in France and Ireland. The countries in which children form the largest ratios are Finland, Greece, and Spain, although the birth-rates in those countries are by no means the highest ; it is explained in the case of Greece and Spain by the short span of life, the proportion of persons passing their sixtieth year, as shown above, being very low.

Another distribution is as follows :—

| Age.               | France | Prussia | Austria Proper | Russia | Italy | Sweden | Belgium | Switzerland | United States | Average |
|--------------------|--------|---------|----------------|--------|-------|--------|---------|-------------|---------------|---------|
| Under 20 . . . . . | 183    | 254     | 240            | 253    | 226   | 234    | 236     | 222         | 262           | 234     |
| 20-30 . . . . .    | 170    | 200     | 196            | 203    | 190   | 197    | 192     | 191         | 217           | 195     |
| 30-40 . . . . .    | 158    | 162     | 159            | 188    | 167   | 152    | 155     | 153         | 183           | 164     |
| 40-50 . . . . .    | 137    | 128     | 139            | 130    | 139   | 130    | 127     | 136         | 127           | 133     |
| 50-60 . . . . .    | 123    | 101     | 109            | 99     | 111   | 119    | 108     | 116         | 93            | 109     |
| Over 60 . . . . .  | 103    | 79      | 86             | 81     | 85    | 90     | 87      | 93          | 62            | 85      |
| Over 60 . . . . .  | 126    | 76      | 71             | 46     | 82    | 78     | 95      | 89          | 56            | 80      |
| Total . . . . .    | 1,000  | 1,000   | 1,000          | 1,000  | 1,000 | 1,000  | 1,000   | 1,000       | 1,000         | 1,000   |

#### AVERAGE AGE OF ALL LIVING IN EACH COUNTRY

Years

|               |              |                  |               |
|---------------|--------------|------------------|---------------|
| England 26.0  | Prussia 27.1 | Sweden 28.3      | Portugal 27.6 |
| Scotland 26.0 | Austria 27.6 | Belgium 28.8     | Norway 28.0   |
| Ireland 27.5  | Russia 25.6  | Switzerland 29.2 | Denmark 28.0  |
| France 32.0   | Italy 28.5   | U. States 25.0   | Greece 25.2   |
| Holland 28.0  | Spain 26.9   | Brazil 27.0      | Average 27.5  |

#### MALES OF WORKING AGE

If we assume the working age to be from 20 to 60 years, and count only male workers, the number of population dependent on the earnings of every 100 male adults would be as follows :—

|                   |                   |                     |
|-------------------|-------------------|---------------------|
| France . . . 387  | Belgium . . . 418 | U. States . . . 440 |
| Spain . . . 388   | Sweden . . . 420  | U. Kingdom 448      |
| Austria . . . 413 | Italy . . . 424   | Scotland . . . 463  |
| Germany . . . 417 | England . . . 438 | Ireland . . . 476   |

The burden on the working population in Ireland is 10 per cent. heavier than in England, 23 per cent. heavier than in France.

#### VARIOUS CITIES

| Age     | London | Paris | St. Petersburg | Prague | Liverpool | Manchester | Birmingham |
|---------|--------|-------|----------------|--------|-----------|------------|------------|
| Under 5 | 130    | 71    | 69             | 83     | 134       | 135        | 139        |
| 5-20    | 297    | 216   | 233            | 265    | 268       | 312        | 327        |
| 20-40   | 334    | 398   | 301            | 365    | 337       | 330        | 310        |
| 40-60   | 177    | 242   | 283            | 202    | 174       | 171        | 168        |
| Over 60 | 62     | 73    | 114            | 85     | 87        | 52         | 56         |
| Total   | 1,000  | 1,000 | 1,000          | 1,000  | 1,000     | 1,000      | 1,000      |

#### UNITED KINGDOM

The ratios for the three kingdoms by Census reports were :—

| Age           | England |       | Scotland |       | Ireland |       |
|---------------|---------|-------|----------|-------|---------|-------|
|               | 1841    | 1881  | 1841     | 1881  | 1841    | 1881  |
| Under 5 . . . | 132     | 136   | 130      | 137   | 126     | 111   |
| 5-10 . . .    | 120     | 121   | 118      | 121   | 132     | 120   |
| 10-15 . . .   | 108     | 108   | 112      | 108   | 124     | 119   |
| 15-20 . . .   | 100     | 98    | 104      | 101   | 108     | 108   |
| 20-25 . . .   | 97      | 90    | 100      | 92    | 96      | 92    |
| 25-35 . . .   | 154     | 146   | 153      | 141   | 145     | 122   |
| 35-45 . . .   | 112     | 112   | 110      | 109   | 106     | 108   |
| 45-55 . . .   | 80      | 84    | 76       | 82    | 75      | 86    |
| 55-65 . . .   | 53      | 59    | 52       | 59    | 54      | 70    |
| Over 65 . . . | 44      | 46    | 45       | 50    | 34      | 64    |
| Total . . .   | 1,000   | 1,000 | 1,000    | 1,000 | 1,000   | 1,000 |

The composition of the population of England and Wales as regards sex and age in 1881 compares with 1841 thus :—

| Age     | Per 1000 Inhabitants |         |       |       |         |       |
|---------|----------------------|---------|-------|-------|---------|-------|
|         | 1841                 |         |       | 1881  |         |       |
|         | Males                | Females | Total | Males | Females | Total |
| Under 5 | 66                   | 66      | 132   | 68    | 68      | 136   |
| 5-15    | 115                  | 113     | 228   | 114   | 115     | 229   |
| 15-25   | 94                   | 103     | 197   | 92    | 96      | 188   |
| 25-35   | 74                   | 80      | 154   | 70    | 76      | 146   |
| 35-45   | 55                   | 57      | 112   | 54    | 58      | 112   |
| 45-55   | 39                   | 41      | 80    | 40    | 44      | 84    |
| Over 55 | 46                   | 51      | 97    | 49    | 56      | 105   |
| Total   | 489                  | 511     | 1,000 | 487   | 513     | 1,000 |

The composition of Scotland in the same year was as follows :—

| Age     | 1841  |         |       | 1881  |         |       |
|---------|-------|---------|-------|-------|---------|-------|
|         | Males | Females | Total | Males | Females | Total |
| Under 5 | 66    | 64      | 130   | 69    | 68      | 137   |
| 5-15    | 117   | 113     | 230   | 116   | 113     | 229   |
| 15-25   | 97    | 107     | 204   | 96    | 97      | 193   |
| 25-35   | 72    | 81      | 153   | 67    | 74      | 141   |
| 35-45   | 51    | 59      | 110   | 50    | 59      | 109   |
| 45-55   | 35    | 41      | 76    | 37    | 45      | 82    |
| Over 55 | 42    | 55      | 97    | 46    | 63      | 109   |
| Total   | 480   | 520     | 1,000 | 481   | 519     | 1,000 |

The population of Ireland was composed as follows :—

| Age     | Per 1000 Inhabitants |         |       |       |         |       |
|---------|----------------------|---------|-------|-------|---------|-------|
|         | 1841                 |         |       | 1881  |         |       |
|         | Males                | Females | Total | Males | Females | Total |
| Under 5 | 64                   | 62      | 126   | 56    | 55      | 111   |
| 5-15    | 130                  | 126     | 256   | 122   | 117     | 239   |
| 15-25   | 99                   | 105     | 204   | 98    | 102     | 200   |
| 25-35   | 69                   | 76      | 145   | 57    | 65      | 122   |
| 35-45   | 51                   | 55      | 106   | 51    | 57      | 108   |
| 45-55   | 36                   | 39      | 75    | 41    | 45      | 86    |
| Over 55 | 43                   | 45      | 88    | 65    | 69      | 134   |
| Total   | 492                  | 508     | 1,000 | 490   | 510     | 1,000 |

The composition of the United Kingdom was as follows :—

| Age     | 1841  |         |       | 1881  |         |       |
|---------|-------|---------|-------|-------|---------|-------|
|         | Males | Females | Total | Males | Females | Total |
| 0-15    | 186   | 182     | 368   | 182   | 181     | 363   |
| 15-45   | 221   | 238     | 459   | 214   | 229     | 443   |
| 45-55   | 38    | 40      | 78    | 40    | 44      | 84    |
| Over 55 | 46    | 49      | 95    | 51    | 59      | 110   |
| Total   | 491   | 509     | 1,000 | 487   | 513     | 1,000 |

## FRANCE

The effects of the Franco-Prussian War (1870-71) are visible in the diminished ratio of population of the age 15 to 60 in the Census returns of 1872.

The following table includes males and females :—

| Age            | 1851  | 1861  | 1866  | 1872  | 1876  | 1881  |
|----------------|-------|-------|-------|-------|-------|-------|
| Under 15 . . . | 282   | 275   | 272   | 279   | 272   | 266   |
| 15-60 . . .    | 618   | 619   | 617   | 606   | 610   | 608   |
| Over 60 . . .  | 100   | 106   | 111   | 115   | 118   | 126   |
| Total . . .    | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

The composition of the population of France as regards sex and age in 1881 compared with 1851 as follows :—

| Age     | Per 1000 Inhabitants |         |       |       |         |       |
|---------|----------------------|---------|-------|-------|---------|-------|
|         | 1851                 |         |       | 1881  |         |       |
|         | Males                | Females | Total | Males | Females | Total |
| Under 5 | 47                   | 46      | 93    | 46    | 46      | 92    |
| 5-15    | 92                   | 88      | 180   | 88    | 86      | 174   |
| 15-25   | 85                   | 86      | 171   | 88    | 90      | 178   |
| 25-35   | 78                   | 78      | 156   | 70    | 68      | 138   |
| 35-45   | 69                   | 68      | 137   | 67    | 65      | 132   |
| 45-55   | 59                   | 58      | 117   | 56    | 58      | 114   |
| Over 55 | 67                   | 79      | 146   | 84    | 88      | 172   |
| Total   | 497                  | 503     | 1,000 | 499   | 501     | 1,000 |

There is a marked decline in men and women of the best age, as shown thus :—

|                               | Ratio per 1000 Inhabitants |      |
|-------------------------------|----------------------------|------|
|                               | 1851                       | 1881 |
| Men between 15 and 55 . . .   | 291                        | 281  |
| Women between 15 and 45 . . . | 232                        | 223  |

## GERMANY (1885)

| Years   | Prussia | Bavaria | Saxony | All Germany |
|---------|---------|---------|--------|-------------|
| 0-5     | 134     | 124     | 135    | 131         |
| 5-10    | 119     | 115     | 117    | 118         |
| 10-15   | 106     | 105     | 105    | 106         |
| 15-20   | 95      | 92      | 96     | 94          |
| 20-30   | 163     | 148     | 171    | 161         |
| 30-40   | 127     | 125     | 133    | 126         |
| 40-50   | 103     | 111     | 100    | 106         |
| 50-60   | 75      | 86      | 73     | 77          |
| 60-70   | 53      | 62      | 49     | 55          |
| Over 70 | 25      | 32      | 21     | 26          |
|         | 1,000   | 1,000   | 1,000  | 1,000       |

In Prussia in 1867 the average age of the inhabitants was as follows :—

|                 | Years |         |
|-----------------|-------|---------|
|                 | Males | Females |
| Unmarried . . . | 14.9  | 14.7    |
| Married . . .   | 44.2  | 40.8    |
| Widowed . . .   | 61.5  | 58.2    |

The composition of the population of Prussia as to sex and age in 1880 compared with 1843 thus :—

| Age     | Per 1000 Inhabitants |         |       |       |         |       |
|---------|----------------------|---------|-------|-------|---------|-------|
|         | 1843                 |         |       | 1880  |         |       |
|         | Males                | Females | Total | Males | Females | Total |
| Under 5 | 76                   | 74      | 150   | 70    | 69      | 139   |
| 5-15    | 99                   | 97      | 196   | 110   | 109     | 219   |
| 15-45   | 242                  | 242     | 484   | 216   | 225     | 441   |
| 45-60   | 54                   | 58      | 112   | 60    | 65      | 125   |
| Over 60 | 28                   | 30      | 58    | 36    | 40      | 76    |
| Total   | 499                  | 501     | 1,000 | 492   | 508     | 1,000 |

## Males (1885)

| Age     | Prussia    | Bavaria   | Saxony    | Wurtemberg | Minor States | Total      |
|---------|------------|-----------|-----------|------------|--------------|------------|
| 0-5     | 1,880,000  | 330,000   | 210,000   | 125,000    | 475,000      | 3,020,000  |
| 5-10    | 1,700,000  | 310,000   | 185,000   | 120,000    | 455,000      | 2,770,000  |
| 10-15   | 1,520,000  | 280,000   | 165,000   | 110,000    | 420,000      | 2,495,000  |
| 15-20   | 1,350,000  | 250,000   | 150,000   | 90,000     | 365,000      | 2,205,000  |
| 20-30   | 2,260,000  | 390,000   | 260,000   | 130,000    | 645,000      | 3,685,000  |
| 30-40   | 1,760,000  | 330,000   | 210,000   | 115,000    | 485,000      | 2,900,000  |
| 40-50   | 1,410,000  | 290,000   | 150,000   | 110,000    | 430,000      | 2,390,000  |
| 50-60   | 1,005,000  | 220,000   | 110,000   | 75,000     | 300,000      | 1,710,000  |
| 60-70   | 700,000    | 160,000   | 70,000    | 55,000     | 205,000      | 1,190,000  |
| 70-80   | 270,000    | 70,000    | 25,000    | 25,000     | 90,000       | 480,000    |
| Over 80 | 40,000     | 10,000    | 5,000     | 5,000      | 30,000       | 90,000     |
| Total   | 13,895,000 | 2,640,000 | 1,540,000 | 960,000    | 3,900,000    | 22,935,000 |

## Females

| Age     | Prussia    | Bavaria   | Saxony    | Wurtemberg | Minor States | Total      |
|---------|------------|-----------|-----------|------------|--------------|------------|
| 0-5     | 1,850,000  | 335,000   | 210,000   | 125,000    | 490,000      | 3,010,000  |
| 5-10    | 1,690,000  | 315,000   | 190,000   | 125,000    | 450,000      | 2,770,000  |
| 10-15   | 1,505,000  | 290,000   | 170,000   | 115,000    | 415,000      | 2,495,000  |
| 15-20   | 1,355,000  | 255,000   | 155,000   | 95,000     | 375,000      | 2,235,000  |
| 20-30   | 2,370,000  | 410,000   | 280,000   | 145,000    | 630,000      | 3,835,000  |
| 30-40   | 1,840,000  | 350,000   | 215,000   | 125,000    | 515,000      | 3,045,000  |
| 40-50   | 1,510,000  | 310,000   | 165,000   | 120,000    | 450,000      | 2,555,000  |
| 50-60   | 1,120,000  | 240,000   | 125,000   | 85,000     | 340,000      | 1,910,000  |
| 60-70   | 805,000    | 180,000   | 85,000    | 60,000     | 245,000      | 1,375,000  |
| 70-80   | 320,000    | 80,000    | 35,000    | 30,000     | 105,000      | 570,000    |
| Over 80 | 55,000     | 15,000    | 10,000    | 5,000      | 35,000       | 120,000    |
| Total   | 14,420,000 | 2,780,000 | 1,640,000 | 1,030,000  | 4,050,000    | 23,920,000 |

## AGE

4

## AGE

## RUSSIA

The ratios of age, with distinction of sex, were in 1875 as follows :—

| Age     | Urban |         | Rural |         |
|---------|-------|---------|-------|---------|
|         | Males | Females | Males | Females |
| Under 5 | 108   | 114     | 146   | 138     |
| 5-10    | 89    | 96      | 120   | 115     |
| 10-20   | 228   | 206     | 208   | 194     |
| 20-40   | 358   | 337     | 305   | 322     |
| 40-60   | 166   | 182     | 176   | 186     |
| Over 60 | 51    | 65      | 45    | 45      |
| Total   | 1,000 | 1,000   | 1,000 | 1,000   |

## AUSTRIA

The population of Austria (without Hungary) was composed as to age and sex in the Census of 1880 thus :—

| Age     | Per 1000 Inhabitants |         |       |
|---------|----------------------|---------|-------|
|         | Males                | Females | Total |
| Under 5 | 65                   | 66      | 131   |
| 5-15    | 103                  | 104     | 207   |
| 15-30   | 125                  | 131     | 256   |
| 30-45   | 94                   | 101     | 195   |
| 45-60   | 63                   | 70      | 133   |
| Over 60 | 39                   | 39      | 78    |
| Total   | 489                  | 511     | 1,000 |

The following table shows the actual number of persons of either sex at the different ages.

| Age     | Males      | Females    | Total      |
|---------|------------|------------|------------|
| 0-5     | 1,450,000  | 1,465,000  | 2,915,000  |
| 5-10    | 1,210,000  | 1,210,000  | 2,420,000  |
| 10-15   | 1,090,000  | 1,105,000  | 2,195,000  |
| 15-20   | 1,020,000  | 1,065,000  | 2,085,000  |
| 20-30   | 1,750,000  | 1,835,000  | 3,585,000  |
| 30-40   | 1,440,000  | 1,530,000  | 2,970,000  |
| 40-50   | 1,180,000  | 1,270,000  | 2,450,000  |
| 50-60   | 865,000    | 975,000    | 1,840,000  |
| 60-70   | 570,000    | 610,000    | 1,180,000  |
| 70-80   | 210,000    | 220,000    | 430,000    |
| Over 80 | 35,000     | 45,000     | 80,000     |
| Total   | 10,820,000 | 11,325,000 | 22,145,000 |

The following table, likewise taken from the Census of 1880, shows the age of married, single, and widowed persons.

| Age     | Married   | Single     | Widowed   | Total      |
|---------|-----------|------------|-----------|------------|
| 0-20    | 50,000    | 9,560,000  | ...       | 9,610,000  |
| 20-25   | 405,000   | 1,535,000  | 5,000     | 1,945,000  |
| 25-30   | 905,000   | 720,000    | 15,000    | 1,640,000  |
| 30-40   | 2,260,000 | 625,000    | 85,000    | 2,970,000  |
| 40-50   | 1,935,000 | 330,000    | 185,000   | 2,450,000  |
| 50-60   | 1,305,000 | 220,000    | 315,000   | 1,840,000  |
| 60-70   | 670,000   | 140,000    | 370,000   | 1,180,000  |
| 70-80   | 165,000   | 50,000     | 215,000   | 430,000    |
| Over 80 | 20,000    | 10,000     | 50,000    | 80,000     |
| Total   | 7,715,000 | 13,190,000 | 1,240,000 | 22,145,000 |

## ITALY

In 1871 the population was composed as follows :—

| Age     | Per 1000 Inhabitants |         |       |
|---------|----------------------|---------|-------|
|         | Males                | Females | Total |
| Under 5 | 62                   | 61      | 123   |
| 5-15    | 101                  | 99      | 200   |
| 15-25   | 90                   | 90      | 180   |
| 25-35   | 76                   | 76      | 152   |
| 35-45   | 64                   | 61      | 125   |
| 45-55   | 50                   | 49      | 99    |
| Over 55 | 59                   | 62      | 121   |
| Total   | 502                  | 498     | 1,000 |

In 1879 the urban population was 8,824,000, in a total of 28,437,000, say, 31 per cent.

## SWITZERLAND

In 1880 the population as to age and sex was composed as follows :—

| Age     | Per 1000 Inhabitants |         |       |
|---------|----------------------|---------|-------|
|         | Males                | Females | Total |
| Under 5 | 58                   | 58      | 116   |
| 5-15    | 101                  | 101     | 202   |
| 15-30   | 122                  | 126     | 248   |
| 30-45   | 96                   | 102     | 198   |
| 45-60   | 71                   | 77      | 148   |
| Over 60 | 42                   | 46      | 88    |
| Total   | 490                  | 510     | 1,000 |

## BELGIUM

The composition of the population according to age and sex was as follows :—

| Year    | 1846  |         |       | 1880  |         |       |
|---------|-------|---------|-------|-------|---------|-------|
|         | Males | Females | Total | Males | Females | Total |
| Under 1 | 22    | 22      | 22    | 27    | 27      | 27    |
| 1-5     | 95    | 93      | 94    | 98    | 96      | 97    |
| 5-10    | 110   | 108     | 100   | 112   | 110     | 111   |
| 10-15   | 100   | 96      | 98    | 101   | 99      | 100   |
| 15-20   | 91    | 89      | 90    | 93    | 91      | 92    |
| 20-30   | 167   | 165     | 166   | 154   | 154     | 154   |
| 30-40   | 137   | 133     | 135   | 127   | 127     | 127   |
| 40-50   | 121   | 115     | 118   | 108   | 106     | 107   |
| 50-60   | 72    | 84      | 78    | 86    | 86      | 86    |
| 60-70   | 51    | 59      | 55    | 57    | 61      | 59    |
| Over 70 | 34    | 36      | 35    | 37    | 43      | 40    |
| Total   | 1,000 | 1,000   | 1,000 | 1,000 | 1,000   | 1,000 |

## SWEDEN

The ratios in this country were as follows :—

| Age      | 1750  | 1785  | 1810  | 1835  | 1860  | 1875  |
|----------|-------|-------|-------|-------|-------|-------|
| Under 15 | 336   | 313   | 318   | 352   | 335   | 323   |
| 15-60    | 564   | 600   | 597   | 569   | 583   | 597   |
| Over 60  | 100   | 87    | 85    | 79    | 82    | 80    |
| Total    | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

## AGE

5

## AGE

## NORWAY

| Age     | Urban | Rural | Rich  | Poor  | All Norway |
|---------|-------|-------|-------|-------|------------|
| Under 5 | 140   | 135   | 137   | 133   | 136        |
| 5-15    | 207   | 228   | 242   | 220   | 225        |
| 15-30   | 278   | 239   | 211   | 256   | 245        |
| 30-45   | 206   | 183   | 172   | 190   | 186        |
| 45-60   | 110   | 120   | 130   | 114   | 118        |
| Over 60 | 59    | 95    | 108   | 87    | 90         |
| Total   | 1,000 | 1,000 | 1,000 | 1,000 | 1,000      |

## GREECE

The population in 1879 was composed as follows :—

| Age     | Per 1000 Inhabitants |         |       |
|---------|----------------------|---------|-------|
|         | Males                | Females | Total |
| Under 5 | 78                   | 70      | 148   |
| 5-15    | 129                  | 111     | 240   |
| 15-20   | 46                   | 51      | 97    |
| 20-40   | 160                  | 149     | 309   |
| 40-60   | 82                   | 69      | 151   |
| Over 60 | 30                   | 25      | 55    |
| Total   | 525                  | 475     | 1,000 |

## UNITED STATES

The ratios in the United States since 1830 have been :—

| Age     | 1830  | 1840  | 1850  | 1860  | 1870  | 1880  |
|---------|-------|-------|-------|-------|-------|-------|
| Under 5 | 180   | 174   | 151   | 154   | 143   | 137   |
| 5-20    | 381   | 373   | 373   | 358   | 354   | 342   |
| 20-40   | 287   | 297   | 306   | 309   | 304   | 310   |
| 40-60   | 112   | 116   | 128   | 134   | 149   | 155   |
| Over 60 | 40    | 40    | 42    | 45    | 50    | 56    |
| Total   | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

The composition of the sections of the Union as to age and sex in 1880 was as follows :—

| Age     | New England |         |       | Middle States |         |       |
|---------|-------------|---------|-------|---------------|---------|-------|
|         | Males       | Females | Total | Males         | Females | Total |
| 0-15    | 156         | 154     | 310   | 181           | 179     | 360   |
| 15-60   | 288         | 309     | 597   | 281           | 292     | 573   |
| Over 60 | 44          | 49      | 93    | 33            | 34      | 67    |
| Total   | 488         | 512     | 1,000 | 495           | 505     | 1,000 |

| Age     | South |         |       | West  |         |       |
|---------|-------|---------|-------|-------|---------|-------|
|         | Males | Females | Total | Males | Females | Total |
| 0-15    | 233   | 225     | 458   | 201   | 195     | 396   |
| 15-60   | 245   | 252     | 497   | 299   | 255     | 554   |
| Over 60 | 23    | 22      | 45    | 27    | 23      | 50    |
| Total   | 501   | 499     | 1,000 | 527   | 473     | 1,000 |

The highest ratio for able-bodied men is in the West, and for women between 15 and 60 is in New England.

The great number of German, Irish, and Scandinavian settlers in the Western States explains the high ratio there of able-bodied men.

The composition of the population as regards sex and age was as follows :—

| Age     | 1800  |         |       | 1810  |         |       | 1820  |         |       |
|---------|-------|---------|-------|-------|---------|-------|-------|---------|-------|
|         | Males | Females | Total | Males | Females | Total | Males | Females | Total |
| 0-16    | 260   | 242     | 502   | 257   | 242     | 499   | 249   | 240     | 489   |
| 16-45   | 192   | 188     | 380   | 191   | 189     | 380   | 196   | 193     | 389   |
| Over 45 | 60    | 58      | 118   | 63    | 58      | 121   | 63    | 59      | 122   |
| Total   | 512   | 488     | 1,000 | 511   | 489     | 1,000 | 508   | 492     | 1,000 |

After 1820 the classification according to age was altered by the Census officials : since 1830 the ratios show as follows :—

| Age     | 1830  |         |       | 1840  |         |       | 1850  |         |       |
|---------|-------|---------|-------|-------|---------|-------|-------|---------|-------|
|         | Males | Females | Total | Males | Females | Total | Males | Females | Total |
| 0-5     | 92    | 88      | 180   | 90    | 84      | 174   | 76    | 74      | 150   |
| 5-15    | 138   | 132     | 270   | 134   | 129     | 263   | 135   | 131     | 266   |
| 15-50   | 236   | 231     | 467   | 245   | 234     | 479   | 254   | 240     | 494   |
| Over 50 | 42    | 41      | 83    | 42    | 42      | 84    | 46    | 44      | 90    |
| Total   | 508   | 492     | 1,000 | 511   | 489     | 1,000 | 511   | 489     | 1,000 |

| Age     | 1860  |         |       | 1870  |         |       | 1880  |         |       |
|---------|-------|---------|-------|-------|---------|-------|-------|---------|-------|
|         | Males | Females | Total | Males | Females | Total | Males | Females | Total |
| 0-5     | 78    | 76      | 154   | 73    | 70      | 143   | 68    | 66      | 134   |
| 5-15    | 125   | 120     | 245   | 124   | 120     | 244   | 120   | 117     | 237   |
| 15-50   | 261   | 244     | 505   | 252   | 250     | 502   | 259   | 248     | 507   |
| Over 50 | 50    | 46      | 96    | 58    | 53      | 111   | 63    | 59      | 122   |
| Total   | 514   | 486     | 1,000 | 507   | 493     | 1,000 | 510   | 490     | 1,000 |

Men in the prime of life (15-50) held the highest ratio in 1860 ; women of child-bearing age (15-50) in 1870. It appears that the preponderance of males is due to immigration, the total number of settlers arrived in 42 years down to 1860 showing thus :—

|         | No.       | Ratio |
|---------|-----------|-------|
| Males   | 2,951,000 | 594   |
| Females | 2,009,000 | 406   |
| Total   | 4,960,000 | 1,000 |

As regards the coloured population, the sexes are almost even, viz :—

| Year | Number    |           | Ratio |         |
|------|-----------|-----------|-------|---------|
|      | Males     | Females   | Males | Females |
| 1830 | 1,166,000 | 1,162,000 | 501   | 499     |
| 1850 | 1,811,000 | 1,828,000 | 498   | 502     |

The white population, owing to immigration, had a much higher ratio of persons of working age than the coloured, as shown in the tables for 1850, viz :—

| Age     | Per 1000 Whites |         |       | Per 1000 Coloured |         |       |
|---------|-----------------|---------|-------|-------------------|---------|-------|
|         | Males           | Females | Total | Males             | Females | Total |
| 0-15    | 208             | 201     | 409   | 223               | 223     | 446   |
| 15-50   | 258             | 242     | 500   | 234               | 235     | 469   |
| Over 50 | 47              | 44      | 91    | 41                | 44      | 85    |
| Total   | 513             | 487     | 1,000 | 498               | 502     | 1,000 |

AGRICULTURE

This is the most important industry of mankind, for (without counting India, China, &c.) it occupies 80,000,000 peasants, represents a capital of 23,000 millions sterling, and has annual products to the value of almost 4000 millions. Capital and product have more than doubled since 1840, but the number of hands engaged has not risen 50 per cent., viz. :—

| Year       | Millions, £ Sterling |         | Agricultural Peasants |
|------------|----------------------|---------|-----------------------|
|            | Capital              | Product |                       |
| 1840 . . . | 9,036                | 1,824   | 55,080,000            |
| 1860 . . . | 14,923               | 2,483   | 66,000,000            |
| 1887 . . . | 23,006               | 3,948   | 80,050,000            |

The following tables show approximately how agricultural capital was made up at the above dates :—

|                   | Year 1840. Value in Millions, £ Sterling |        |          |       |
|-------------------|------------------------------------------|--------|----------|-------|
|                   | Land                                     | Cattle | Sundries | Total |
| Europe . . .      | 6,471                                    | 875    | 820      | 8,166 |
| United States . . | 400                                      | 96     | 100      | 596   |
| Colonies, &c. . . | 224                                      | 23     | 27       | 274   |
| Total . . .       | 7,095                                    | 994    | 947      | 9,036 |

|                   | Year 1860. Value in Millions, £ Sterling |        |          |        |
|-------------------|------------------------------------------|--------|----------|--------|
|                   | Land                                     | Cattle | Sundries | Total  |
| Europe . . .      | 9,957                                    | 1,260  | 1,227    | 12,444 |
| United States . . | 1,382                                    | 226    | 237      | 1,845  |
| Colonies, &c. . . | 523                                      | 76     | 35       | 634    |
| Total . . .       | 11,862                                   | 1,562  | 1,499    | 14,923 |

|                   | Year 1887. Value in Millions, £ Sterling |        |          |        |
|-------------------|------------------------------------------|--------|----------|--------|
|                   | Land                                     | Cattle | Sundries | Total  |
| Europe . . .      | 13,776                                   | 1,940  | 1,737    | 17,453 |
| United States . . | 2,560                                    | 501    | 635      | 3,696  |
| Colonies, &c. . . | 1,440                                    | 260    | 157      | 1,857  |
| Total . . .       | 17,776                                   | 2,701  | 2,529    | 23,006 |

The agricultural capital of Europe has doubled since 1840; that of the United States has increased sixfold. The average increase has been 197 millions sterling per annum in Europe, and 67 millions in the United States.

The value of agricultural products at the above periods was approximately as follows :—

| Millions, £ Sterling |       |             |                   |       |
|----------------------|-------|-------------|-------------------|-------|
| Year                 | Grain | Other Crops | Pastoral Products | Total |
| 1840                 | 702   | 538         | 584               | 1,824 |
| 1860                 | 1,130 | 575         | 778               | 2,483 |
| 1887                 | 1,091 | 1,445       | 1,412             | 3,948 |

The value of grain crops has diminished since 1860, while that of pastoral products has nearly doubled, the price of grain having declined very notably, while that of meat, as also of dairy products, has risen. The relative importance of the three great branches of agricultural industry at the said dates is shown as follows, judged by money values :—

|                      | 1840  | 1860  | 1887  |
|----------------------|-------|-------|-------|
| Grain . . . . .      | 38.5  | 45.5  | 27.5  |
| Other crops . . . .  | 29.8  | 23.2  | 36.8  |
| Pastoral produce . . | 31.7  | 31.3  | 35.7  |
| Total . . . . .      | 100.0 | 100.0 | 100.0 |

TILLAGE

The area under crops has risen from 492 million acres in 1840 to 807 millions in 1888, an increase of 315 millions, viz. :—

|                     |                    |
|---------------------|--------------------|
| In Europe . . . .   | 131 million acres. |
| „ United States . . | 151 „ „            |
| „ Colonies, &c. . . | 33 „ „             |
| Total . . . . .     | 315 „ „            |

In 48 years the area of tillage and planting has risen 65 per cent., but the grain crops have risen 120 per cent., viz. :—

| Millions of Bushels |        |           |          |       |
|---------------------|--------|-----------|----------|-------|
| Year                | Europe | U. States | Colonies | Total |
| 1840                | 3,212  | 616       | 291      | 4,119 |
| 1860                | 4,046  | 1,240     | 464      | 5,750 |
| 1887                | 5,588  | 2,586     | 948      | 9,122 |

Improved implements and machinery have made tillage more productive and grain cheaper. In 1840 each peasant produced about 73 bushels of grain; in 1860 the average was 87, and in 1887 it had risen to 114; that is, two men now produce more grain than three did in 1840. The following table shows the distribution of grain-growing in 1887 :—

|                   | Millions of Acres |      |        |         |       | Crops, Millions of Bushels |       |        |         |       |
|-------------------|-------------------|------|--------|---------|-------|----------------------------|-------|--------|---------|-------|
|                   | Wheat             | Oats | Barley | Various | Total | Wheat                      | Oats  | Barley | Various | Total |
| Europe . . . . .  | 90                | 72   | 38     | 148     | 348   | 1,336                      | 1,628 | 694    | 1,930   | 5,588 |
| United States . . | 38                | 26   | 3      | 75      | 142   | 442                        | 640   | 58     | 1,446   | 2,586 |
| Colonies, &c. . . | 46                | 3    | 7      | 13      | 69    | 465                        | 97    | 82     | 304     | 948   |
| Total . . . . .   | 174               | 101  | 48     | 236     | 559   | 2,243                      | 2,365 | 834    | 3,680   | 9,122 |

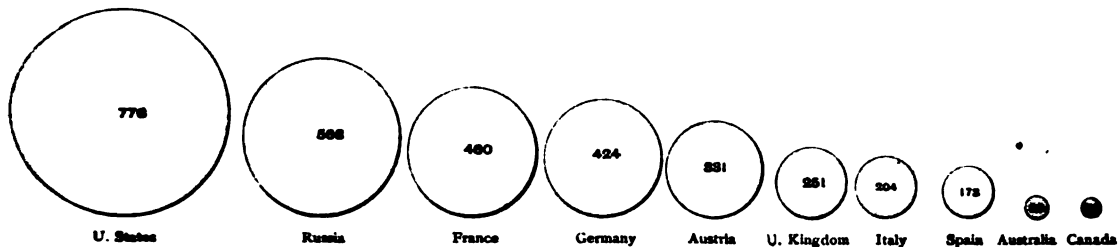
In the United States 9,000,000 hands raise nearly half as much grain as 66 millions in Europe. Thus it appears that for want of implements or proper machinery there is

a waste of labour in Europe equal to 48 millions of peasants. In other words, one farm labourer in the United States is worth more than three in Europe.

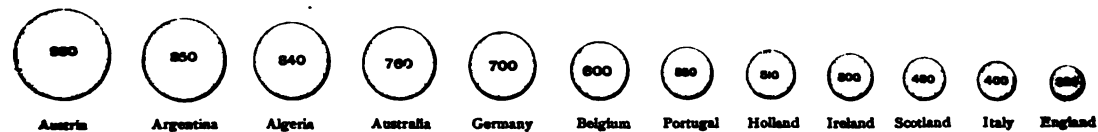
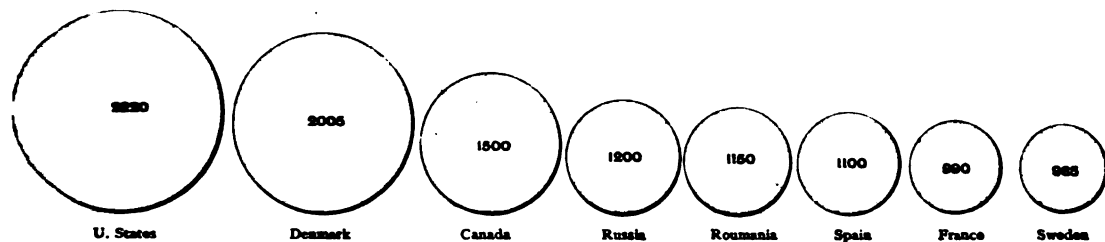


# AGRICULTURE.

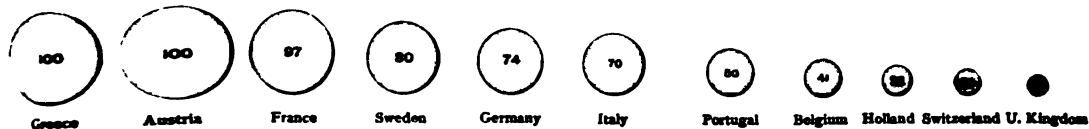
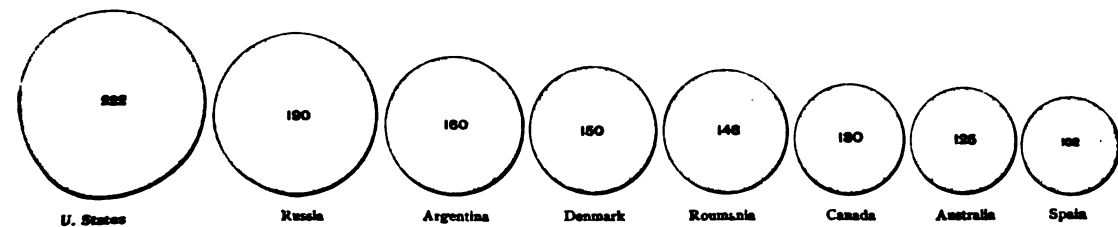
*Value of all agricultural products, in millions £ sterling.*



*Pounds of grain produced per inhabitant.*



*Acres under grain per 100 inhabitants*





PASTORAL INDUSTRY.

The production of meat at the same periods was approximately as follows :—

| Year | Tons      |               |               |            |
|------|-----------|---------------|---------------|------------|
|      | Europe    | United States | Colonies, &c. | Total      |
| 1840 | 6,800,000 | 2,120,000     | 200,000       | 9,120,000  |
| 1860 | 7,630,000 | 2,970,000     | 400,000       | 11,000,000 |
| 1887 | 8,633,000 | 4,750,000     | 920,000       | 14,303,000 |

The production of meat has risen 57 per cent. since 1840, while that of grain, as we have already seen, has increased 120 per cent. In aliquot parts production of meat showed thus :—

|                       | 1840  | 1860  | 1887  |
|-----------------------|-------|-------|-------|
| Europe . . . . .      | 74.5  | 69.3  | 60.4  |
| United States . . . . | 23.3  | 27.0  | 33.2  |
| Colonies, &c. . . . . | 2.2   | 3.7   | 6.4   |
| Total . . . . .       | 100.0 | 100.0 | 100.0 |

See *Cattle and Food*.

AGRICULTURAL AREA

The area under crops in the various countries was approximately as follows :—

|                       | Millions of Acres |      |      |      |      |
|-----------------------|-------------------|------|------|------|------|
|                       | 1820              | 1840 | 1860 | 1880 | 1888 |
| U. Kingdom . . . .    | 19                | 22   | 22   | 23   | 21   |
| France . . . . .      | 48                | 55   | 57   | 60   | 61   |
| Germany . . . . .     | 37                | 45   | 50   | 58   | 59   |
| Russia . . . . .      | 120               | 135  | 145  | 183  | 190  |
| Austria . . . . .     | 50                | 53   | 58   | 60   | 65   |
| Italy . . . . .       | 20                | 22   | 26   | 35   | 35   |
| Spain . . . . .       | 25                | 30   | 30   | 32   | 32   |
| Portugal . . . . .    | 3                 | 4    | 5    | 5    | 5    |
| Sweden . . . . .      | 2                 | 5    | 8    | 12   | 12   |
| Norway . . . . .      | 1                 | 3    | 4    | 4    | 4    |
| Denmark . . . . .     | 2                 | 5    | 6    | 8    | 8    |
| Holland . . . . .     | 4                 | 4    | 5    | 5    | 5    |
| Belgium . . . . .     | 3                 | 4    | 5    | 5    | 5    |
| Other countries . . . | 30                | 40   | 50   | 50   | 50   |
| Europe . . . . .      | 364               | 427  | 471  | 546  | 558  |
| U. States . . . . .   | 30                | 50   | 90   | 166  | 201  |
| Canada . . . . .      | 2                 | 4    | 8    | 10   | 13   |
| Australia . . . . .   | 1                 | 2    | 3    | 10   | 14   |
| Argentina . . . . .   | ...               | ...  | 1    | 3    | 6    |
| Brazil . . . . .      | ...               | 1    | 1    | 2    | 2    |
| Algeria . . . . .     | 4                 | 5    | 6    | 7    | 8    |
| Egypt . . . . .       | 2                 | 4    | 4    | 5    | 5    |
| Total . . . . .       | 402               | 492  | 583  | 749  | 807  |

The area has doubled since 1820, the increase during the various periods having been as follows :—

| Period  | Millions of Acres | Acres per Annum |
|---------|-------------------|-----------------|
| 1820-40 | 90                | 4,500,000       |
| 1841-60 | 91                | 4,550,000       |
| 1861-80 | 166               | 8,300,000       |
| 1881-88 | 58                | 7,200,000       |

It is especially since 1860 that improvements in agricultural machinery have been attended with a notable extension of cultivated area.

AGRICULTURAL POPULATION

Hands engaged in tillage and pastoral industries were approximately as follows :—

|                       | 1840       | 1860       | 1887       |
|-----------------------|------------|------------|------------|
| Europe . . . . .      | 50,430,000 | 58,160,000 | 66,320,000 |
| United States . . . . | 2,550,000  | 4,340,000  | 9,000,000  |
| Colonies, &c. . . . . | 2,100,000  | 3,500,000  | 4,730,000  |
| Total . . . . .       | 55,080,000 | 66,000,000 | 80,050,000 |

The ratios of capital and products that corresponded to the agricultural population, that is, to each adult peasant, were :—

|                       | Capital |       | Product |      |
|-----------------------|---------|-------|---------|------|
|                       | 1840    | 1887  | 1840    | 1887 |
| Europe . . . . .      | £ 162   | £ 263 | £ 31    | £ 43 |
| United States . . . . | 235     | 410   | 72      | 85   |
| Colonies, &c. . . . . | 134     | 390   | 46      | 61   |
| General average . . . | 164     | 287   | 33      | 50   |

Each hand in the United States produces double the annual value that prevails in Europe.

CROPS

The production of grain (excluding rice) was approximately as follows :—

|                       | Millions of Bushels |         |         |       | Bushels per Inhabitant |         |      |
|-----------------------|---------------------|---------|---------|-------|------------------------|---------|------|
|                       | 1831-40             | 1851-60 | 1874-84 | 1887  | 1831-40                | 1851-60 | 1887 |
| U. Kingdom . . . .    | 408                 | 390     | 334     | 311   | 16                     | 15      | 8    |
| France . . . . .      | 510                 | 550     | 687     | 729   | 15                     | 15      | 19   |
| Germany . . . . .     | 290                 | 450     | 685     | 706   | 10                     | 13      | 15   |
| Russia . . . . .      | 1,040               | 1,270   | 1,461   | 1,854 | 20                     | 20      | 20   |
| Austria . . . . .     | 364                 | 500     | 578     | 687   | 13                     | 16      | 17   |
| Italy . . . . .       | 110                 | 200     | 277     | 225   | 6                      | 10      | 7    |
| Spain . . . . .       | 180                 | 215     | 326     | 300   | 15                     | 14      | 18   |
| Portugal . . . . .    | 25                  | 30      | 19      | 40    | 8                      | 8       | 9    |
| Sweden . . . . .      | 14                  | 35      | 93      | 104   | 5                      | 10      | 23   |
| Finland . . . . .     | 10                  | 15      | 22      | 20    | 10                     | 10      | 10   |
| Norway . . . . .      | 6                   | 15      | 17      | 17    | 6                      | 10      | 9    |
| Denmark . . . . .     | 40                  | 65      | 78      | 84    | 36                     | 43      | 42   |
| Holland . . . . .     | 16                  | 20      | 37      | 40    | 6                      | 6       | 9    |
| Belgium . . . . .     | 33                  | 70      | 66      | 75    | 9                      | 15      | 14   |
| Switzerland . . . .   | 12                  | 15      | 17      | 18    | 6                      | 6       | 6    |
| Greece . . . . .      | 6                   | 9       | 11      | 18    | 6                      | 7       | 10   |
| Servia . . . . .      | 8                   | 11      | 14      | 20    | 10                     | 10      | 10   |
| Roumania . . . . .    | 70                  | 90      | 109     | 120   | 22                     | 23      | 24   |
| Turkey, &c. . . . .   | 170                 | 196     | 209     | 220   | 12                     | 14      | 15   |
| Europe . . . . .      | 3,312               | 4,146   | 5,040   | 5,588 | 14                     | 15      | 16   |
| United States . . . . | 540                 | 1,053   | 2,325   | 2,586 | 36                     | 38      | 42   |
| Canada . . . . .      | 22                  | 45      | 128     | 148   | 14                     | 15      | 30   |
| Chili . . . . .       | 5                   | 12      | 18      | 18    | 5                      | 8       | 8    |
| Argentina . . . . .   | 2                   | 5       | 25      | 50    | 2                      | 3       | 13   |
| Australia . . . . .   | 1                   | 10      | 36      | 51    | 3                      | 10      | 15   |
| Other countries . . . | 260                 | 390     | 587     | 681   | ...                    | ...     | ...  |
| Total . . . . .       | 4,042               | 5,661   | 8,159   | 9,122 | ...                    | ...     | ...  |

The production of grain per inhabitant in Europe is higher now than fifty years ago.

The production of wheat was approximately as follows:—

|                             | Millions of Bushels |         |         |         |       |
|-----------------------------|---------------------|---------|---------|---------|-------|
|                             | 1831-40             | 1851-60 | 1871-80 | 1881-87 | 1888  |
| United Kingdom . . . . .    | 120                 | 121     | 85      | 78      | 76    |
| France . . . . .            | 190                 | 223     | 275     | 290     | 275   |
| Germany . . . . .           | 50                  | 70      | 94      | 98      | 103   |
| Russia . . . . .            | 110                 | 130     | 224     | 250     | 258   |
| Austria . . . . .           | 65                  | 85      | 109     | 151     | 138   |
| Italy . . . . .             | 60                  | 75      | 115     | 105     | 141   |
| Spain . . . . .             | 58                  | 70      | 114     | 133     | 170   |
| Portugal . . . . .          | 4                   | 5       | 8       | 10      | 10    |
| Sweden and Norway . . . . . | 1                   | 2       | 4       | 4       | 6     |
| Denmark . . . . .           | 3                   | 4       | 5       | 6       | 5     |
| Holland . . . . .           | 3                   | 4       | 5       | 6       | 6     |
| Belgium . . . . .           | 8                   | 13      | 16      | 17      | 16    |
| Switzerland . . . . .       | 1                   | 1       | 2       | 2       | 2     |
| Greece . . . . .            | 2                   | 2       | 3       | 4       | 6     |
| Servia . . . . .            | 2                   | 2       | 3       | 4       | 4     |
| Roumania . . . . .          | 15                  | 20      | 24      | 26      | 30    |
| Turkey, &c . . . . .        | 20                  | 30      | 40      | 47      | 50    |
| Europe . . . . .            | 712                 | 857     | 1,126   | 1,231   | 1,296 |
| United States . . . . .     | 78                  | 137     | 338     | 440     | 415   |
| Canada . . . . .            | 6                   | 9       | 24      | 36      | 37    |
| Australia . . . . .         | 2                   | 8       | 24      | 38      | 45    |
| India, &c . . . . .         | 108                 | 187     | 282     | 375     | 478   |
| Total . . . . .             | 906                 | 1,198   | 1,794   | 2,120   | 2,271 |

Mr. Spallart's estimate of the crops of the world down to 1884 compares with the official returns and latest estimates for 1887 as follows:—

|         | Millions of Bushels Yearly |       |        |       |       |        |
|---------|----------------------------|-------|--------|-------|-------|--------|
|         | Wheat                      | Rye   | Barley | Oats  | Maize | Sundry |
| 1871-80 | 1,944                      | 1,256 | 774    | 1,870 | 1,528 | 312    |
| 1875-84 | 1,962                      | 1,165 | 788    | 1,936 | 1,829 | 293    |
| 1883-84 | 2,115                      | 1,196 | 803    | 2,189 | 2,035 | 324    |
| 1887    | 2,243                      | 1,418 | 834    | 2,365 | 1,979 | 283    |
|         |                            |       |        |       |       | 9,122  |

Newmann Spallart's statement of the ordinary production of grain (1874-84) is as follows:—

|                          | Millions of Bushels |       |        |       |       |          |       |
|--------------------------|---------------------|-------|--------|-------|-------|----------|-------|
|                          | Wheat               | Rye   | Barley | Oats  | Maize | Sundries | Total |
| U. Kingdom               | 88                  | 2     | 82     | 162   | ...   | ...      | 334   |
| France                   | 277                 | 70    | 50     | 220   | 26    | 44       | 687   |
| Germany . . . . .        | 102                 | 220   | 95     | 260   | ...   | 8        | 686   |
| Russia . . . . .         | 176                 | 556   | 113    | 446   | 17    | 130      | 1,438 |
| Poland . . . . .         | 15                  | 47    | 25     | 36    | ...   | ...      | 123   |
| Austria . . . . .        | 120                 | 110   | 84     | 138   | 104   | 22       | 578   |
| Italy . . . . .          | 140                 | 9     | 9      | 18    | 85    | 16       | 277   |
| Spain . . . . .          | 168                 | 32    | 77     | 13    | 36    | ...      | 326   |
| Portugal . . . . .       | 9                   | 7     | 2      | 1     | ...   | ...      | 19    |
| Sweden . . . . .         | 3                   | 19    | 15     | 50    | ...   | 6        | 93    |
| Norway . . . . .         | ...                 | 1     | 5      | 9     | ...   | 2        | 17    |
| Denmark . . . . .        | 5                   | 16    | 26     | 30    | ...   | 1        | 78    |
| Holland . . . . .        | 6                   | 9     | 5      | 11    | ...   | 6        | 37    |
| Belgium . . . . .        | 20                  | 16    | 4      | 24    | ...   | 2        | 66    |
| Finland . . . . .        | ...                 | 10    | 5      | 7     | ...   | ...      | 22    |
| Switzerland . . . . .    | 2                   | 8     | 2      | 5     | ...   | ...      | 17    |
| Greece . . . . .         | 4                   | ...   | 2      | ...   | 3     | 2        | 11    |
| Servia . . . . .         | 4                   | 1     | 3      | 1     | 5     | ...      | 14    |
| Roumania . . . . .       | 26                  | 3     | 14     | 3     | 61    | 2        | 109   |
| Bosnia . . . . .         | 2                   | ...   | 2      | 1     | 3     | ...      | 8     |
| Bulgaria . . . . .       | 23                  | 1     | 11     | 2     | 7     | ...      | 44    |
| Eur. Turkey . . . . .    | 22                  | 13    | 12     | 2     | 8     | ...      | 57    |
| Europe . . . . .         | 1,212               | 1,150 | 643    | 1,439 | 355   | 241      | 5,040 |
| United States            | 400                 | 23    | 42     | 420   | 1,430 | 10       | 2,325 |
| Canada . . . . .         | 30                  | 2     | 17     | 66    | 9     | 4        | 128   |
| Chile . . . . .          | 13                  | ...   | 4      | ...   | 1     | ...      | 18    |
| Argentina . . . . .      | 10                  | ...   | 1      | ...   | 14    | ...      | 25    |
| Australia . . . . .      | 20                  | ...   | 2      | 9     | 5     | ...      | 36    |
| Japan . . . . .          | 11                  | ...   | 50     | ...   | ...   | 33       | 94    |
| India . . . . .          | 250                 | ...   | ...    | ...   | ...   | ...      | 250   |
| Egypt . . . . .          | 18                  | ...   | 7      | ...   | 12    | ...      | 37    |
| Algeria . . . . .        | 10                  | ...   | 34     | 2     | ...   | 2        | 48    |
| Asia Minor, &c . . . . . | 86                  | ...   | ...    | ...   | 60    | ...      | 146   |
| Cape Colony . . . . .    | 8                   | ...   | ...    | ...   | 4     | ...      | 12    |
| *Total . . . . .         | 2,068               | 1,175 | 800    | 1,936 | 1,890 | 290      | 8,159 |

\* The figures for the Argentine Republic, Asia Minor, and Cape Colony are not Mr. Spallart's.

The acreage of grain-crops (not including rice) in 1887-88 was as follows:—

|                                | Acres       |             |            |             |             | Acres per 100 Inhabitants |
|--------------------------------|-------------|-------------|------------|-------------|-------------|---------------------------|
|                                | Wheat       | Oats        | Barley     | Other Grain | Total       |                           |
| United Kingdom . . . . .       | 2,670,000   | 4,180,000   | 2,260,000  | 680,000     | 9,790,000   | 28                        |
| France . . . . .               | 17,180,000  | 9,230,000   | 2,340,000  | 7,850,000   | 36,600,000  | 97                        |
| Germany . . . . .              | 4,740,000   | 9,410,000   | 4,280,000  | 15,870,000  | 34,300,000  | 74                        |
| Russia . . . . .               | 28,950,000  | 34,890,000  | 12,450,000 | 83,510,000  | 159,800,000 | 190                       |
| Poland . . . . .               | 1,500,000   | 3,000,000   | 1,000,000  | 5,600,000   | 11,100,000  | 140                       |
| Finland . . . . .              | 10,000      | 300,000     | 300,000    | 710,000     | 1,320,000   | 66                        |
| Austria . . . . .              | 9,760,000   | 7,190,000   | 5,240,000  | 15,360,000  | 37,550,000  | 100                       |
| Italy . . . . .                | 11,700,000  | 1,100,000   | 860,000    | 6,690,000   | 20,350,000  | 70                        |
| Spain . . . . .                | 8,000,000   | 1,000,000   | 4,000,000  | 5,000,000   | 18,000,000  | 102                       |
| Portugal . . . . .             | 600,000     | 100,000     | 200,000    | 1,300,000   | 2,200,000   | 50                        |
| Sweden . . . . .               | 200,000     | 2,000,000   | 600,000    | 1,060,000   | 3,860,000   | 80                        |
| Norway . . . . .               | 10,000      | 220,000     | 140,000    | 100,000     | 470,000     | 25                        |
| Denmark . . . . .              | 140,000     | 990,000     | 780,000    | 1,010,000   | 2,920,000   | 150                       |
| Holland . . . . .              | 210,000     | 280,000     | 120,000    | 850,000     | 1,460,000   | 33                        |
| Belgium . . . . .              | 680,000     | 620,000     | 100,000    | 990,000     | 2,390,000   | 41                        |
| Switzerland . . . . .          | 150,000     | 200,000     | 130,000    | 420,000     | 900,000     | 30                        |
| Greece . . . . .               | 900,000     | ...         | 400,000    | 700,000     | 2,000,000   | 106                       |
| Roumania, Turkey, &c . . . . . | 6,900,000   | ...         | 3,600,000  | 10,760,000  | 21,260,000  | 140                       |
| Europe . . . . .               | 94,300,000  | 74,710,000  | 38,800,000 | 158,460,000 | 366,270,000 | 110                       |
| United States . . . . .        | 37,640,000  | 25,920,000  | 2,650,000  | 75,430,000  | 141,640,000 | 222                       |
| Colonies, &c . . . . .         | 45,240,000  | 3,460,000   | 5,650,000  | 7,840,000   | 62,190,000  | ...                       |
| Total . . . . .                | 177,180,000 | 104,090,000 | 47,100,000 | 241,730,000 | 570,100,000 | ...                       |

The crops in 1887-88 were approximately as follows (not counting rice):—

|               | Millions of Bushels |       |        |       |          |       | Bushels  |            |
|---------------|---------------------|-------|--------|-------|----------|-------|----------|------------|
|               | Wheat               | Oats  | Barley | Maize | Rye, &c. | Total | Per Acre | Per Inhab. |
| U. Kingdom    | 76                  | 151   | 70     | ...   | 14       | 311   | 32       | 8          |
| France        | 295                 | 246   | 49     | 26    | 113      | 729   | 20       | 19         |
| Germany       | 104                 | 243   | 97     | ...   | 262      | 706   | 21       | 15         |
| Russia        | 269                 | 600   | 162    | 13    | 810      | 1,854 | 11       | 22         |
| Poland        | 15                  | 36    | 20     | ...   | 52       | 123   | 11       | 15         |
| Finland       | ...                 | 7     | 5      | ...   | 11       | 23    | 17       | 12         |
| Austria       | 185                 | 169   | 106    | 90    | 137      | 687   | 18       | 18         |
| Italy         | 110                 | 14    | 9      | 75    | 17       | 225   | 11       | 8          |
| Spain         | 136                 | 20    | 74     | 40    | 30       | 300   | 16       | 18         |
| Portugal      | 10                  | 1     | 2      | 15    | 12       | 40    | 15       | 9          |
| Sweden        | 4                   | 55    | 15     | ...   | 30       | 104   | 27       | 22         |
| Norway        | ...                 | 9     | 4      | ...   | 4        | 17    | 35       | 9          |
| Denmark       | 6                   | 30    | 22     | ...   | 26       | 84    | 28       | 42         |
| Holland       | 6                   | 13    | 5      | ...   | 16       | 40    | 14       | 9          |
| Belgium       | 17                  | 28    | 4      | ...   | 26       | 75    | 31       | 13         |
| Switzerland   | 2                   | 5     | 2      | ...   | 8        | 17    | 20       | 6          |
| Greece        | 8                   | ...   | 3      | 4     | 1        | 16    | 8        | 8          |
| Roumania      | 25                  | ...   | 14     | 64    | 9        | 112   | 15       | 22         |
| Servia        | 4                   | 1     | 3      | 5     | 3        | 16    | 14       | 8          |
| Bulgaria      | 32                  | ...   | 16     | 11    | 4        | 63    | 11       | 20         |
| Turkey        | 32                  | ...   | 12     | 20    | 16       | 80    | 11       | 20         |
| Europe        | 1,336               | 1,628 | 694    | 363   | 1,601    | 5,622 | 15       | 17         |
| United States | 442                 | 640   | 58     | 1,412 | 34       | 2,586 | 18       | 40         |
| Canada        | 36                  | 80    | 22     | 10    | ...      | 148   | 22       | 30         |
| Australia     | 25                  | 15    | 3      | 8     | ...      | 51    | 11       | 15         |
| India         | 250                 | ...   | ...    | ...   | ...      | 250   | 9        | 1          |
| Egypt         | 18                  | ...   | 7      | 12    | 36       | 73    | 16       | 12         |
| Algeria       | 23                  | 2     | 40     | 1     | ...      | 66    | 10       | 16         |
| Japan         | 65                  | ...   | ...    | 13    | 22       | 100   | 17       | 3          |
| Mexico        | 10                  | ...   | 6      | 130   | 8        | 154   | ...      | 15         |
| Argentina     | 22                  | ...   | 2      | 26    | ...      | 50    | 11       | 16         |
| Chili         | 16                  | ...   | 2      | 4     | ...      | 22    | 10       | 8          |
| Total         | 2,243               | 2,365 | 834    | 1,979 | 1,701    | 9,122 | ...      | ...        |

The cultivation of wheat and barley requires as follows:—

| At               | Days of Cultivation |        | Mean Temperature, Fahr. |        |
|------------------|---------------------|--------|-------------------------|--------|
|                  | Wheat               | Barley | Wheat                   | Barley |
| Alsace           | 131                 | 122    | 60                      | 57     |
| Kingston, Canada | 106                 | 92     | 68                      | 66     |
| Cincinnati       | 137                 | ...    | 60                      | ...    |

According to Broch (1885), the average product per acre of different kinds of grain, taken from five years' results in the various countries, was as follows:—

|            | Bushels |     |        |      |       |          |
|------------|---------|-----|--------|------|-------|----------|
|            | Wheat   | Rye | Barley | Oats | Maize | Potatoes |
| U. Kingdom | 35      | 33  | 38     | 33   | ...   | ...      |
| France     | 16      | 16  | 20     | 25   | 16    | 102      |
| Germany    | 19      | 16  | 24     | 27   | ...   | 121      |
| Russia     | 9       | 11  | 9      | 18   | ...   | 111      |
| Austria    | 16      | 14  | 17     | 20   | ...   | 130      |
| Hungary    | 12      | ... | 16     | 18   | 17    | 107      |
| Italy      | 12      | ... | 15     | 20   | 21    | 164      |
| Sweden     | 20      | 20  | 34     | 34   | ...   | 121      |
| Norway     | 25      | 27  | 31     | 39   | ...   | 127      |
| Denmark    | 25      | 25  | 27     | 30   | ...   | 95       |
| Holland    | 23      | 18  | 37     | 42   | ...   | 177      |
| Belgium    | 24      | 22  | 35     | 40   | ...   | 164      |
| U. States  | 12      | 13  | 22     | 26   | 24    | 76       |
| Australia  | 10      | ... | 21     | 28   | 33    | 141      |

He estimates the crops in Europe as follows:—

|        | Millions of Bushels |             |                 |
|--------|---------------------|-------------|-----------------|
|        | Crop                | Deduct Seed | For Consumption |
| Wheat  | 1,236               | 176         | 1,060           |
| Rye    | 1,230               | 175         | 1,055           |
| Barley | 630                 | 90          | 540             |
| Oats   | 1,528               | 218         | 1,310           |
| Maize  | 210                 | 30          | 180             |
| Total  | 4,834               | 689         | 4,145           |

He says that 2227 million bushels are used for human food, and 1918 for cattle, alcohol, &c.; the average consumption of grain per head of population in Europe being 410 lbs., or almost 7 bushels, yearly. His estimates, however, appear altogether too low, being 100 million bushels short in wheat, and the same in oats, while his crop of maize is but little over half the reality. It is to be observed in his favour that the crops are now heavier than when he wrote, in 1885.

The production and consumption of grain in the various countries are approximately as follows:—

|                 | Production, Million Bushels | Consumption, Millions of Bushels |        |        |             |       |
|-----------------|-----------------------------|----------------------------------|--------|--------|-------------|-------|
|                 |                             | Food                             | Sowing | Liquor | Cattle, &c. | Total |
| U. Kingdom      | 311                         | 240                              | 31     | 45     | 286         | 602   |
| France          | 729                         | 330                              | 100    | 15     | 338         | 783   |
| Germany         | 706                         | 430                              | 100    | 50     | 200         | 780   |
| Russia          | 1,854                       | 920                              | 280    | 52     | 388         | 1,640 |
| Austria         | 687                         | 320                              | 100    | 20     | 230         | 670   |
| Italy           | 225                         | 200                              | 30     | 4      | 26          | 260   |
| Spain           | 300                         | 140                              | 40     | 2      | 123         | 305   |
| Portugal        | 40                          | 32                               | 6      | 1      | 6           | 45    |
| Sweden          | 104                         | 44                               | 21     | 6      | 39          | 110   |
| Norway          | 17                          | 16                               | 4      | 3      | 7           | 30    |
| Denmark         | 84                          | 20                               | 10     | 3      | 41          | 74    |
| Holland         | 40                          | 40                               | 3      | 6      | 14          | 63    |
| Belgium         | 75                          | 60                               | 9      | 10     | 28          | 107   |
| Switzerland     | 20                          | 24                               | 3      | 2      | 6           | 35    |
| Greece          | 20                          | 20                               | 3      | 1      | 3           | 27    |
| Servia          | 15                          | 10                               | 2      | 1      | 2           | 15    |
| Roumania        | 120                         | 30                               | 18     | 2      | 10          | 60    |
| Turkey, &c.     | 275                         | 86                               | 30     | 2      | 127         | 245   |
| Europe          | 5,622                       | 2,962                            | 790    | 225    | 1,874       | 5,851 |
| United States   | 2,586                       | 360                              | 400    | 50     | 1,590       | 2,400 |
| Canada          | 148                         | 32                               | 25     | 5      | 56          | 118   |
| Australia       | 51                          | 24                               | 10     | 3      | 3           | 40    |
| Argentina       | 50                          | 15                               | 10     | ...    | ...         | 25    |
| India           | 250                         | 183                              | 40     | ...    | ...         | 223   |
| Other countries | 415                         | 271                              | 40     | ...    | 154         | 465   |
| Total           | 9,122                       | 3,847                            | 1,315  | 283    | 3,677       | 9,122 |

The average yield of crops per 100 lbs. of seed is approximately as follows:—

|         | Wheat | Oats  | Barley | Rye   |
|---------|-------|-------|--------|-------|
| France  | 800   | 750   | 800    | 700   |
| Germany | 780   | 700   | 900    | 600   |
| Russia  | 600   | 750   | 700    | 600   |
| Denmark | 900   | 800   | 800    | 800   |
| Sweden  | 600   | 400   | 400    | 500   |
| Holland | 1,400 | 1,400 | 1,400  | 1,400 |
| Belgium | 1,200 | 880   | 1,310  | 1,210 |

The following is a summary of the crops and value since 1874 :—

|                  | Million of Bushels,<br>per Annum |       |       | Value, Millions<br>£ |       |
|------------------|----------------------------------|-------|-------|----------------------|-------|
|                  | 1874-84                          | 1884  | 1887  | 1874-84              | 1887  |
| Wheat . . . . .  | 2,068                            | 2,348 | 2,243 | 543                  | 412   |
| Rye . . . . .    | 1,175                            | 1,226 | 1,418 | 235                  | 227   |
| Barley . . . . . | 800                              | 795   | 834   | 153                  | 108   |
| Oats . . . . .   | 1,936                            | 2,152 | 2,365 | 202                  | 185   |
| Maize . . . . .  | 1,890                            | 2,148 | 1,979 | 204                  | 186   |
| Sundry . . . . . | 290                              | 289   | 283   | 30                   | 25    |
| Total . . . . .  | 8,159                            | 8,958 | 9,122 | 1,367                | 1,143 |

The values of these crops in 1887 were thus made up :—

|                           | Millions, £ Sterling |      |        |       |          |       |
|---------------------------|----------------------|------|--------|-------|----------|-------|
|                           | Wheat                | Oats | Barley | Maize | Rye, &c. | Total |
| Europe . . . . .          | 261                  | 142  | 89     | 36    | 236      | 764   |
| United States . . . . .   | 71                   | 36   | 7      | 124   | 5        | 243   |
| India and Japan . . . . . | 52                   | ...  | ...    | ...   | ...      | 52    |
| Colonies, &c. . . . .     | 28                   | 7    | 12     | 26    | 11       | 84    |
| Total . . . . .           | 412                  | 185  | 108    | 186   | 252      | 1,143 |

(Deducting India and Japan, the value will be 1091 millions, as in the table of nations at p. 11.)

If the average prices of 1874-84 had been maintained, mankind would have had to pay 1577 millions sterling for the crops of 1887, a sum nearly 40 per cent. in excess of the above value. The following table shows the countries (1886-87) that had surplus grain to export, and those that imported to cover deficits :—

| Exporters           | Bushels     | Importers                    | Bushels     |
|---------------------|-------------|------------------------------|-------------|
| Russia . . . . .    | 215,000,000 | United Kingdom . . . . .     | 286,000,000 |
| Austria . . . . .   | 13,000,000  | France . . . . .             | 54,000,000  |
| Roumania . . . . .  | 56,000,000  | Germany . . . . .            | 72,000,000  |
| U. States . . . . . | 168,000,000 | Scandinavia . . . . .        | 18,000,000  |
| Argentina . . . . . | 24,000,000  | Holland & Belgium . . . . .  | 55,000,000  |
| India . . . . .     | 27,000,000  | Switzerland . . . . .        | 15,000,000  |
| Australia . . . . . | 12,000,000  | Spain and Portugal . . . . . | 11,000,000  |
| Canada . . . . .    | 30,000,000  | Italy . . . . .              | 36,000,000  |
| Total . . . . .     | 545,000,000 | Total . . . . .              | 547,000,000 |

Mr. Spallart sums up the value of all grain crops in 1884 thus :—

|                           | Millions, £ Sterling |       |        |       |       |          |        |
|---------------------------|----------------------|-------|--------|-------|-------|----------|--------|
|                           | Wheat                | Rye   | Barley | Oats  | Maize | Sundries | Total  |
| United States . . . . .   | 69.5                 | 3.2   | 6.3    | 34.0  | 134.6 | 1.4      | 249.0  |
| Russia . . . . .          | 35.2                 | 75.0  | 11.5   | 28.9  | 1.3   | 5.7      | 157.6  |
| France . . . . .          | 69.0                 | 13.3  | 9.1    | 31.6  | 5.8   | 7.9      | 136.7  |
| Germany . . . . .         | 23.7                 | 38.2  | 15.4   | 27.5  | ...   | 0.9      | 105.7  |
| Italy . . . . .           | 35.1                 | 1.5   | 1.5    | 1.7   | 16.0  | 11.0     | 66.8   |
| Austria proper . . . . .  | 5.3                  | 7.5   | 4.4    | 6.2   | 1.5   | 0.8      | 25.7   |
| Hungary . . . . .         | 10.9                 | 3.6   | 3.6    | 2.4   | 8.5   | ...      | 29.0   |
| Spain . . . . .           | 53.8                 | 7.5   | 18.2   | 1.8   | 9.0   | 0.9      | 91.2   |
| Denmark . . . . .         | 0.9                  | 2.7   | 3.3    | 3.4   | ...   | 0.1      | 10.4   |
| Holland . . . . .         | 1.4                  | 1.8   | 0.7    | 1.2   | ...   | 0.5      | 5.6    |
| Other countries . . . . . | 135.7                | 11.7  | 33.6   | 29.8  | 11.3  | 4.8      | 226.9* |
| Total . . . . .           | 440.5                | 166.0 | 107.6  | 168.5 | 188.0 | 34.0     | 1104.6 |

\* He only gives the total for "Other countries;" the distribution is mine.

According to Mr. Spallart the average values of grain in 1878-81 throughout the world were as in the following table, and if these prices were applied to the average crops for ten years ending 1884, the results would be as follows :—

|                  | Price, Pence<br>per Bushel | Crop, Million<br>Bushels | Value,<br>Million £ |
|------------------|----------------------------|--------------------------|---------------------|
| Wheat . . . . .  | 63                         | 2,068                    | 543                 |
| Rye . . . . .    | 48                         | 1,175                    | 235                 |
| Barley . . . . . | 46                         | 800                      | 153                 |
| Oats . . . . .   | 25                         | 1,936                    | 202                 |
| Maize . . . . .  | 26                         | 1,890                    | 204                 |
| Sundry . . . . . | 25                         | 290                      | 30                  |
| Total . . . . .  |                            | 8,159                    | 1,367               |

As near as we can ascertain, the crops and aggregate value were :—

| Period  | Million<br>Bushels | Value,<br>Millions £ | Average Price,<br>Pence per Bushel |
|---------|--------------------|----------------------|------------------------------------|
| 1831-40 | 4,043              | 624                  | 37                                 |
| 1851-60 | 5,563              | 1,130                | 48                                 |
| 1874-84 | 8,159              | 1,367                | 40                                 |
| 1887    | 9,122              | 1,143                | 30                                 |

The value of agricultural and pastoral products in 1887 is shown approximately as follows :—

|                         | Millions, £ Sterling |          |       | Per<br>Agricultural<br>Labourer |
|-------------------------|----------------------|----------|-------|---------------------------------|
|                         | Agricultural         | Pastoral | Total |                                 |
| U. Kingdom . . . . .    | 141                  | 110      | 251   | £ 98                            |
| France . . . . .        | 322                  | 138      | 460   | 71                              |
| Germany . . . . .       | 262                  | 162      | 424   | 52                              |
| Russia . . . . .        | 373                  | 190      | 563   | 25                              |
| Poland . . . . .        | 34                   | 21       | 55    | 34                              |
| Finland . . . . .       | 9                    | 6        | 15    | 37                              |
| Austria . . . . .       | 225                  | 106      | 331   | 31                              |
| Italy . . . . .         | 153                  | 51       | 204   | 37                              |
| Spain . . . . .         | 126                  | 47       | 173   | 63*                             |
| Portugal . . . . .      | 23                   | 8        | 31    | 35                              |
| Sweden . . . . .        | 31                   | 18       | 49    | 58                              |
| Norway . . . . .        | 9                    | 8        | 17    | 48                              |
| Denmark . . . . .       | 20                   | 15       | 35    | 85                              |
| Holland . . . . .       | 20                   | 19       | 39    | 46                              |
| Belgium . . . . .       | 41                   | 14       | 55    | 56                              |
| Switzerland . . . . .   | 9                    | 10       | 19    | 43                              |
| Roumania . . . . .      | 27                   | 20       | 47    | 60                              |
| Servia . . . . .        | 6                    | 8        | 14    | 47                              |
| Greece . . . . .        | 14                   | 5        | 19    | 60                              |
| Bulgaria . . . . .      | 14                   | 5        | 19    | 40                              |
| Turkey . . . . .        | 16                   | 9        | 25    | 45                              |
| Europe . . . . .        | 1,875                | 970      | 2,845 | 43                              |
| United States . . . . . | 467                  | 309      | 776   | 85                              |
| Canada . . . . .        | 35                   | 21       | 56    | 70                              |
| Mexico . . . . .        | 25                   | 8        | 33    | ...                             |
| Australia . . . . .     | 27                   | 35       | 62    | 98                              |
| Cape Colony . . . . .   | 2                    | 6        | 8     | 40                              |
| Argentina . . . . .     | 18                   | 24       | 42    | 70                              |
| Uruguay . . . . .       | 2                    | 8        | 10    | 100                             |
| Chili . . . . .         | 9                    | 6        | 15    | 50                              |
| Brazil . . . . .        | 32                   | 8        | 40    | 20                              |
| Algeria . . . . .       | 14                   | 12       | 26    | 35                              |
| Egypt . . . . .         | 30                   | 5        | 35    | 45                              |
| Total . . . . .         | 2,536                | 1,412    | 3,948 | 50                              |

\* The above table includes timber as an agricultural product, although forestry is properly a distinct industry. See Part II., where timber is excluded.

# AGRICULTURE

11

# AGRICULTURE

The value of the principal items in 1887 was approximately as follows :—

| Millions, £ Sterling |       |             |                 |       |      |      |          |       |
|----------------------|-------|-------------|-----------------|-------|------|------|----------|-------|
|                      | Grain | Green Crops | Garden Products | Dairy | Wine | Meat | Sundries | Total |
| U. Kingdom           | 41    | 86          | 10              | 31    | ...  | 55   | 28       | 251   |
| France . . .         | 129   | 103         | 30              | 47    | 49   | 60   | 42       | 460   |
| Germany . . .        | 93    | 117         | 30              | 55    | 5    | 69   | 55       | 424   |
| Russia . . .         | 181   | 110         | 32              | 48    | 4    | 63   | 125      | 563   |
| Poland . . .         | 19    | 7           | 3               | 5     | ...  | 5    | 16       | 55    |
| Finland . . .        | 4     | 2           | 1               | 1     | ...  | 3    | 4        | 15    |
| Austria . . .        | 102   | 61          | 22              | 35    | 17   | 44   | 50       | 331   |
| Italy . . .          | 40    | 37          | 23              | 14    | 43   | 18   | 29       | 204   |
| Spain . . .          | 55    | 15          | 9               | 9     | 44   | 26   | 15       | 173   |
| Portugal . . .       | 7     | 3           | 2               | 2     | 10   | 5    | 2        | 31    |
| Sweden . . .         | 14    | 7           | 2               | 7     | ...  | 7    | 12       | 49    |
| Norway . . .         | 2     | 2           | 1               | 3     | ...  | 3    | 6        | 17    |
| Denmark . . .        | 13    | 6           | 1               | 6     | ...  | 6    | 3        | 35    |
| Holland . . .        | 6     | 11          | 3               | 10    | ...  | 6    | 3        | 39    |
| Belgium . . .        | 12    | 24          | 5               | 5     | ...  | 6    | 3        | 55    |
| Switzerland . . .    | 3     | 3           | 2               | 5     | 1    | 4    | 1        | 19    |
| Greece . . .         | 3     | 2           | 4               | 1     | 3    | 3    | 3        | 19    |
| Roumania . . .       | 17    | 7           | 3               | 5     | 3    | 11   | 1        | 47    |
| Servia . . .         | 3     | 1           | 1               | 2     | 1    | 4    | 2        | 14    |
| Bulgaria . . .       | 9     | 1           | 1               | 3     | ...  | 4    | 1        | 19    |
| Turkey . . .         | 11    | 2           | 1               | 3     | 1    | 5    | 2        | 25    |
| Europe . . .         | 764   | 607         | 186             | 297   | 181  | 407  | 403      | 2,845 |
| United States        | 243   | 165         | 57              | 79    | 2    | 156  | 74       | 776   |
| Canada . . .         | 15    | 10          | 3               | 8     | ...  | 8    | 12       | 56    |
| Mexico . . .         | 20    | 4           | 1               | 2     | ...  | 4    | 2        | 33    |
| Australia . . .      | 9     | 15          | 3               | 4     | ...  | 9    | 22       | 62    |
| Argentina . . .      | 8     | 7           | 2               | 4     | 1    | 6    | 14       | 42    |
| Uruguay . . .        | 1     | 1           | 1               | 1     | ...  | 3    | 3        | 10    |
| Cape Colony . . .    | 2     | ...         | 1               | 1     | ...  | 2    | 2        | 8     |
| Algeria . . .        | 11    | 1           | 1               | 1     | 2    | 6    | 4        | 26    |
| Egypt . . .          | 13    | 17          | ...             | 1     | ...  | 2    | 2        | 35    |
| Brazil . . .         | 1     | 30          | 2               | 1     | ...  | 2    | 4        | 40    |
| Chile . . .          | 4     | 2           | 2               | 2     | 1    | 3    | 1        | 15    |
| Total . . .          | 1,091 | 859         | 259             | 401   | 187  | 608  | 543      | 3,948 |

The following table shows approximately the agricultural capital in 1888 :—

|                     | Millions, £ Sterling |        |          |       | £ per Inhab. |
|---------------------|----------------------|--------|----------|-------|--------------|
|                     | Land                 | Cattle | Sundries | Total |              |
| U. Kingdom . . .    | 1,873                | 185    | 229      | 2,287 | 60           |
| France . . .        | 2,688                | 218    | 323      | 3,229 | 84           |
| Germany . . .       | 1,815                | 262    | 230      | 2,307 | 50           |
| Russia . . .        | ...                  | ...    | ...      | ...   | ...          |
| Poland . . .        | 150                  | 30     | 20       | 200   | 25           |
| Finland . . .       | 52                   | 11     | 7        | 70    | 35           |
| Austria . . .       | 706                  | 106    | 90       | 902   | 38           |
| Hungary . . .       | 651                  | 96     | 83       | 830   | 52           |
| Bosnia . . .        | 14                   | 9      | 2        | 25    | 18           |
| Italy . . .         | 1,182                | 83     | 140      | 1,405 | 47           |
| Spain . . .         | 984                  | 95     | 120      | 1,199 | 66           |
| Portugal . . .      | 132                  | 13     | 16       | 161   | 36           |
| Sweden . . .        | 240                  | 36     | 30       | 306   | 62           |
| Norway . . .        | 100                  | 15     | 12       | 127   | 63           |
| Denmark . . .       | 217                  | 30     | 27       | 274   | 137          |
| Holland . . .       | 314                  | 28     | 38       | 380   | 85           |
| Belgium . . .       | 377                  | 24     | 44       | 445   | 74           |
| Switzerland . . .   | 120                  | 10     | 14       | 144   | 48           |
| Greece . . .        | 138                  | 24     | 18       | 180   | 90           |
| Roumania . . .      | 254                  | 37     | 32       | 323   | 64           |
| Servia . . .        | 94                   | 16     | 12       | 122   | 61           |
| Bulgaria . . .      | 90                   | 10     | 10       | 110   | 33           |
| Turkey . . .        | 280                  | 26     | 31       | 337   | 67           |
| Europe . . .        | 2,560                | 501    | 635      | 3,696 | 57           |
| United States . . . | 282                  | 44     | 36       | 362   | 72           |
| Canada . . .        | 103                  | 15     | 13       | 131   | 13           |
| Chile . . .         | 50                   | 8      | 6        | 64    | 21           |
| Argentina . . .     | 111                  | 49     | 17       | 177   | 44           |
| Uruguay . . .       | 34                   | 14     | 5        | 53    | 80           |
| Brazil . . .        | 105                  | 7      | 12       | 124   | 10           |
| Cape Colony . . .   | 25                   | 13     | 4        | 42    | 40           |
| Australia . . .     | 533                  | 67     | 37       | 637   | 160          |
| Algeria . . .       | 87                   | 28     | 13       | 128   | 32           |
| Egypt . . .         | 110                  | 15     | 14       | 139   | 20           |
| Total . . .         | ...                  | ...    | ...      | ...   | ...          |

The following table shows approximately the principal features of agricultural industry in 1840 and 1887 :—

|                      | Capital, Million £ |        | Product, Million £ |       | Hands      |            | Production per Hand |      |
|----------------------|--------------------|--------|--------------------|-------|------------|------------|---------------------|------|
|                      | 1840               | 1887   | 1840               | 1887  | 1840       | 1887       | 1840                | 1887 |
| United Kingdom . . . | 1,968              | 2,287  | 218                | 251   | 3,400,000  | 2,560,000  | £ 65                | £ 97 |
| France . . .         | 1,743              | 3,229  | 269                | 460   | 6,950,000  | 6,450,000  | 39                  | 71   |
| Germany . . .        | 630                | 2,307  | 170                | 424   | 6,400,000  | 8,120,000  | 27                  | 52   |
| Russia . . .         | 517                | 2,090  | 248                | 563   | 15,000,000 | 22,700,000 | 16                  | 25   |
| Austria . . .        | 702                | 1,732  | 205                | 331   | 7,500,000  | 10,680,000 | 27                  | 31   |
| Italy . . .          | 452                | 1,405  | 114                | 204   | 3,600,000  | 5,390,000  | 32                  | 37   |
| Spain . . .          | 724                | 1,199  | 102                | 173   | 2,000,000  | 2,720,000  | 50                  | 63   |
| Portugal . . .       | 100                | 161    | 18                 | 31    | 700,000    | 870,000    | 26                  | 35   |
| Sweden . . .         | 51                 | 306    | 16                 | 49    | 550,000    | 850,000    | 30                  | 58   |
| Norway . . .         | 30                 | 127    | 8                  | 17    | 250,000    | 380,000    | 32                  | 48   |
| Denmark . . .        | 46                 | 274    | 16                 | 35    | 280,000    | 420,000    | 56                  | 85   |
| Holland . . .        | 245                | 380    | 20                 | 39    | 600,000    | 840,000    | 33                  | 46   |
| Belgium . . .        | 235                | 445    | 30                 | 55    | 900,000    | 980,000    | 33                  | 56   |
| Switzerland . . .    | 100                | 144    | 12                 | 19    | 300,000    | 440,000    | 40                  | 43   |
| Turkey, &c. . .      | 623                | 1,367  | 98                 | 194   | 2,000,000  | 2,900,000  | 40                  | 58   |
| Europe . . .         | 8,166              | 17,453 | 1,544              | 2,845 | 50,430,000 | 66,320,000 | 31                  | 43   |
| United States . . .  | 596                | 3,696  | 184                | 776   | 2,550,000  | 9,000,000  | 72                  | 85   |
| Canada . . .         | 80                 | 362    | 12                 | 56    | 300,000    | 800,000    | 40                  | 70   |
| Australia . . .      | 18                 | 637    | 6                  | 62    | 100,000    | 630,000    | 60                  | 98   |
| Cape Colony . . .    | 8                  | 42     | 2                  | 8     | 50,000     | 200,000    | 40                  | 40   |
| Argentina . . .      | 22                 | 177    | 5                  | 42    | 200,000    | 600,000    | 25                  | 70   |
| Uruguay . . .        | 6                  | 53     | 1                  | 10    | 50,000     | 100,000    | 20                  | 100  |
| Various . . .        | 140                | 586    | 70                 | 149   | 140,000    | 2,400,000  | 50                  | 62   |
| Total . . .          | 9,036              | 23,006 | 1,824              | 3,948 | 53,820,000 | 80,050,000 | 33                  | 50   |

EUROPE

Area under crops was approximately as follows :—

| Year | Million Acres | Year | Million Acres |
|------|---------------|------|---------------|
| 1820 | 364           | 1860 | 471           |
| 1840 | 427           | 1888 | 558           |

The production of grain, wine, potatoes, and meat may be set down thus—

| Year | Grain, Million Bushels | Wine, Million Gallons | Potatoes, Million Tons | Meat, Tons |
|------|------------------------|-----------------------|------------------------|------------|
| 1820 | 2,800                  | 2,050                 | 20                     | 5,400,000  |
| 1840 | 3,300                  | 2,150                 | 40                     | 6,800,000  |
| 1860 | 4,200                  | 2,300                 | 50                     | 7,600,000  |
| 1880 | 5,040                  | 2,500                 | 60                     | 8,300,000  |
| 1887 | 5,600                  | 2,600                 | 70                     | 8,630,000  |

The ratio of the above products to population was as follows :—

| Year | Per Inhabitant |               |                |            |
|------|----------------|---------------|----------------|------------|
|      | Grain, Bushels | Wine, Gallons | Potatoes, lbs. | Meat, lbs. |
| 1820 | 14             | 10            | 224            | 60         |
| 1840 | 14             | 9             | 370            | 64         |
| 1860 | 15             | 8             | 400            | 61         |
| 1880 | 15             | 8             | 430            | 56         |
| 1887 | 15             | 8             | 445            | 57         |

The following table shows the rank that European products hold in those of the world, as regards value (1888) :—

|                  | Millions, £ Sterling |               |               |       |
|------------------|----------------------|---------------|---------------|-------|
|                  | Europe               | United States | Colonies, &c. | Total |
| Grain . . . .    | 764                  | 243           | 84            | 1,091 |
| Green crops . .  | 607                  | 165           | 87            | 859   |
| Garden crops . . | 186                  | 57            | 18            | 261   |
| Wine . . . .     | 181                  | 2             | 4             | 187   |
| Dairy . . . .    | 297                  | 79            | 25            | 401   |
| Meat . . . .     | 407                  | 156           | 45            | 608   |
| Sundries . . . . | 403                  | 74            | 64            | 541   |
| Total . . . .    | 2,845                | 776           | 327           | 3,948 |

|                   | Grain | Green Crops | Garden Crops | Wine  | Dairy | Meat  | Sundries | Total |
|-------------------|-------|-------------|--------------|-------|-------|-------|----------|-------|
| Europe . . . .    | 70.0  | 70.5        | 71.2         | 96.8  | 74.0  | 67.0  | 74.5     | 72.1  |
| United States . . | 22.3  | 19.2        | 21.9         | 1.1   | 19.8  | 25.6  | 13.7     | 19.6  |
| Colonies, &c. . . | 7.7   | 10.3        | 6.9          | 2.1   | 6.2   | 7.4   | 11.8     | 8.3   |
| Total . . . .     | 100.0 | 100.0       | 100.0        | 100.0 | 100.0 | 100.0 | 100.0    | 100.0 |

It appears from the foregoing general summary that Europe stands for nearly three-fourths of the value of all the farm products of the world.

The weight and value of European grain crops in 1887-88 were approximately as follows :—

|                        | Weight in Tons |            |            |            |             | Lbs. per Inhabitant |
|------------------------|----------------|------------|------------|------------|-------------|---------------------|
|                        | Wheat          | Oats       | Barley     | Rye, &c.   | Total       |                     |
| United Kingdom . . . . | 2,100,000      | 2,510,000  | 1,600,000  | 350,000    | 6,560,000   | 400                 |
| France . . . .         | 8,200,000      | 4,200,000  | 1,200,000  | 3,300,000  | 16,900,000  | 990                 |
| Germany . . . .        | 2,800,000      | 4,300,000  | 2,200,000  | 5,800,000  | 15,100,000  | 700                 |
| Russia . . . .         | 7,500,000      | 10,400,000 | 3,800,000  | 22,600,000 | 44,300,000  | 1,200               |
| Poland . . . .         | 400,000        | 600,000    | 300,000    | 1,500,000  | 2,800,000   | 800                 |
| Austria . . . .        | 5,100,000      | 2,830,000  | 2,600,000  | 6,570,000  | 17,100,000  | 980                 |
| Italy . . . .          | 3,000,000      | 340,000    | 170,000    | 1,790,000  | 5,300,000   | 400                 |
| Spain . . . .          | 3,700,000      | 350,000    | 1,700,000  | 1,950,000  | 7,700,000   | 1,000               |
| Portugal . . . .       | 270,000        | ...        | ...        | 780,000    | 1,050,000   | 550                 |
| Sweden and Norway . .  | 110,000        | 1,100,000  | 450,000    | 840,000    | 2,500,000   | 900                 |
| Denmark . . . .        | 140,000        | 560,000    | 520,000    | 600,000    | 1,820,000   | 2,000               |
| Holland . . . .        | 140,000        | 250,000    | 100,000    | 410,000    | 900,000     | 510                 |
| Belgium . . . .        | 450,000        | 490,000    | 100,000    | 580,000    | 1,620,000   | 600                 |
| Roumania . . . .       | 700,000        | ...        | 330,000    | 1,820,000  | 2,850,000   | 1,150               |
| Various . . . .        | 2,410,000      | 130,000    | 1,030,000  | 210,000    | 3,780,000   | 800                 |
| Europe . . . .         | 37,020,000     | 28,060,000 | 16,100,000 | 49,100,000 | 130,280,000 | 820                 |

The following is a summary of products approximately in 1888 :—

|                         | Tons        | £             | Sundries             | £             |
|-------------------------|-------------|---------------|----------------------|---------------|
|                         |             |               |                      |               |
| Wheat . . . .           | 37,020,000  | 261,000,000   | Vegetables . . . .   | 186,000,000   |
| Oats . . . .            | 28,060,000  | 142,000,000   | Wine . . . .         | 181,000,000   |
| Barley . . . .          | 16,100,000  | 89,000,000    | Timber . . . .       | 108,000,000   |
| Rye, &c. . . .          | 49,100,000  | 272,000,000   | Dairy . . . .        | 297,000,000   |
| All grain . . . .       | 130,280,000 | 764,000,000   | Meat . . . .         | 404,000,000   |
| Green crops . . . .     | ...         | 607,000,000   | Hides, wool, &c. . . | 298,000,000   |
| Principal crops . . . . | ...         | 1,371,000,000 | Sundries . . . .     | 1,474,000,000 |

Making a total of 2845 millions sterling. It is not pretended that the foregoing table of values is mathematically correct. It is the result of the investigations, and in some cases the official valuations, bearing upon each country, as given hereafter in detail. The value of the various grain-crops of Europe, taking the average for 1887-88, is shown approximately in the following table :—



|                             | Value, Millions £ Sterling |      |        |          |       | Shillings per Inhabitant |
|-----------------------------|----------------------------|------|--------|----------|-------|--------------------------|
|                             | Wheat                      | Oats | Barley | Rye, &c. | Total |                          |
| U. Kingdom . . .            | 16                         | 15   | 8      | 2        | 41    | 22                       |
| France . . . . .            | 71                         | 29   | 7      | 22       | 129   | 65                       |
| Germany . . . . .           | 19                         | 25   | 15     | 34       | 93    | 46                       |
| Russia . . . . .            | 37                         | 35   | 15     | 94       | 181   | 45                       |
| Poland . . . . .            | 3                          | 4    | 2      | 10       | 19    | 50                       |
| Austria . . . . .           | 37                         | 14   | 16     | 35       | 102   | 52                       |
| Italy . . . . .             | 20                         | 2    | 1      | 17       | 40    | 27                       |
| Spain . . . . .             | 30                         | 2    | 10     | 13       | 55    | 63                       |
| Portugal . . . . .          | 2                          | ...  | ...    | 5        | 7     | 35                       |
| Sweden and Norway . . . . . | 1                          | 6    | 3      | 6        | 16    | 50                       |
| Denmark . . . . .           | 1                          | 4    | 3      | 5        | 13    | 130                      |
| Holland . . . . .           | 1                          | 2    | 1      | 2        | 6     | 30                       |
| Belgium . . . . .           | 4                          | 3    | 1      | 4        | 12    | 40                       |
| Roumania . . . . .          | 5                          | ...  | 2      | 10       | 17    | 70                       |
| Various . . . . .           | 14                         | 1    | 5      | 13       | 33    | 50                       |
| Total . . . . .             | 261                        | 142  | 89     | 272      | 764   | 47                       |

M. Block drew up, in 1850, a statement of the agricultural products of various countries, thus:—

|                             | Product Yearly, Tons |           | Value, Millions £ |      |         |       |
|-----------------------------|----------------------|-----------|-------------------|------|---------|-------|
|                             | Grain                | Meat      | Grain             | Meat | Various | Total |
| U. Kingdom . . .            | 7,650,000            | 450,000   | 82                | 28   | 154     | 264   |
| France . . . . .            | 12,600,000           | 605,000   | 123               | 22   | 211     | 356   |
| Prussia . . . . .           | 12,200,000           | 310,000   | 27                | 8    | 102     | 137   |
| Bavaria . . . . .           | 950,000              | 105,000   | 8                 | 3    | 8       | 19    |
| Saxony . . . . .            | 400,000              | 25,000    | 3                 | 1    | 5       | 9     |
| Austria . . . . .           | 10,200,000           | 740,000   | 67                | 19   | 88      | 174   |
| Spain . . . . .             | 2,100,000            | 220,000   | 21                | 10   | 57      | 88    |
| Belgium . . . . .           | 1,300,000            | 58,000    | 9                 | 3    | 9       | 21    |
| Holland . . . . .           | 800,000              | 55,000    | 6                 | 2    | 13      | 21    |
| Sweden and Norway . . . . . | 1,100,000            | 130,000   | 4                 | 2    | 7       | 13    |
| Denmark . . . . .           | 2,000,000            | 93,000    | 7                 | 1    | 3       | 11    |
| Total . . . . .             | 51,300,000           | 2,785,000 | 357               | 99   | 647     | 1,113 |

The above table omitted Russia, Poland, Italy, Portugal, Switzerland, Roumania, Greece, and other countries. The values under the item "Various" were, moreover, too low.

The following table shows approximately the value of all agricultural products in Europe at different dates:—

| Year           | Millions, £ Sterling |          |       |
|----------------|----------------------|----------|-------|
|                | Agricultural         | Pastoral | Total |
| 1830 . . . . . | 914                  | 341      | 1,255 |
| 1840 . . . . . | 1,114                | 430      | 1,544 |
| 1850 . . . . . | 1,328                | 542      | 1,870 |
| 1860 . . . . . | 1,444                | 620      | 2,064 |
| 1870 . . . . . | 1,552                | 818      | 2,370 |
| 1888 . . . . . | 1,875                | 970      | 2,845 |

The various classes of live-stock were approximately as follows:—

| Year | Horses     | Cattle      | Sheep       | Pigs       | Value,<br>Mill. £ |
|------|------------|-------------|-------------|------------|-------------------|
| 1830 | 25,020,000 | 67,370,000  | 169,040,000 | 44,460,000 | 730               |
| 1850 | 28,950,000 | 80,120,000  | 183,950,000 | 38,430,000 | 1,018             |
| 1870 | 32,080,000 | 89,820,000  | 209,370,000 | 43,950,000 | 1,496             |
| 1887 | 37,610,000 | 101,855,000 | 197,740,000 | 48,350,000 | 1,940             |

The agricultural capital of Europe was made up as follows:—

| Year           | Millions, £ Sterling |        |          |        |
|----------------|----------------------|--------|----------|--------|
|                | Land                 | Cattle | Sundries | Total  |
| 1840 . . . . . | 6,471                | 875    | 820      | 8,166  |
| 1860 . . . . . | 9,957                | 1,260  | 1,227    | 12,444 |
| 1887 . . . . . | 13,776               | 1,940  | 1,737    | 17,453 |

The increase of agricultural capital was as follows:—

| Period  | Millions, £ | Millions, £ per Annum |
|---------|-------------|-----------------------|
| 1840-60 | 4,278       | 214                   |
| 1860-87 | 5,009       | 185                   |

Notwithstanding the fact that the agricultural capital of Europe has more than doubled since 1840, further increase promises to be very questionable, or at least very slow.

#### UNITED KINGDOM

In the 17th century agriculture was the principal occupation of the people, and made great progress after the expulsion of the Stuarts, but its golden epoch was the reign of George II. (1727-60). We have no reliable statistics till the present century, viz.:—

#### ACRES UNDER CROPS

| Year | England    | Scotland  | Ireland   | United Kingdom | Authority |
|------|------------|-----------|-----------|----------------|-----------|
| 1827 | 11,140,000 | 2,550,000 | 5,450,000 | 19,140,000     | Porter    |
| 1846 | 13,300,000 | 3,390,000 | 5,240,000 | 21,930,000     | M'Culloch |
| 1866 | 13,340,000 | 3,170,000 | 5,250,000 | 21,760,000     | Official  |
| 1876 | 13,920,000 | 3,510,000 | 5,210,000 | 22,640,000     | "         |
| 1888 | 13,350,000 | 3,690,000 | 4,145,000 | 21,185,000     | "         |

In the last sixty years the area under crops has increased by 2,200,000 in England and 1,140,000 in Scotland, but in Ireland it has diminished by 1,300,000 acres.

#### PRINCIPAL CROPS OF ENGLAND, ACREAGE

|                     | 1812, Comber | 1820, Middleton | 1831, M'Culloch | 1846, M'Culloch |
|---------------------|--------------|-----------------|-----------------|-----------------|
| Wheat . . . . .     | 3,160,000    | 3,300,000       | 3,800,000       | 3,800,000       |
| Oats . . . . .      | 2,870,000    | 3,000,000       | 3,000,000       | 2,500,000       |
| Barley, &c. . . . . | 860,000      | 900,000         | 900,000         | 1,500,000       |
| Roots . . . . .     | 1,250,000    | 1,200,000       | 2,650,000       | 2,700,000       |
| Clover . . . . .    | 1,150,000    | 1,200,000       |                 | 1,300,000       |
| Fallow . . . . .    | 2,310,000    | 2,400,000       | 1,650,000       | 1,500,000       |
| Total . . . . .     | 11,600,000   | 12,000,000      | 12,000,000      | 13,300,000      |

In recent years there has been a marked decline in the area under grain, viz.:—

#### ACREAGE, UNITED KINGDOM

|                            | 1871-75    | 1881-85    | 1888       |
|----------------------------|------------|------------|------------|
| Wheat . . . . .            | 3,740,000  | 2,830,000  | 2,670,000  |
| Oats . . . . .             | 4,230,000  | 4,300,000  | 4,180,000  |
| Barley, &c. . . . .        | 3,570,000  | 3,210,000  | 2,940,000  |
| Potatoes . . . . .         | 1,510,000  | 1,380,000  | 1,410,000  |
| Turnips, &c. . . . .       | 3,564,000  | 3,367,000  | 3,356,000  |
| Flax . . . . .             | 136,000    | 115,000    | 116,000    |
| Hops . . . . .             | 64,000     | 68,000     | 58,000     |
| Clover and grass . . . . . | 29,530,000 | 31,710,000 | 32,680,000 |
| Fallow . . . . .           | 640,000    | 760,000    | 470,000    |
| Total . . . . .            | 46,984,000 | 47,740,000 | 47,880,000 |

According to M'Culloch, the tillage of the United Kingdom in 1851 stood thus:—

|                | Grain      |             | Other Crops, Acres | Total Acres | Value of Crops |
|----------------|------------|-------------|--------------------|-------------|----------------|
|                | Acres      | Mill. Bush. |                    |             |                |
| England        | 7,200,000  | 200         | 5,500,000          | 12,700,000  | 80,500,000     |
| Scotland       | 1,480,000  | 46          | 1,110,000          | 2,590,000   | 14,900,000     |
| Ireland        | 2,920,000  | 89          | 1,880,000          | 4,800,000   | 26,400,000     |
| United Kingdom | 11,600,000 | 335         | 8,490,000          | 20,090,000  | 121,800,000    |

The average value of crops to the acre in 1851 was 110 shillings in Ireland, 114 in Scotland, 127 in England. At present the gross product of the United Kingdom averages 110 shillings per acre.

The distribution of crops in the three kingdoms in 1888 was thus:—

ACREAGE

|                   | England    | Scotland  | Ireland    | United Kingdom |
|-------------------|------------|-----------|------------|----------------|
| Wheat . .         | 2,510,000  | 70,000    | 90,000     | 2,670,000      |
| Oats . . .        | 1,885,000  | 1,015,000 | 1,280,000  | 4,180,000      |
| Barley, &c. .     | 2,485,000  | 255,000   | 200,000    | 2,940,000      |
| All grain . .     | 6,880,000  | 1,340,000 | 1,570,000  | 9,790,000      |
| Potatoes . .      | 445,000    | 160,000   | 805,000    | 1,410,000      |
| Turnips . .       | 1,480,000  | 480,000   | 290,000    | 2,250,000      |
| Vetches, &c. .    | 905,000    | 20,000    | 145,000    | 1,070,000      |
| All green } crops | 2,830,000  | 660,000   | 1,240,000  | 4,730,000      |
| Gardens, &c. .    | 535,000    | 20,000    | 125,000    | 680,000        |
| Clover, &c. .     | 3,105,000  | 1,670,000 | 1,205,000  | 5,980,000      |
| Total crops       | 13,350,000 | 3,690,000 | 4,140,000  | 21,180,000     |
| Pasture . .       | 14,590,000 | 1,190,000 | 10,920,000 | 26,700,000     |
| Total . .         | 27,940,000 | 4,880,000 | 15,060,000 | 47,880,000     |

The yield per acre has much increased since the last century, when Arthur Young showed the wheat average for a number of years to be 23 bushels. The following estimates have been made:—

|                          | Yield per Acre, Bushels |      |        |
|--------------------------|-------------------------|------|--------|
|                          | Wheat                   | Oats | Barley |
| Comber, 1810-15 . . .    | 22                      | 36   | 32     |
| M'Culloch, 1840-46 . . . | 31                      | 37   | 37     |
| Caird, 1857-77 . . .     | 28                      | 46   | 37     |

The production of grain in the United Kingdom compared with population is now less than half what it was in 1830, having steadily declined since then, viz:—

|      | Production, Millions of Bushels |                   |       | Bushels per Inhabitant |
|------|---------------------------------|-------------------|-------|------------------------|
|      | Wheat                           | Oats, Barley, &c. | Total |                        |
| 1830 | 104                             | 304               | 408   | 17                     |
| 1846 | 143                             | 258               | 401   | 15                     |
| 1866 | 98                              | 290               | 388   | 14                     |
| 1876 | 84                              | 270               | 354   | 11                     |
| 1887 | 76                              | 235               | 301   | 8                      |

The consumption has nevertheless risen in quantity 40 per cent., nearly one-half now being imported, viz:—

| Consumption of Grain, Millions of Bushels Yearly |            |          |       |                |
|--------------------------------------------------|------------|----------|-------|----------------|
| Period                                           | Home-Grown | Imported | Total | Ratio Imported |
| 1831-40                                          | 408        | 8        | 416   | 2 per cent.    |
| 1841-50                                          | 400        | 31       | 431   | 7 "            |
| 1851-60                                          | 390        | 78       | 468   | 17 "           |
| 1861-70                                          | 388        | 126      | 514   | 24 "           |
| 1871-80                                          | 340        | 226      | 566   | 40 "           |
| 1881-89                                          | 320        | 272      | 592   | 45 "           |

The production and consumption of wheat show as follows:—

Wheat, Millions of Bushels, Yearly Consumption

|         | Home-Grown | Imported | Total | Lbs. per Inhabitant | Ratio Imported |
|---------|------------|----------|-------|---------------------|----------------|
| 1811-30 | 97         | 4        | 101   | 300                 | 4 per cent.    |
| 1831-50 | 113        | 14       | 127   | 280                 | 11 "           |
| 1851-70 | 109        | 58       | 167   | 345                 | 35 "           |
| 1871-80 | 90         | 116      | 206   | 370                 | 57 "           |
| 1881-89 | 80         | 144      | 224   | 384                 | 65 "           |

Consumption includes not only food, but also seed, say 8,000,000 bushels, or 12 lbs. per inhabitant.

The average yield of the principal crops in 1884-87 was as follows:—

|                    | Average Crops, 1884-87 |            |                |
|--------------------|------------------------|------------|----------------|
|                    | Great Britain          | Ireland    | United Kingdom |
| Wheat, bushels . . | 73,200,000             | 1,900,000  | 75,100,000     |
| Barley, " . .      | 72,500,000             | 5,800,000  | 78,300,000     |
| Oats, " . .        | 110,000,000            | 50,000,000 | 160,000,000    |
| Beans, &c. " . .   | 15,000,000             | 150,000    | 15,150,000     |
| Potatoes, tons . . | 3,400,000              | 3,100,000  | 6,500,000      |
| Turnips, " . .     | 24,500,000             | 3,500,000  | 28,000,000     |
| Mangold, " . .     | 5,900,000              | 500,000    | 6,400,000      |
| Hops, " . .        | 30,000                 | ...        | 30,000         |
| Hay, " . .         | 8,500,000              | 4,000,000  | 12,500,000     |

|                        | Yield per Acre, 1884-87 |         |                |
|------------------------|-------------------------|---------|----------------|
|                        | Great Britain           | Ireland | United Kingdom |
| Wheat, bushels . . .   | 30                      | 28      | 30             |
| Barley, " . . .        | 33                      | 34      | 33             |
| Oats, " . . .          | 37                      | 38      | 37½            |
| Beans, &c. " . . .     | 24                      | 28      | 24             |
| Potatoes, cwt.s. . . . | 121                     | 78      | 96             |
| Turnips, " . . .       | 240                     | 224     | 236            |
| Hay, " . . .           | 26                      | 34      | 29             |

Lawes and Gilbert's experiments of the yield of ground manured and unmanured showed as follows:—

BUSHEL PER ACRE

| Period  | Unmanured | Dung | Bone-Ash, &c. |
|---------|-----------|------|---------------|
| 1852-69 | 14.8      | 35.7 | 36.7          |
| 1870-79 | 10.2      | 29.5 | 31.7          |

The seed used for wheat-growing is usually 2½ bushels per acre, and the yield about eleven-fold for the United Kingdom.

According to Mr. Hermann Voss, the United Kingdom consumes annually 290,000 tons of mineral phosphates (93 per cent. imported) and 110,000 of bones (45 per cent. imported), in all, 400,000 tons, from which are pro-

duced 800,000 tons of artificial manure, as compared with 200,000 tons in 1860.

The consumption of dung is 79 million tons (see *Manure*) per annum, that is, about  $1\frac{1}{2}$  tons per acre.

The crops of 1889 were as follows:—

|                | England    | Scotland   | Ireland    | United Kingdom | Acreage   | Per Acre |
|----------------|------------|------------|------------|----------------|-----------|----------|
| Wheat, bushels | 71,000,000 | 2,200,000  | 2,700,000  | 75,900,000     | 2,540,000 | 30       |
| Oats, "        | 76,200,000 | 37,200,000 | 50,600,000 | 164,000,000    | 4,130,000 | 40       |
| Barley, "      | 59,600,000 | 7,800,000  | 7,300,000  | 74,700,000     | 2,310,000 | 32       |
| Beans, &c. "   | 14,500,000 | 500,000    | 200,000    | 15,200,000     | 540,000   | 28       |
| Potatoes, tons | 2,570,000  | 1,010,000  | 2,850,000  | 6,430,000      | 1,370,000 | 4.7      |
| Turnips, "     | 20,300,000 | 7,800,000  | 3,900,000  | 32,000,000     | 2,220,000 | 14.4     |
| Mangolds, "    | 6,100,000  | ...        | 600,000    | 6,700,000      | 370,000   | 18.0     |
| Hay, "         | 10,400,000 | 1,000,000  | 4,900,000  | 16,300,000     | 9,660,000 | 1.7      |

Ensilage or the use of "silos" is increasing, the returns for 1889 showing 2820 in the United Kingdom.

Statistics of live-stock are as follows:—

| Year | Horses    | Cattle     | Sheep      | Pigs      | Authority |
|------|-----------|------------|------------|-----------|-----------|
| 1688 | ...       | ...        | 12,000,000 | ...       | King      |
| 1774 | ...       | 2,850,000  | 12,000,000 | ...       | Campbell  |
| 1812 | 1,500,000 | 5,500,000  | 25,000,000 | 3,000,000 | Colquhoun |
| 1831 | 1,500,000 | 5,220,000  | ...        | 4,000,000 | M'Culloch |
| 1855 | 2,050,000 | 7,955,000  | 27,972,000 | 3,686,000 | "         |
| 1867 | ...       | 8,730,000  | 33,820,000 | 4,220,000 | Official  |
| 1877 | 1,890,000 | 9,730,000  | 32,220,000 | 3,730,000 | "         |
| 1888 | 1,940,000 | 10,270,000 | 28,940,000 | 3,820,000 | "         |

The figures before 1812 are for England and Wales, the rest for the United Kingdom. Horses used in towns are not included above.

In 1855, according to M'Culloch, the live-stock stood thus:—

|        | England    | Scotland  | Ireland   | United Kingdom |
|--------|------------|-----------|-----------|----------------|
| Horses | 1,309,000  | 185,000   | 556,000   | 2,050,000      |
| Cattle | 3,420,000  | 975,000   | 3,560,000 | 7,955,000      |
| Sheep  | 18,690,000 | 5,680,000 | 3,602,000 | 27,972,000     |
| Pigs   | 2,360,000  | 146,000   | 1,180,000 | 3,686,000      |

The returns of the three kingdoms for 1888 are as follows:—

|        | England    | Scotland  | Ireland   | United Kingdom |
|--------|------------|-----------|-----------|----------------|
| Horses | 1,240,000  | 190,000   | 510,000   | 1,940,000      |
| Cattle | 5,060,000  | 1,110,000 | 4,100,000 | 10,270,000     |
| Sheep  | 18,580,000 | 6,730,000 | 3,630,000 | 28,940,000     |
| Pigs   | 2,265,000  | 155,000   | 1,400,000 | 3,820,000      |

The proportion of cattle in England to size of farms in 1885 was:—

NUMBER TO 100 ACRES

| Acres    | Horses | Cows | Sheep | Pigs | Total |
|----------|--------|------|-------|------|-------|
| Under 5  | 7      | 30   | 30    | 50   | 117   |
| 5-50     | 5      | 29   | 38    | 17   | 89    |
| 50-100   | 5      | 23   | 51    | 9    | 88    |
| 100-500  | 4      | 17   | 74    | 6    | 101   |
| Over 500 | 3      | 10   | 105   | 4    | 122   |

The production of meat is computed on an annual slaughter of 20 per cent. of all horned cattle, 40 per cent. of sheep, and 100 per cent. of pigs, the average carcass being taken at 600 lbs. beef, 70 lbs. mutton, and 100

lbs.\* pig. The following table shows the production and consumption:—

| Period  | Tons of Meat Consumed Yearly |          |           | Lbs. Meat per Inhabitant |
|---------|------------------------------|----------|-----------|--------------------------|
|         | Home-Grown                   | Imported | Total     |                          |
| 1831-40 | 940,000                      | ...      | 940,000   | 80                       |
| 1841-50 | 980,000                      | ...      | 980,000   | 80                       |
| 1851-60 | 1,000,000                    | 44,000   | 1,044,000 | 81                       |
| 1861-70 | 1,020,000                    | 131,000  | 1,151,000 | 87                       |
| 1871-80 | 1,050,000                    | 288,000  | 1,338,000 | 87                       |
| 1881-87 | 1,030,000                    | 540,000  | 1,570,000 | 98                       |

Machinery has introduced great changes in the mode of cultivation since the Waterloo epoch. The Census of 1821 showed 33 per cent. of the classified population of England was engaged in agriculture, that of 1881 only 12 per cent. The following table shows the number engaged in agriculture at various dates, and the approximate gross value of all farming products:—

AGRICULTURAL HANDS AND PRODUCT, UNITED KINGDOM

| Year | Numbers Engaged | Product, Millions £ | Product per Hand |
|------|-----------------|---------------------|------------------|
| 1821 | 2,930,000       | 190                 | 65               |
| 1831 | 3,050,000       | 195                 | 65               |
| 1841 | 3,401,000       | 200                 | 59               |
| 1851 | 3,519,000       | 220                 | 63               |
| 1861 | 3,149,000       | 240                 | 76               |
| 1871 | 2,808,000       | 250                 | 89               |
| 1881 | 2,561,000       | 251                 | 98               |

The numbers engaged before 1841 are estimates as concerns Ireland and Scotland, the rest are from Booth's reports.

The earliest estimate of the value of agricultural products in England was by Gregory King, in 1698, as follows:—

|                 | Bushels    | Value, £  | Pence per Bushel |
|-----------------|------------|-----------|------------------|
| Wheat           | 14,000,000 | 2,450,000 | 42               |
| Barley          | 27,000,000 | 2,700,000 | 24               |
| Rye             | 10,000,000 | 1,250,000 | 30               |
| Oats            | 16,000,000 | 1,200,000 | 18               |
| Pease and beans | 11,000,000 | 1,375,000 | 30               |
| Vetches         | 1,000,000  | 100,000   | 24               |
| Total           | 79,000,000 | 9,075,000 | 27               |

\* Major Craigie computes that 1000 cattle give 67 tons of beef, and 1000 sheep  $12\frac{1}{2}$  tons mutton yearly; my estimate is 54 tons of beef, and  $12\frac{1}{2}$  tons of mutton.

He computed that 16 per cent. was required for seed, leaving the balance for consumption 66 million bushels, equal to 10 bushels per inhabitant. The following estimates have since been recorded of the total value of agricultural and pastoral products yearly:—

| England and Wales |           |          | United Kingdom |                |          |
|-------------------|-----------|----------|----------------|----------------|----------|
| Date              | Author    | Mills. £ | Date           | Author         | Mills. £ |
| 1812              | Stevenson | 131      | 1812           | Colquhoun, &c. | 260      |
| 1820              | Middleton | 127      | 1834           | Spackmann      | 250      |
| 1846              | M'Culloch | 142      | 1846           | M'Culloch      | 218      |
| 1889              | Mulhall   | 158      | 1889           | Mulhall        | 251      |

Colquhoun's estimate in 1812 was 194 millions sterling for tillage, omitting pastoral products, which were after-

wards valued at 66 millions, thus making a total of 260 millions. This was only 34 millions over Arthur Young's estimate in 1790, which did not include Ireland. We may, therefore, conclude that the value of farm products has been almost stationary for 100 years, except the effects of a passing season of war or scarcity. Colquhoun's table showed thus in 1812:—

|                                | Quantity  | Value, £    |
|--------------------------------|-----------|-------------|
| Wheat, tons . . . . .          | 1,800,000 | 32,300,000  |
| Other grain, tons . . . . .    | 5,200,000 | 41,300,000  |
| Potatoes . . . . .             | ...       | 14,200,000  |
| Turnips . . . . .              | ...       | 14,200,000  |
| Fruit and vegetables . . . . . | ...       | 7,800,000   |
| Hay, grass, &c. . . . .        | ...       | 89,200,000  |
| Total . . . . .                | ...       | 194,000,000 |

VALUE OF CROPS, &C., IN 1889

|                           | England     | Scotland   | Ireland    | United Kingdom | Price per Ton |
|---------------------------|-------------|------------|------------|----------------|---------------|
|                           | £           | £          | £          | £              | £             |
| Wheat . . . . .           | 13,100,000  | 400,000    | 500,000    | 14,000,000     | 6.5           |
| Oats . . . . .            | 7,200,000   | 3,600,000  | 4,800,000  | 15,600,000     | 5.7           |
| Barley . . . . .          | 9,600,000   | 1,300,000  | 1,200,000  | 12,100,000     | 6.6           |
| All grain . . . . .       | 29,900,000  | 5,300,000  | 6,500,000  | 41,700,000     | ...           |
| Straw . . . . .           | 5,300,000   | 900,000    | 1,100,000  | 7,300,000      | 1.1           |
| Beans, &c. . . . .        | 1,800,000   | 100,000    | ...        | 1,900,000      | 5.0           |
| Potatoes . . . . .        | 7,000,000   | 2,700,000  | 8,000,000  | 17,700,000     | 2.7           |
| Hay . . . . .             | 17,700,000  | 1,700,000  | 8,000,000  | 27,400,000     | 1.7           |
| Turnips, &c. . . . .      | 21,100,000  | 6,200,000  | 3,600,000  | 30,900,000     | 0.8           |
| Hops . . . . .            | 2,200,000   | ...        | ...        | 2,200,000      | 75.0          |
| Flax . . . . .            | ...         | ...        | 850,000    | 850,000        | 45.0          |
| Sundries . . . . .        | 2,100,000   | 100,000    | 650,000    | 2,750,000      | ...           |
| Total . . . . .           | 87,100,000  | 17,000,000 | 28,700,000 | 132,800,000    | ...           |
| Animal products . . . . . | 64,400,000  | 16,000,000 | 29,600,000 | 110,000,000    | ...           |
| Sundries . . . . .        | 6,700,000   | 900,000    | 800,000    | 8,400,000      | ...           |
| Total . . . . .           | 158,200,000 | 33,900,000 | 59,100,000 | 251,200,000    | ...           |

M'Culloch also made tables for each of the three kingdoms in 1846, which compare with the results in 1889 as follows:—

ALL FARM PRODUCTS, MILLIONS £

|                      | 1846          |           |       | 1889          |           |       |
|----------------------|---------------|-----------|-------|---------------|-----------|-------|
|                      | Agricul-tural | Pas-toral | Total | Agricul-tural | Pas-toral | Total |
| England . . . . .    | 80            | 62        | 142   | 94            | 64        | 158   |
| Scotland . . . . .   | 19            | 9         | 28    | 18            | 16        | 34    |
| Ireland . . . . .    | 28            | 20        | 48    | 29            | 30        | 59    |
| U. Kingdom . . . . . | 127           | 91        | 218   | 141           | 110       | 251   |

The following table shows the profits of farming, out of which the tenant-farmer has to pay his rent and maintain his family:—

|                                        | Cost per Acre | Number of Acres | Amount      |
|----------------------------------------|---------------|-----------------|-------------|
|                                        | £ s. d.       |                 | £           |
| Labour . . . . .                       | 2 5 0         | 48,000,000      | 108,000,000 |
| Team . . . . .                         | 1 0 0         | "               | 48,000,000  |
| Taxes and Tithes . . . . .             | 0 8 4         | "               | 20,000,000  |
| Seed . . . . .                         | 0 10 0        | 21,200,000      | 10,600,000  |
| Manure . . . . .                       | 0 12 0        | "               | 12,700,000  |
| Balance for rent, &c. . . . .          | 1 1 3         | 48,000,000      | 51,900,000  |
| Total value of farm products . . . . . |               |                 | 251,200,000 |

Allowing the tenant one-half of the profits to support

his family, the landlord's share would be 10½ shillings per acre.

Comparing M'Culloch's tables with the value of products in 1889, we find as follows:—

VALUE OF ALL FARM PRODUCTS

|                                | 1831        | 1846        | 1889           |
|--------------------------------|-------------|-------------|----------------|
|                                | England     | England     | United Kingdom |
|                                | £           | £           | £              |
| Grain . . . . .                | 53,300,000  | 51,500,000  | 41,700,000     |
| Green crops . . . . .          | 15,300,000  | 28,500,000  | 53,600,000     |
| Hay and straw . . . . .        | ...         | 13,000,000  | 34,700,000     |
| Meat . . . . .                 | ...         | 26,200,000  | 55,200,000     |
| Dairy . . . . .                | ...         | 12,000,000  | 31,200,000     |
| Poultry and eggs . . . . .     | ...         | 1,400,000   | 9,100,000      |
| Foals . . . . .                | 59,430,000  | 3,000,000   | 5,800,000      |
| Hides, wool, &c. . . . .       | ...         | 4,300,000   | 9,200,000      |
| Timber . . . . .               | ...         | 1,800,000   | 1,400,000      |
| Vegetables, fruit, &c. . . . . | ...         | ...         | 9,300,000      |
| Total . . . . .                | 128,030,000 | 141,700,000 | 251,200,000    |

IRELAND

According to Sir W. Petty, the war of Cromwell reduced Ireland to a wilderness, three-fourths of the cattle being destroyed: the value of live-stock fell from four millions sterling in 1641 to £500,000 in 1652, and such was the scarcity of grain, that a barrel of wheat rose in that interval from 12 to 50 shillings. The areas cultivated and uncultivated at various dates show thus:—

| ACREAGE |            |              |            | Authority |
|---------|------------|--------------|------------|-----------|
| Year    | Cultivated | Uncultivated | Total      |           |
| 1726    | 11,043,000 | 9,777,000    | 20,820,000 | Browne    |
| 1805    | 13,440,000 | 7,380,000    | "          | Newenham  |
| 1812    | 13,454,000 | 7,366,000    | "          | "         |
| 1837    | 14,604,000 | 4,216,000    | "          | Official  |
| 1874    | 15,720,000 | 3,100,000    | "          | "         |
| 1888    | 15,060,000 | 3,760,000    | "          | "         |

Secretary Larcom's statement of the crops in 1847 (excluding hay) compares with the returns for 1887 thus :—

|                 | Crop       |            | Value       |            |
|-----------------|------------|------------|-------------|------------|
|                 | 1847       | 1887       | 1847        | 1887       |
| Wheat, bushels  | 24,000,000 | 1,900,000  | £ 6,700,000 | £ 320,000  |
| Oats, " "       | 92,000,000 | 43,500,000 | 11,500,000  | 3,630,000  |
| Barley, &c. " " | 13,000,000 | 4,800,000  | 2,300,000   | 600,000    |
| Potatoes, tons  | 2,000,000  | 3,570,000  | 8,200,000   | 10,800,000 |
| Turnips, " "    | 5,800,000  | 3,170,000  | 3,500,000   | 1,200,000  |
| Total . .       | ...        | ...        | 32,200,000  | 16,550,000 |

The acreage of crops, according to Larcom and other official returns, was :—

ACREAGE

|                 | 1847      | 1852      | 1859      | 1867      | 1876      | 1888      |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Wheat . . . .   | 744,000   | 354,000   | 466,000   | 281,000   | 120,000   | 90,000    |
| Oats . . . .    | 2,201,000 | 2,283,000 | 1,981,000 | 1,680,000 | 1,487,000 | 1,280,000 |
| Barley, &c. . . | 333,000   | 340,000   | 205,000   | 163,000   | 242,000   | 200,000   |
| Potatoes . . .  | 284,000   | 877,000   | 1,203,000 | 1,026,000 | 881,000   | 805,000   |
| Turnips . . . . | 384,000   | 357,000   | 322,000   | 326,000   | 345,000   | 290,000   |
| Flax . . . .    | 58,000    | 137,000   | ...       | 218,000   | 133,000   | 114,000   |
| Sundries . . .  | 95,000    | 122,000   | 114,000   | 130,000   | 138,000   | 156,900   |
| Clover, &c. . . | 1,140,000 | 1,270,000 | ...       | 1,660,000 | 1,860,000 | 1,205,000 |
| Total . . . .   | 5,239,000 | 5,740,000 | ...       | 5,484,000 | 5,206,000 | 4,140,000 |

The Registrar-General for Ireland published recently his estimate of the agricultural products in cycles of five years thus :—

|                 | Average Annual Value |              |              |
|-----------------|----------------------|--------------|--------------|
|                 | 1851-55              | 1866-70      | 1884-88      |
| Crops . . . .   | £ 43,660,000         | £ 27,935,000 | £ 16,470,000 |
| Cattle, &c. . . | 28,330,000           | 44,280,000   | 37,550,000   |
| Total . . . .   | 71,990,000           | 72,215,000   | 54,020,000   |

Since 1870 the annual product of farming has declined 18 millions sterling. The landlords have voluntarily or judiciously had their rents reduced about 30 per cent.—say, 3 millions sterling on a rental of 10 millions; the tenants have suffered the rest of the loss, 15 millions sterling.

This loss of 18 millions sterling per annum, recorded by the Registrar-General, is, as he shows, 25 per cent. of the total farm product of Ireland.

In 1843-45 Sir Richard Griffith valued the crops, exclusive of grass and hay, at £43,000,000. In 1861 Hancock valued all crops at £34,900,000; and Fisher at £36,800,000. It would appear that in the preceding table hay is counted not with crops, but in the item of cattle products.

The decline of agriculture in Ireland has been mainly due to the cause stated by John Stuart Mill :—

"Alone among mankind the Irish peasant cannot be better or worse off by any act of his. If industrious or prudent, nobody but the landlord gains, if lazy or intemperate, it is at the landlord's expense."

Nevertheless, the value of live-stock has almost trebled since 1841.

VALUE OF LIVE-STOCK

|              | £          |
|--------------|------------|
| 1841 . . . . | 21,100,000 |
| 1855 . . . . | 33,100,000 |
| 1888 . . . . | 55,200,000 |

The numbers of live-stock in 1855 compare with those of 1888 thus :—

|                | Number    |           | Value       |              |
|----------------|-----------|-----------|-------------|--------------|
|                | 1855      | 1888      | 1855        | 1888         |
| Horses . . . . | 556,000   | 507,000   | £ 4,500,000 | £ 15,200,000 |
| Cattle . . . . | 3,560,000 | 4,100,000 | 23,200,000  | 32,800,000   |
| Sheep . . . .  | 3,602,000 | 3,627,000 | 3,900,000   | 4,900,000    |
| Pigs . . . .   | 1,180,000 | 1,398,000 | 1,500,000   | 2,300,000    |
| Total . . . .  | ...       | ...       | 33,100,000  | 55,200,000   |

The increase has been rather in value than in number, viz. :—

|                | In Value      | In Number    |
|----------------|---------------|--------------|
| Horses . . . . | 227 per cent. | 0 ...        |
| Cattle . . . . | 41 "          | 15 per cent. |
| Sheep . . . .  | 26 "          | 0 ...        |
| Pigs . . . .   | 54 "          | 20 per cent. |

During the eighteenth century 60 per cent. of the Irish exports were meat, the price of which rose from twenty shillings per cwt. in 1776 to fifty shillings in 1800. After the Waterloo epoch almost down to the famine of 1846, England drew twenty million bushels of wheat yearly from Ireland.

Of late years the exportation of live-stock to Great Britain has declined, viz. :—

EXPORTS TO ENGLAND AND SCOTLAND.

|                | 1877    | 1887    |
|----------------|---------|---------|
| Cattle . . . . | 649,000 | 669,000 |
| Sheep . . . .  | 630,000 | 548,000 |
| Pigs . . . .   | 585,000 | 480,000 |

Emigration has drained the country so largely of men in the vigour of life that pauperism increased 46 per cent. between 1877 and 1887 (see *Paupers*). For rental, value, and tenure, see *Land*.

SCOTLAND

M'Culloch's tables for 1814 and 1846, with subsequent official returns, are as follows :—

## ACREAGE

|                     | 1814      | 1846      | 1857    | 1867      | 1878      | 1888      |
|---------------------|-----------|-----------|---------|-----------|-----------|-----------|
| Wheat . . . . .     | 140,000   | 350,000   | 243,000 | 110,000   | 75,000    | 70,000    |
| Oats . . . . .      | 1,260,000 | 1,300,000 | 930,000 | 1,000,000 | 1,030,000 | 1,015,000 |
| Barley, &c. . . . . | 398,000   | 500,000   | 182,000 | 215,000   | 290,000   | 255,000   |
| Turnips . . . . .   | 410,000   | 450,000   | 470,000 | 480,000   | 500,000   | 480,000   |
| Potatoes . . . . .  | 80,000    | 200,000   | 145,000 | 150,000   | 165,000   | 160,000   |
| Sundries . . . . .  | 48,000    | 40,000    | ...     | ...       | 25,000    | 40,000    |
| Clover, &c. . . . . | 220,000   | 550,000   | ...     | ...       | ...       | 1,670,000 |
| Total . . . . .     | 2,556,000 | 3,390,000 | ...     | ...       | ...       | 3,690,000 |

M'Culloch estimated the farming products of 1846 as follows:—

|                             |            |
|-----------------------------|------------|
|                             | £          |
| Grain . . . . .             | 8,100,000  |
| Green crops . . . . .       | 10,600,000 |
| Pastoral products . . . . . | 9,000,000  |
| Total . . . . .             | 27,700,000 |

He estimated the grain produced at 48 million bushels, against Larcom's estimate same year for Ireland, 129 millions.

The numbers of live-stock were:—

|                  | 1857      | 1867      | 1878      | 1888      |
|------------------|-----------|-----------|-----------|-----------|
| Horses . . . . . | ...       | ...       | 191,000   | 190,000   |
| Cattle . . . . . | 970,000   | 960,000   | 1,095,000 | 1,110,000 |
| Sheep . . . . .  | 5,750,000 | 6,070,000 | 7,036,000 | 6,730,000 |
| Pigs . . . . .   | 137,000   | 204,000   | 140,000   | 155,000   |

For tenure and rental, see *Lands*.

## ISLANDS

*Isle of Man*.—Area 145,000 acres, of which 98,000 cultivated, 24,000 under grain, 12,000 green crops, and he rest clover, &c.

*Jersey*.—Area 29,000 acres, of which 20,000 cultivated, half green crops, half clover.

*Guernsey, &c.*—Area 20,000 acres, of which 12,000 cultivated; same mode as Jersey.

The products of these islands are included with those of England.

UNITED KINGDOM  
AGRICULTURAL CAPITAL

| Year  | Millions. £ Sterling |        |          |       | £ per Inhabitant |
|-------|----------------------|--------|----------|-------|------------------|
|       | Land                 | Cattle | Sundries | Total |                  |
| 1750  | 498                  | 25     | 58       | 581   | 55               |
| 1780  | 702                  | 35     | 81       | 812   | 65               |
| 1814  | 1,470                | 74     | 172      | 1,716 | 95               |
| 1843  | 1,677                | 94     | 197      | 1,968 | 72               |
| 1850  | 1,705                | 104    | 201      | 2,010 | 72               |
| 1860  | 1,748                | 140    | 210      | 2,098 | 72               |
| 1868  | 1,925                | 170    | 233      | 2,328 | 75               |
| 1880  | 2,086                | 209    | 255      | 2,550 | 72               |
| 1887* | 1,873                | 185    | 229      | 2,287 | 61               |

In the above table land is capitalised at 30 years' rental. As for cattle, it was valued by King in 1688 at 25 millions; the figures for 1814 and subsequent years are according to the numbers of live-stock at the several dates specified in table. Sundries are estimated at 10

\* The actual value of land is supposed to be 1560 millions, the official valuation being 20 per cent. too high. In a paper read at the Surveyors' Institution in January 1890, Mr. H. H. Smith showed a decline of 523 millions sterling since 1880.

per cent. of the total, in preference to 14 per cent., adopted by Chaptal and other French economists.

There was a steady increase down to 1880, from which date agricultural capital has been declining, viz. :—

| Period    | Millions, £   | £ per Annum |
|-----------|---------------|-------------|
| 1750-1780 | Increase, 231 | 7,450,000   |
| 1781-1814 | " 904         | 26,600,000  |
| 1815-1843 | " 252         | 8,700,000   |
| 1844-1860 | " 130         | 8,100,000   |
| 1861-1880 | " 452         | 22,600,000  |
| 1881-1889 | Decline, 263  | 29,200,000  |

Notwithstanding the recent decline, agricultural capital still forms one-fourth of the wealth of the nation (see *Wealth*), and is almost three times as great as it was 100 years ago.

The distribution of this capital among the three kingdoms in 1887 was:—

## AGRICULTURAL CAPITAL, MILLIONS £

|                    | Land  | Cattle | Sundries | Total | £ per Inhabitant |
|--------------------|-------|--------|----------|-------|------------------|
| England . . . . .  | 1,362 | 104    | 163      | 1,629 | 57               |
| Scotland . . . . . | 213   | 26     | 27       | 266   | 61               |
| Ireland . . . . .  | 298   | 55     | 39       | 392   | 80               |
| United Kingdom     | 1,873 | 185    | 229      | 2,287 | 61               |

The relation between capital and product in 1887 was as follows:—

## MILLION £

|                    | Capital | Gross Product | Ratio to Capital |
|--------------------|---------|---------------|------------------|
| England . . . . .  | 1,629   | 158           | 9.7 per cent.    |
| Scotland . . . . . | 266     | 34            | 12.8 "           |
| Ireland . . . . .  | 392     | 59            | 15.0 "           |
| United Kingdom     | 2,287   | 251           | 11.1 "           |

Further details will be found under the items *Cattle* and *Land*.

The value of tillage and pastoral products compares in the three kingdoms with the number of hands employed as follows:—

|                    | Hands     | Product, Million £ | £ per Head |
|--------------------|-----------|--------------------|------------|
| England . . . . .  | 1,341,000 | 158                | 118        |
| Scotland . . . . . | 234,000   | 34                 | 145        |
| Ireland . . . . .  | 986,000   | 59                 | 60         |
| United Kingdom     | 2,561,000 | 251                | 97         |

FRANCE

This is the best cultivated country in Europe. The earliest statistics do not give us the total area under grain, being confined to wheat-growing in the last century, but the estimates of Chaptal, Rubichon, and Moreau, with the official reports of later times, afford some guide for the last ninety years, and may be summed up thus :—

| Year    | Acres under Grain | Crop, Millions of Bushels |                |       |
|---------|-------------------|---------------------------|----------------|-------|
|         |                   | Wheat                     | Oats, Rye, &c. | Total |
| 1801-20 | 30,000,000        | 140                       | 250            | 390   |
| 1825-35 | 32,000,000        | 170                       | 310            | 480   |
| 1840-50 | 34,300,000        | 220                       | 360            | 580   |
| 1860-76 | 36,000,000        | 265                       | 450            | 715   |
| 1883-86 | 37,100,000        | 301                       | 439            | 740   |

Official returns of wheat-growing, coupled with Moreau's tables since 1700, give the following :—

| Year    | Acres      | Million Bushels | Bushels per Acre | Value of Crop, £ |
|---------|------------|-----------------|------------------|------------------|
| 1700    | 12,400,000 | 83              | 6.7              | 12,000,000       |
| 1760    | 11,200,000 | 90              | 8.0              | 29,600,000       |
| 1764    | 12,400,000 | 97              | 7.8              | 28,100,000       |
| 1764    | 14,800,000 | 110             | 7.2              | 28,800,000       |
| 1791    | 11,500,000 | 130             | 11.2             | 37,800,000       |
| 1818    | 12,800,000 | 142             | 11.2             | 49,100,000       |
| 1839    | 13,900,000 | 195             | 14.0             | 60,800,000       |
| 1841    | 13,900,000 | 198             | 14.1             | 53,200,000       |
| 1851    | 15,000,000 | 238             | 15.9             | 49,800,000       |
| 1861    | 16,900,000 | 207             | 12.2             | 73,600,000       |
| 1871-80 | 17,100,000 | 270             | 15.7             | 90,800,000       |
| 1881-86 | 17,400,000 | 303             | 17.3             | 81,800,000       |
| 1889    | 17,600,000 | 309             | 17.5             | 74,200,000       |

Moreau states that 33 per cent. of the population were fed on wheat in the last century, and 60 per cent. in 1839.

The average yield of grain was officially stated thus (Spallart) :—

BUSHEL, PER ACRE

| Year           | Wheat | Oats | Barley | Rye  |
|----------------|-------|------|--------|------|
| 1815 . . . . . | 9.4   | 16.0 | 13.2   | 8.4  |
| 1835 . . . . . | 14.7  | 19.1 | 15.4   | 13.7 |
| 1855 . . . . . | 12.5  | 26.2 | 20.7   | 11.0 |
| 1875 . . . . . | 16.0  | 24.0 | 19.1   | 15.6 |
| 1880 . . . . . | 16.0  | 26.4 | 20.7   | 15.1 |
| 1884 . . . . . | 17.8  | 26.2 | 20.2   | 16.7 |

Notwithstanding the increase of grain-growing, France has paid large sums for imported grain. From 1801 to 1849, her net imports of wheat alone cost her 26 millions sterling, and the imports of grain from 1860 to 1886 (over exports) cost 211 millions sterling. The trade returns show :—

| Year    | Net Imports of Grain |                  | Annual Average      |            |
|---------|----------------------|------------------|---------------------|------------|
|         | Millions of Bushels  | Value, Million £ | Millions of Bushels | Value, £   |
| 1861-70 | 92                   | 32               | 9                   | 3,200,000  |
| 1871-80 | 384                  | 101              | 38                  | 10,100,000 |
| 1881-86 | 346                  | 78               | 58                  | 13,000,000 |
| Total   | 822                  | 211              | 32                  | 8,100,000  |

The importation of grain would have been still greater but for the rapid increase of potatoes, which have multiplied fivefold since 1820.

CROP OF POTATOES, TONS PER ANNUM

|                   |           |                   |            |
|-------------------|-----------|-------------------|------------|
| 1815-20 . . . . . | 1,950,000 | 1861-80 . . . . . | 6,500,000  |
| 1831-40 . . . . . | 4,900,000 | 1883-86 . . . . . | 10,400,000 |

The official returns of wine-growing since 1810 may be condensed as follows :—

VINEYARDS.

| Period  | Acres     | Millions of Gallons | Value of Wine, £ | Gallons per Acre |
|---------|-----------|---------------------|------------------|------------------|
| 1810-12 | 4,064,000 | 455                 | 26,600,000       | 112              |
| 1830-32 | 5,015,000 | 502                 | 35,600,000       | 100              |
| 1840-42 | 5,230,000 | 790                 | 52,700,000       | 151              |
| 1850-52 | 5,450,000 | 920                 | 80,500,000       | 166              |
| 1860-62 | 5,510,000 | 703                 | 68,900,000       | 126              |
| 1870-72 | 6,560,000 | 1,010               | 84,200,000       | 155              |
| 1880-82 | 5,150,000 | 720                 | 59,200,000       | 139              |
| 1883-86 | 5,110,000 | 790                 | 56,200,000       | 155              |
| 1889    | 4,550,000 | 525                 | 44,000,000       | 112              |

Down to 1880 there was always a surplus of wine for exportation, but since that year the imports exceed the exports: the net importation in 1886 was 190 million gallons. The phylloxera completely destroyed 2,900,000 acres of vines, one-half of which have been newly planted with American and other vines, besides injuring 1,600,000 acres, which still yield crops. Only 2,100,000 acres of the vineyards of 1872 have escaped the pest.

Beet-root is another valuable crop, having been introduced by Bonaparte: the area and production have been approximately as follows :—

| Year           | Beet-Growing |            |
|----------------|--------------|------------|
|                | Acres        | Crop, Tons |
| 1840 . . . . . | 200,000      | 800,000    |
| 1860 . . . . . | 490,000      | 3,000,000  |
| 1879 . . . . . | 1,100,000    | 10,600,000 |
| 1886 . . . . . | 1,310,000    | 14,800,000 |

In 1842 it was proposed in the Legislature to pull up the plantations and pay the owners £1,500,000 indemnity, but the bill was thrown out. The production of beet-sugar (see *Sugar*) at present exceeds 400,000 tons yearly against 35,000 in 1840.

Oil, flax, tobacco, chestnuts, &c., are crops of less note (see each under its own title).

M. Lavergne in 1859 compared the agricultural condition with that of 1789 as follows :—

ACRES

|                                 | 1789        | 1859        |
|---------------------------------|-------------|-------------|
| Arable . . . . .                | 61,720,000  | 64,190,000  |
| Meadow . . . . .                | 7,410,000   | 9,880,000   |
| Gardens and vineyards . . . . . | 7,400,000   | 9,870,000   |
| Woods and waste . . . . .       | 46,810,000  | 39,400,000  |
| Total . . . . .                 | 123,340,000 | 123,340,000 |

Since 1848 no less than nine million acres of waste land have been reclaimed, the principal areas being approximately shown thus :—

ACRES

|                         | 1848       | 1884       | Increase  |
|-------------------------|------------|------------|-----------|
| Grain . . . . .         | 34,500,000 | 37,500,000 | 3,000,000 |
| Various crops . . . . . | 23,000,000 | 24,500,000 | 1,500,000 |
| Forest . . . . .        | 16,200,000 | 20,700,000 | 4,500,000 |
| Total . . . . .         | 73,700,000 | 82,700,000 | 9,000,000 |

Machinery was not much in use till after the reign of Louis Philippe; it was common in 1840 to see horses treading out grain, but in 1862 an official report showed 101,000 threshing-machines, of which 2850 were worked by steam. Improved methods led to a better yield per acre, viz. :—

|                  | Yield, Bushels per Acre |         |
|------------------|-------------------------|---------|
|                  | 1821-30                 | 1866-75 |
| Wheat . . . . .  | 13                      | 16      |
| Oats . . . . .   | 17                      | 27      |
| Barley . . . . . | 14                      | 22      |

The yield of wheat in the first period was 550 to 100 lbs. seed, and in the second period 750.

The principal crops for 1888 compare with those of 1880 thus :—

|                         | Acreage    |            | Product             |             |
|-------------------------|------------|------------|---------------------|-------------|
|                         | 1880       | 1888       | 1880                | 1888        |
| Wheat . . . . .         | 16,990,000 | 17,180,000 | 274,000,000 bushels | 273,000,000 |
| Oats . . . . .          | 8,580,000  | 9,230,000  | 230,000,000 "       | 225,000,000 |
| Rye . . . . .           | 4,560,000  | 4,040,000  | 70,000,000 "        | 62,000,000  |
| Barley . . . . .        | 2,600,000  | 2,240,000  | 54,000,000 "        | 44,000,000  |
| Maize . . . . .         | 1,660,000  | 1,420,000  | 28,000,000 "        | 30,000,000  |
| Mixed . . . . .         | 2,620,000  | 2,330,000  | 46,000,000 "        | 40,000,000  |
| All grain . . . . .     | 37,010,000 | 36,440,000 | 702,000,000 bushels | 674,000,000 |
| Potatoes . . . . .      | 3,220,000  | 3,570,000  | 9,500,000 tons      | 10,400,000  |
| Beet-root . . . . .     | 1,110,000  | 1,310,000  | 14,800,000 "        | 12,200,000  |
| Vines . . . . .         | 5,450,000  | 4,550,000  | 653,000,000 gallons | 525,000,000 |
| Colza . . . . .         | 340,000    | 180,000    | 4,660,000 bushels   | 2,710,000   |
| Flax and hemp . . . . . | 380,000    | 250,000    | 2,400,000 " seed    | 1,660,000   |
| Olives . . . . .        | 280,000    | 270,000    | ... bushels         | 6,620,000   |
| Clover . . . . .        | 2,580,000  | 2,250,000  | ... tons            | 3,790,000   |
| Total . . . . .         | 50,370,000 | 48,820,000 | ...                 | ...         |

The above is exclusive of 3,620,000 acres under other artificial grasses than clover, producing 6,100,000 tons grass yearly.

The statistics of live-stock at various dates have been as follows :—

| Year           | Horses    | Cattle     | Sheep      | Pigs      | Goats     | Authority |
|----------------|-----------|------------|------------|-----------|-----------|-----------|
| 1812 . . . . . | 1,835,000 | 6,080,000  | 30,310,000 | ...       | ...       | Smith     |
| 1830 . . . . . | 2,500,000 | 7,130,000  | 29,130,000 | 4,500,000 | 1,210,000 | M'Gregor  |
| 1840 . . . . . | 1,870,000 | 9,930,000  | 32,150,000 | 4,500,000 | 900,000   | Schnabel  |
| 1852 . . . . . | 3,280,000 | 12,150,000 | 33,300,000 | 5,250,000 | 1,340,000 | Official  |
| 1862 . . . . . | 3,340,000 | 12,810,000 | 29,500,000 | 6,040,000 | 1,730,000 | "         |
| 1873 . . . . . | 3,140,000 | 11,720,000 | 25,000,000 | 5,760,000 | 1,790,000 | "         |
| 1883 . . . . . | 3,220,000 | 11,790,000 | 21,600,000 | 5,850,000 | 1,460,000 | "         |
| 1888 . . . . . | 3,250,000 | 13,380,000 | 22,600,000 | 5,850,000 | 1,550,000 | "         |

The official valuation of live-stock in 1882 was :—

|                  | No.        | Value, £    | £ per Head |
|------------------|------------|-------------|------------|
| Horses . . . . . | 2,840,000  | 54,400,000  | 19.4       |
| Mules . . . . .  | 250,000    | 4,300,000   | 17.2       |
| Asses . . . . .  | 400,000    | 1,900,000   | 4.8        |
| Cattle . . . . . | 11,800,000 | 123,500,000 | 10.5       |
| Sheep . . . . .  | 23,000,000 | 22,900,000  | 1.0        |
| Goats . . . . .  | 1,500,000  | 1,200,000   | 0.8        |
| Pigs . . . . .   | 5,800,000  | 22,900,000  | 3.9        |
| Total . . . . .  | ...        | 231,100,000 | ...        |

The production of meat at various times, according to French writers, was :—

| Years          | Tons, Meat | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1840 . . . . . | 671,000    | 43                  |
| 1860 . . . . . | 942,000    | 57                  |
| 1880 . . . . . | 1,155,000  | 67                  |
| 1888 . . . . . | 1,200,000  | 67                  |

The above does not include horse-flesh, of which some 2000 tons are used at Paris alone.

In 1882 the annual slaughter was estimated thus :—

|                                  | Number    | Tons, Meat | Lbs. per Carcase |
|----------------------------------|-----------|------------|------------------|
| 25 per cent. of cattle . . . . . | 3,300,000 | 640,000    | 430              |
| 33 per cent. of sheep . . . . .  | 7,700,000 | 210,000    | 60               |
| 70 per cent. of pigs . . . . .   | 4,000,000 | 305,000    | 170              |

According to M. Laverigne, the production of meat was 39 lbs. per inhabitant in 1790, and 61 lbs. in 1859. (See *Food*.) The value of agricultural and pastoral products has been estimated at various dates as follows :—

| Year           | Value of Products, Millions £ |          |       | Authorities    |
|----------------|-------------------------------|----------|-------|----------------|
|                | Agricultural                  | Pastoral | Total |                |
| 1815 . . . . . | 134                           | 88       | 222   | Chaptal        |
| 1835 . . . . . | 170                           | 99       | 269   | Schoen, Moreau |
| 1843 . . . . . | 212                           | 101      | 313   | Royer, Dupin   |
| 1862 . . . . . | 307                           | ...      | ...   | Official       |
| 1882 . . . . . | 322                           | 182      | 504*  | "              |
| 1886 . . . . . | 322                           | 138      | 460   | Mulhall        |

The number of persons engaged in agriculture was approximately as follows :—

| Year           | Principals | Retainers, &c. | Total      |
|----------------|------------|----------------|------------|
| 1851 . . . . . | 7,310,000  | 14,620,000     | 21,930,000 |
| 1861 . . . . . | 6,630,000  | 13,250,000     | 19,880,000 |
| 1872 . . . . . | 6,170,000  | 12,340,000     | 18,510,000 |
| 1881 . . . . . | 6,455,000  | 11,794,000     | 18,249,000 |

The number has declined 17 per cent. since 1851, while the value of products has increased, the ratio being about £49 per head in the former year, and £71 in 1886.

\* The official table sums up a total of 538 millions sterling, but this includes £34,000,000 for 84 million tons of animal manure, which I am compelled to deduct, as other nations take no account of manure among agricultural products.



The official statement of crops for 1886 was as follows :—

|                                 | Tons          | Value, £    | Per Ton, £    |
|---------------------------------|---------------|-------------|---------------|
| Wheat . . . .                   | 8,230,000     | 71,000,000  | 8.6           |
| Oats . . . .                    | 4,220,000     | 29,200,000  | 7.0           |
| Rye . . . .                     | 1,620,000     | 10,300,000  | 6.4           |
| Barley . . . .                  | 1,150,000     | 7,200,000   | 6.3           |
| Maize, &c. . .                  | 1,720,000     | 11,600,000  | 6.7           |
| All grain . . .                 | 16,940,000    | 129,300,000 | 7.6           |
| Potatoes . . .                  | 11,290,000    | 22,500,000  | 2.0           |
| Beetroot . . .                  | 15,040,000    | 12,100,000  | 0.8           |
| Hay . . . .                     | 25,600,000    | 57,600,000  | 2.2           |
| Apples . . . .                  | 1,100,000     | 3,200,000   | 3.0           |
| Chestnuts . . .                 | 760,000       | 1,800,000   | 2.4           |
| Mulberry leaves .               | 210,000       | 400,000     | 2.0           |
| Olives . . . .                  | 170,000       | 1,200,000   | 7.0           |
| Coza, &c. . . .                 | 94,000        | 1,100,000   | 12.0          |
| Hemp . . . .                    | 43,000        | 1,500,000   | 35.0          |
| Flax . . . .                    | 30,000        | 1,200,000   | 40.0          |
| Tobacco . . . .                 | 22,000        | 800,000     | 36.0          |
| Wine, gallons .                 | 670,000,000   | 49,000,000  | Per gal. 18d. |
| All crops . . .                 |               | 281,700,000 |               |
| Milk, gallons . .               | 1,620,000,000 | 46,800,000  | Per gal. 7d.  |
| Poultry and eggs . . .          |               | 12,000,000  |               |
| Vegetables and fruit . . .      |               | 30,000,000  |               |
| Timber, 1000 million cubic feet |               | 10,000,000  |               |
| Foals . . . .                   |               | 8,000,000   |               |
| Meat, 1,200,000 tons . . .      |               | 60,000,000  |               |
| Hides, wool, tallow, wax, &c. . |               | 11,500,000  |               |
| Total . . . .                   |               | 460,000,000 |               |

The value of crops for 1888 was returned at 254 millions sterling, being 28 millions less than in 1886, of which 15 millions stood for loss in the vintage.

AGRICULTURAL CAPITAL

| MILLIONS, £ STERLING |       |        |          |       |           |
|----------------------|-------|--------|----------|-------|-----------|
| Year                 | Land  | Cattle | Sundries | Total | Product   |
| 1815                 | 1,293 | 53     | 149      | 1,495 | 222       |
| 1835                 | 1,473 | 96     | 174      | 1,743 | 269       |
| 1852                 | 2,106 | 166    | 252      | 2,524 | 356       |
| 1881                 | 2,986 | 231    | 357      | 3,574 | 504       |
| 1886                 | 2,688 | 218    | 323      | 3,229 | 460       |
|                      |       |        |          |       | Per cent. |
|                      |       |        |          |       | 15.0      |
|                      |       |        |          |       | 15.5      |
|                      |       |        |          |       | 14.1      |
|                      |       |        |          |       | 14.4      |

The value of land is stated above, as given by Chaptal and Dutens for 1815 and 1835, by Government reports for 1852 and 1881, the figures for 1886 being an estimated reduction of 10 per cent. from 1881, the prevalent opinion in France being that the fall is 15 per cent. As regards cattle, Chaptal gives the value for 1815, and the subsequent estimates are according to the number of cattle at the respective dates. Sundries are estimated at 10 per

cent., although Chaptal and Dutens made them 14 per cent. of the total.

The increase of agricultural wealth was rapid down to 1881, viz. :—

| Period        | Millions, £  | Per Annum, £ |
|---------------|--------------|--------------|
| 1815-35 . . . | 248 increase | 12,400,000   |
| 1836-52 . . . | 781 „        | 46,000,000   |
| 1853-81 . . . | 1,050 „      | 36,200,000   |
| 1882-86 . . . | 345 decrease | 69,000,000   |

The capital represented by agriculture is at present double what it was in the year 1815, and nearly 40 per cent. of the wealth of the nation.

See *Wealth*. For land-tenure, see *Land*.

GERMANY

Official returns give the area under tillage since 1837, thus :—

| Year | Acres under Tillage | Grain, Million Bushels | Authority |
|------|---------------------|------------------------|-----------|
| 1816 | 23,100,000          | 296                    | Fisher    |
| 1837 | 30,010,000          | ...                    | Official  |
| 1858 | 35,330,000          | ...                    | „         |
| 1879 | 43,310,000          | 580                    | „         |
| 1887 | 44,050,000          | 640                    | „         |

The above area under tillage includes all crops except hay, which at present covers nearly 15 million acres. Since 1816 the area of tillage has almost doubled, and the production of grain more than doubled.

The area of tillage was distributed in this manner :—

ACRES OF TILLAGE

|                | 1816       | 1837       | 1858       | 1887       |
|----------------|------------|------------|------------|------------|
| Prussia . . .  | 10,430,000 | 14,160,000 | 17,740,000 | 27,600,000 |
| Hanover . . .  | 1,310,000  | 1,690,000  | 1,840,000  |            |
| Bavaria . . .  | 3,560,000  | 4,320,000  | 4,620,000  |            |
| Wurtemberg . . | 1,390,000  | 1,610,000  | 1,690,000  |            |
| Saxony . . .   | 1,200,000  | 1,650,000  | 2,120,000  | 1,900,000  |
| Duchies, &c. . | 5,210,000  | 6,580,000  | 7,320,000  | 7,250,000  |
| Total . . .    | 23,100,000 | 30,010,000 | 35,330,000 | 44,050,000 |

According to a statement published in 1834, the kingdom of Prussia showed as follows :—

|                       | Acres      | An. Profit £ |
|-----------------------|------------|--------------|
| Arable and meadow . . | 28,510,000 | 8,400,000    |
| Pasture . . . .       | 13,620,000 | 3,300,000    |
| Woods . . . .         | 17,300,000 | 1,100,000    |
| Various . . . .       | 12,600,000 | 800,000      |
| Total . . . .         | 72,030,000 | 13,600,000   |

The following table shows the tilled and untilled area of the several States, 1887 :—

AREA

|                   | Prussia    | Bavaria    | Saxony    | Wurtemberg | Small States | Total       |
|-------------------|------------|------------|-----------|------------|--------------|-------------|
| Arable . . . .    | 27,600,000 | 5,500,000  | 1,900,000 | 1,800,000  | 7,250,000    | 44,050,000  |
| Meadow . . . .    | 8,150,000  | 3,200,000  | 420,000   | 720,000    | 2,160,000    | 14,650,000  |
| Forest . . . .    | 18,100,000 | 5,900,000  | 600,000   | 1,200,000  | 4,300,000    | 30,100,000  |
| Pasture, &c . . . | 26,450,000 | 2,800,000  | 580,000   | 480,000    | 7,290,000    | 37,600,000  |
| Total . . . .     | 80,300,000 | 17,400,000 | 3,500,000 | 4,200,000  | 21,000,000   | 126,400,000 |

The area under principal crops in 1887 was as follows :—

ACRES

|                     | Prussia    | Bavaria   | Saxony    | Wurtemberg | Baden     | Small States | Total      |
|---------------------|------------|-----------|-----------|------------|-----------|--------------|------------|
| Wheat . . . . .     | 2,700,000  | 800,000   | 120,000   | 75,000     | 100,000   | 955,000      | 4,750,000  |
| Rye . . . . .       | 10,950,000 | 1,550,000 | 520,000   | 550,000    | 300,000   | 1,470,000    | 15,340,000 |
| Barley . . . . .    | 2,300,000  | 850,000   | 100,000   | 220,000    | 150,000   | 680,000      | 4,300,000  |
| Oats . . . . .      | 6,200,000  | 1,100,000 | 450,000   | 350,000    | 150,000   | 550,000      | 8,800,000  |
| All grain . . . . . | 22,150,000 | 4,300,000 | 1,190,000 | 1,195,000  | 700,000   | 3,655,000    | 33,190,000 |
| Meadow . . . . .    | 8,150,000  | 3,200,000 | 420,000   | 720,000    | 500,000   | 1,660,000    | 14,650,000 |
| Potatoes . . . . .  | 4,980,000  | 740,000   | 300,000   | 200,000    | 210,000   | 820,000      | 7,250,000  |
| Total . . . . .     | 35,280,000 | 8,240,000 | 1,910,000 | 2,115,000  | 1,410,000 | 6,135,000    | 55,090,000 |

The crops were as follows :—

TONS IN 1887

|                     | Prussia    | Bavaria   | Saxony    | Wurtemberg | Baden   | Small States | Total      |
|---------------------|------------|-----------|-----------|------------|---------|--------------|------------|
| Wheat . . . . .     | 1,470,000  | 420,000   | 85,000    | 40,000     | 50,000  | 605,000      | 2,670,000  |
| Rye, &c. . . . .    | 4,220,000  | 790,000   | 285,000   | 235,000    | 140,000 | 860,000      | 6,530,000  |
| Barley . . . . .    | 1,145,000  | 485,000   | 60,000    | 130,000    | 90,000  | 430,000      | 2,340,000  |
| Oats . . . . .      | 2,890,000  | 590,000   | 295,000   | 180,000    | 80,000  | 825,000      | 4,860,000  |
| All grain . . . . . | 9,725,000  | 2,285,000 | 725,000   | 585,000    | 360,000 | 2,720,000    | 16,400,000 |
| Hay . . . . .       | 6,650,000  | 6,130,000 | 520,000   | 1,260,000  | 920,000 | 2,420,000    | 17,900,000 |
| Potatoes . . . . .  | 16,250,000 | 2,730,000 | 1,230,000 | 680,000    | 730,000 | 3,520,000    | 25,140,000 |

The crops of recent years compared thus :—

|                         | 1880       | 1881-85    | 1886       | 1887       | 1888       | 1889       |
|-------------------------|------------|------------|------------|------------|------------|------------|
|                         | Tons       | Tons       | Tons       | Tons       | Tons       | Tons       |
| Wheat . . . . .         | 2,345,000  | 2,410,000  | 2,600,000  | 2,670,000  | 2,830,000  | 2,530,000  |
| Rye . . . . .           | 5,440,000  | 6,200,000  | 5,940,000  | 6,530,000  | 6,480,000  | 5,630,000  |
| Barley . . . . .        | 2,145,000  | 2,180,000  | 2,260,000  | 2,340,000  | 2,205,000  | 2,260,000  |
| Oats . . . . .          | 4,230,000  | 4,120,000  | 4,340,000  | 4,860,000  | 4,300,000  | 4,650,000  |
| All grain . . . . .     | 14,160,000 | 14,910,000 | 15,140,000 | 16,400,000 | 15,815,000 | 15,070,000 |
| Hay . . . . .           | 19,560,000 | 17,100,000 | 15,880,000 | 17,900,000 | 16,360,000 | 17,895,000 |
| Potatoes . . . . .      | 19,470,000 | 25,020,000 | 27,950,000 | 25,140,000 | 25,270,000 | 21,910,000 |
| Beetroot . . . . .      | 11,300,000 | ...        | 13,970,000 | 15,500,000 | 12,650,000 | ...        |
| Turnips, &c. . . . .    | 3,300,000  | ...        | 3,850,000  | 2,640,000  | ...        | ...        |
| Tobacco . . . . .       | 52,000     | ...        | 38,000     | 39,000     | 41,000     | 26,000     |
| Hops . . . . .          | ...        | ...        | 33,000     | 30,000     | 24,000     | 22,000     |
| Wine, gallons . . . . . | ...        | ...        | 82,000,000 | 33,000,000 | 53,000,000 | 64,000,000 |

If we take the average for 1888-89 and compare same with that of the years 1881-85, we find an increase of 10 per cent. in wheat and oats, a falling-off in rye, and altogether an increase of 3 per cent. in the weight of grain produced. There is a decline of 6 per cent. in potatoes, while hay and beetroot remain stationary. Wine shows violent fluctuations, the yield in 1889 being almost double that of 1887. There is a remarkable decline in tobacco, the crop of 1889 being only half that of 1880, and also in hops, which have fallen off by one-third.

A table published in 1886 showed the production of grain in the previous year compared with population as follows :—

|                        | Bushels, Grain | Population | Bushels per Head |
|------------------------|----------------|------------|------------------|
| Prussia . . . . .      | 347,000,000    | 28,300,000 | 12.3             |
| Bavaria . . . . .      | 85,000,000     | 5,420,000  | 15.6             |
| Saxony . . . . .       | 27,000,000     | 3,180,000  | 8.5              |
| Wurtemberg . . . . .   | 16,000,000     | 1,950,000  | 8.0              |
| Baden . . . . .        | 11,000,000     | 1,600,000  | 7.0              |
| Mecklenburg . . . . .  | 22,000,000     | 680,000    | 32.5             |
| Alsace . . . . .       | 18,000,000     | 1,560,000  | 11.5             |
| Hesse . . . . .        | 11,000,000     | 960,000    | 11.4             |
| Brunswick . . . . .    | 8,000,000      | 370,000    | 21.5             |
| Small States . . . . . | 35,000,000     | 2,790,000  | 12.5             |
| Total . . . . .        | 580,000,000    | 46,850,000 | 12.3             |

The average yield per acre, according to observations in the several States spreading over a term of eight years ending 1885, was as follows :—

|                         | Bushels per Acre |         |        |            |       |             |
|-------------------------|------------------|---------|--------|------------|-------|-------------|
|                         | Prussia          | Bavaria | Saxony | Wurtemberg | Baden | All Germany |
| Wheat . . . . .         | 18               | 20      | 23     | 18         | 17    | 19          |
| Rye . . . . .           | 14               | 18      | 20     | 18         | 15    | 15          |
| Barley . . . . .        | 21               | 23      | 25     | 25         | 23    | 22          |
| Oats . . . . .          | 24               | 28      | 35     | 20         | 27    | 27          |
| Potatoes, cwts. . . . . | 58               | 76      | 80     | 68         | 70    | 64          |
| Hay, cwts. . . . .      | 18               | 39      | 25     | 34         | 44    | 26          |

The following table of live stock is made up of the statements of Malchus, Schnabel, and Brachelli in 1828 and 1850, and official returns since the latter date :—

|                  | 1822       | 1850       | 1867       | 1873       | 1883       |
|------------------|------------|------------|------------|------------|------------|
| Horses . . . . . | 2,500,000  | 2,500,000  | 3,190,000  | 3,350,000  | 3,520,000  |
| Cows . . . . .   | 9,770,000  | 11,270,000 | 14,900,000 | 15,780,000 | 15,790,000 |
| Sheep . . . . .  | 17,300,000 | 21,330,000 | 28,020,000 | 25,000,000 | 19,200,000 |
| Pigs . . . . .   | 4,500,000  | 3,920,000  | 6,460,000  | 7,120,000  | 9,210,000  |
| Goats . . . . .  | 700,000    | 1,300,000  | 1,820,000  | 2,320,000  | 2,640,000  |

German writers compute the amount of seed to the acre, and the average product as follows :—

|                  | Seed, lbs. | Product, lbs. | Equiv. in Bushels |
|------------------|------------|---------------|-------------------|
| Wheat . . . . .  | 157        | 1,260         | 20.4              |
| Rye . . . . .    | 150        | 900           | 15.2              |
| Oats . . . . .   | 140        | 980           | 25.7              |
| Barley . . . . . | 133        | 1,200         | 23.0              |

The quantity of grain retained for seed is usually 82 million bushels, or one-seventh of the whole crop. It is found that 100 lbs. wheat gave 82 lbs. flour, and 100 lbs. barley 78 lbs. malt.

The following table shows the live stock of Prussia at various dates :—

|                  | 1816      | 1837       | 1873       | 1883       |
|------------------|-----------|------------|------------|------------|
| Horses . . . . . | 1,240,000 | 1,470,000  | 2,280,000  | 2,420,000  |
| Cattle . . . . . | 4,010,000 | 4,850,000  | 8,610,000  | 8,740,000  |
| Sheep . . . . .  | 8,260,000 | 15,010,000 | 19,630,000 | 14,750,000 |
| Pigs . . . . .   | 1,490,000 | 1,940,000  | 4,280,000  | 5,820,000  |

The returns for 1873 and 1883, include Hanover and other territories annexed to Prussia in 1867.

The distribution of live stock in 1883 was as follows :—

|                  | Prussia    | Bavaria   | Saxony  | Wurtemberg | Small States | All Germany |
|------------------|------------|-----------|---------|------------|--------------|-------------|
| Horses . . . . . | 2,420,000  | 355,000   | 125,000 | 95,000     | 525,000      | 3,520,000   |
| Cows . . . . .   | 8,740,000  | 3,040,000 | 650,000 | 905,000    | 2,455,000    | 15,790,000  |
| Sheep . . . . .  | 14,750,000 | 1,180,000 | 150,000 | 550,000    | 2,500,000    | 19,190,000  |
| Pigs . . . . .   | 5,820,000  | 1,040,000 | 350,000 | 290,000    | 1,710,000    | 9,210,000   |
| Goats . . . . .  | 1,680,000  | 220,000   | 120,000 | 50,000     | 570,000      | 2,640,000   |

*Per 100 Inhabitants*

|                  | 6.9  | 4.7  | 8.5  | 5.0  | 6.6  | 6.5  |
|------------------|------|------|------|------|------|------|
| Horses . . . . . | 25.1 | 40.0 | 43.4 | 46.4 | 30.7 | 29.2 |
| Cows . . . . .   | 42.3 | 15.5 | 9.9  | 28.2 | 32.0 | 35.5 |
| Sheep . . . . .  | 16.7 | 13.7 | 23.7 | 15.0 | 21.4 | 17.0 |
| Pigs . . . . .   | 4.8  | 2.9  | 7.8  | 2.8  | 7.1  | 4.9  |
| Goats . . . . .  |      |      |      |      |      |      |

Prussia is above the average in horses and sheep, Bavaria in cows, Saxony in horses, cows, and pigs, Wurtemberg in cows only. The ratios of sheep in Bavaria and Saxony are very low.

The value of all kinds of live-stock in 1883 was officially given as follows :—

|                  | Number     | Value, £    | £ per Head |
|------------------|------------|-------------|------------|
| Horses . . . . . | 3,520,000  | 84,000,000  | 23.7       |
| Cattle . . . . . | 15,787,000 | 153,700,000 | 9.7        |
| Sheep . . . . .  | 19,190,000 | 15,300,000  | 0.8        |
| Pigs . . . . .   | 9,206,000  | 23,800,000  | 2.6        |
| Goats . . . . .  | 2,645,000  | 2,000,000   | 0.7        |
| Total . . . . .  | ...        | 278,800,000 | ...        |

Prices of live stock have since declined about 6 per cent.; the value in 1887 would be approximately £262,000,000 sterling.

The production of meat, calculating 500 lbs. per carcase of beef, 56 lbs. per sheep, 100 lbs. per pig, and 28 lbs. per goat, was as follows :—

| Year           | Meat, Tons | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1828 . . . . . | 760,000    | 60                  |
| 1850 . . . . . | 890,000    | 60                  |
| 1867 . . . . . | 1,150,000  | 67                  |
| 1885 . . . . . | 1,375,000  | 64                  |

The value of products in 1886 was approximately as follows :—

|                           | Tons       | £           | Sundries             | £           |
|---------------------------|------------|-------------|----------------------|-------------|
| Wheat . . . . .           | 2,600,000  | 18,700,000  | Wine . . . . .       | 5,000,000   |
| Rye . . . . .             | 5,940,000  | 33,900,000  | Vegetables . . . . . | 30,000,000  |
| Barley . . . . .          | 2,260,000  | 14,700,000  | &c. . . . .          |             |
| Oats . . . . .            | 4,340,000  | 25,200,000  | Timber . . . . .     | 13,000,000  |
|                           |            |             | Dairy . . . . .      | 55,300,000  |
| All grain . . . . .       | 15,140,000 | 92,500,000  | Meat . . . . .       | 68,700,000  |
| Straw . . . . .           | 15,100,000 | 15,100,000  | Poultry . . . . .    | 14,100,000  |
| Hay . . . . .             | 15,900,000 | 31,800,000  | Tobacco . . . . .    | 4,000,000   |
| Potatoes . . . . .        | 28,000,000 | 56,000,000  | flax . . . . .       |             |
| Beet, &c. . . . .         | 17,800,000 | 14,400,000  | Foals . . . . .      | 9,000,000   |
|                           |            |             | Hides . . . . .      | 15,100,000  |
| Principal crops . . . . . | ...        | 209,800,000 | wool, &c. . . . .    |             |
|                           |            |             | Sundries . . . . .   | 214,200,000 |

|                                 | £           |
|---------------------------------|-------------|
| Agricultural products . . . . . | 262,000,000 |
| Animal products . . . . .       | 162,000,000 |
| Total . . . . .                 | 424,000,000 |

The value of products at different dates was approximately thus :—

| Year | Millions, £ Sterling |          |       | Authority        |
|------|----------------------|----------|-------|------------------|
|      | Agricultural         | Pastoral | Total |                  |
| 1840 | 105                  | ...      | ...   | Journ. des Econ. |
| 1856 | 151                  | 80       | 231   | Block, Viebahn   |
| 1886 | 262                  | 162      | 424   | ...              |

The products in 1886 were distributed as follows :—

|                  | Agriculture | Animal      | Total       | £ per Inhab. |
|------------------|-------------|-------------|-------------|--------------|
|                  | £           | £           | £           |              |
| Prussia . . .    | 149,000,000 | 99,800,000  | 248,800,000 | 9.0          |
| Bavaria . . .    | 43,700,000  | 24,100,000  | 67,800,000  | 12.9         |
| Saxony . . .     | 12,300,000  | 5,900,000   | 18,200,000  | 6.0          |
| Wurtemberg . .   | 10,500,000  | 7,700,000   | 18,200,000  | 9.4          |
| Small States . . | 46,400,000  | 24,600,000  | 71,000,000  | 9.2          |
| Total . . .      | 261,900,000 | 162,100,000 | 424,000,000 | 9.4          |

The number of hands employed was approximately thus :—

| Year       | Hands     | Product, £  | £ per Head |
|------------|-----------|-------------|------------|
| 1840 . . . | 6,400,000 | 170,000,000 | 27         |
| 1856 . . . | 7,400,000 | 231,000,000 | 31         |
| 1886 . . . | 8,120,000 | 424,000,000 | 52         |

The introduction of machinery has increased production in a striking manner, one man now producing more than two did in 1840.

#### LAND VALUE

In 1837 the valuation of land in Prussia was 305 millions sterling. In 1856 Viebahn valued German lands at 1304 millions, a rise of 170 per cent. in twenty years. Wurtemberg averaged per acre 50 per cent. more value than the rest of Germany. Guided by Wurtemberg values in 1880 (that is, 50 per cent. over the rest), the value of Germany may be put down thus :—

|                 | Acres       | Price per Acre | Amount, Millions £ |
|-----------------|-------------|----------------|--------------------|
|                 |             | £              |                    |
| Arable . . .    | 44,000,000  | 19             | 836                |
| Meadow . . .    | 14,600,000  | 28             | 409                |
| Garden, &c. . . | 2,300,000   | 40             | 92                 |
| Pasture . . .   | 35,400,000  | 5              | 177                |
| Forest . . .    | 30,100,000  | 10             | 301                |
| Total . . .     | 126,400,000 | ...            | 1,815              |

The values of the principal States show thus :—

|               | Millions, £ Sterling |         |            |        |              | Total |
|---------------|----------------------|---------|------------|--------|--------------|-------|
|               | Prussia              | Bavaria | Wurtemberg | Saxony | Duchies, &c. |       |
| Arable . . .  | 513                  | 103     | 49         | 35     | 136          | 836   |
| Meadow . . .  | 227                  | 89      | 25         | 12     | 56           | 409   |
| Gardens . . . | 24                   | 12      | 8          | 4      | 44           | 92    |
| Pasture . . . | 127                  | 13      | 3          | 3      | 30           | 176   |
| Forest . . .  | 176                  | 58      | 20         | 6      | 42           | 302   |
| Total . . .   | 1,067                | 275     | 105        | 60     | 308          | 1,815 |

#### AGRICULTURAL CAPITAL

The amount of capital and product may be put down approximately as follows :—

| Year | Capital, Millions £ |        |          |       | Product, Millions £ | Ratio to Capital, per Cent. |
|------|---------------------|--------|----------|-------|---------------------|-----------------------------|
|      | Land                | Cattle | Sundries | Total |                     |                             |
| 1837 | 480                 | 88     | 63       | 631   | 170                 | 27.0                        |
| 1856 | 1,304               | 138    | 160      | 1,602 | 231                 | 14.4                        |
| 1886 | 1,815               | 262    | 230      | 2,307 | 424                 | 18.4                        |

In 1886 the agricultural capital stood approximately thus :—

|                | Millions, £ Sterling |         |        |            |         |       |
|----------------|----------------------|---------|--------|------------|---------|-------|
|                | Prussia              | Bavaria | Saxony | Wurtemberg | Duchies | Total |
| Land . . .     | 1,067                | 275     | 60     | 105        | 308     | 1,815 |
| Cattle . . .   | 162                  | 40      | 9      | 12         | 39      | 262   |
| Sundries . . . | 135                  | 35      | 8      | 13         | 39      | 230   |
| Total . . .    | 1,364                | 350     | 77     | 130        | 386     | 2,307 |

Capital and product in the above States compare thus :—

|                | Millions, £ Sterling |         |               |
|----------------|----------------------|---------|---------------|
|                | Capital              | Product | Ratio to Cap. |
| Prussia . . .  | 1,364                | 249     | 18.0          |
| Bavaria . . .  | 350                  | 68      | 19.0          |
| Saxony . . .   | 77                   | 18      | 23.2          |
| Wurtemberg . . | 130                  | 18      | 13.8          |
| Duchies . . .  | 386                  | 71      | 18.0          |
| Total . . .    | 2,307                | 424     | 18.4          |

The increase of agricultural capital in Germany was as follows :—

| Interval | £           | Average per Annum |
|----------|-------------|-------------------|
| 1837-56  | 971,000,000 | 51,000,000        |
| 1856-86  | 705,000,000 | 23,500,000        |

The most rapid increase occurred between 1848 and 1858, consequent on the breaking up of large estates among the peasantry. See *Lands*.

#### RUSSIA

The area under grain previously to 1870 is not known, but may be estimated from the table of production, as below, published officially.

| Period  | Grain, Millions of Bushels Yearly |          |                  | Approximate Area, Millions of Acres |
|---------|-----------------------------------|----------|------------------|-------------------------------------|
|         | Crop                              | Exported | Home Consumption |                                     |
| 1800-13 | 890                               | 10       | 880              | 100                                 |
| 1834-40 | 1,040                             | 27       | 1,013            | 110                                 |
| 1841-47 | 1,210                             | 32       | 1,178            | 120                                 |
| 1857-63 | 1,270                             | 34       | 1,236            | 130                                 |
| 1871-80 | 1,730                             | 146      | 1,584            | 167                                 |

The emancipation of serfs in 1861 was followed by a great increase of grain production.

These statistics refer to Russia proper, exclusive of Poland, Finland, Caucasus, or Siberia. The distribution of area is shown as follows :—

|                            | Area, Acres   |               | Product in 1887 |
|----------------------------|---------------|---------------|-----------------|
|                            | 1872          | 1881          |                 |
|                            |               |               | Tons            |
| Grain . . . .              | 154,800,000   | 159,800,000   | 44,250,000      |
| Potatoes . . .             | 3,170,000     | 3,710,000     | 7,500,000       |
| Flax and hemp .            | 3,060,000     | 5,170,000     | 540,000         |
| Meadow and pasture . . . } | 144,000       | 176,000,000   | ...             |
| Forest . . . .             | 500,000       | 485,000,000   | 120,000,000     |
| Waste . . . .              | 439,000       | 414,000,000   | ...             |
| Total . . . .              | 1,244,000,000 | 1,244,000,000 | ...             |

The grain-crops of 1887 compare with those of 1872 as follows :—

|                | Millions of Bushels |       | Area under Grain |             |
|----------------|---------------------|-------|------------------|-------------|
|                | 1872                | 1887  | 1872             | 1881        |
| Wheat . . . .  | 158                 | 269   | 28,700,000       | 28,900,000  |
| Rye . . . .    | 547                 | 721   | 66,400,000       | 64,600,000  |
| Oats . . . .   | 544                 | 599   | 32,800,000       | 34,900,000  |
| Barley . . . . | 125                 | 162   | 15,500,000       | 12,500,000  |
| Maize, &c. . . | 86                  | 152   | 11,400,000       | 18,900,000  |
| Total . . . .  | 1,460               | 1,903 | 154,800,000      | 159,800,000 |

Kaufmann gives the average crops of Russia and Poland in the years 1870-78, and the average value in the years 1878-81, as follows :—

|                 | Millions of Bushels |        |       | Value, £    |
|-----------------|---------------------|--------|-------|-------------|
|                 | Russia              | Poland | Total |             |
| Wheat . . . .   | 176                 | 15     | 191   | 44,800,000  |
| Rye . . . .     | 556                 | 47     | 603   | 98,800,000  |
| Oats . . . .    | 446                 | 36     | 482   | 50,500,000  |
| Barley, &c. . . | 260                 | 25     | 285   | 38,900,000  |
| Total . . . .   | 1,438               | 123    | 1,561 | 233,000,000 |

He shows, moreover, that the crops during the ensuing years 1883-84-85 gave an average (for Russia and Poland) as follows :—

|                 | Million Bushels | Tons       |
|-----------------|-----------------|------------|
| Wheat . . . .   | 231             | 6,350,000  |
| Rye . . . .     | 675             | 17,700,000 |
| Oats . . . .    | 523             | 8,700,000  |
| Barley, &c. . . | 285             | 6,450,000  |
| Total . . . .   | 1,694           | 39,200,000 |

So great, however, was the fall in prices that the grain crops of 1884 were valued at only £156,400,000.

A monjik's farm averages 35 acres, which requires three men to cultivate ; the product is estimated thus :—

|                 | Acres | Bushels |      |      |          |
|-----------------|-------|---------|------|------|----------|
|                 |       | Crop    | Food | Seed | For Sale |
| Rye . . . .     | 10    | 100     | 70   | 17   | 13       |
| Wheat . . . .   | 4     | 30      | 5    | 5    | 20       |
| Oats, &c. . . . | 10    | 120     | 30   | 15   | 75       |
| All grain . . . | 24    | 250     | 105  | 37   | 108      |

The earliest official returns of live-stock are those of 1850, but we have also Schnabel's and Malchus's estimates for 1828 :—

|              | 1828       | 1850       | 1870       | 1880       |
|--------------|------------|------------|------------|------------|
| Horses . . . | 12,000,000 | 13,500,000 | 15,600,000 | 20,020,000 |
| Cattle . . . | 19,000,000 | 20,960,000 | 21,400,000 | 23,840,000 |
| Sheep . . .  | 36,000,000 | 37,530,000 | 45,300,000 | 47,510,000 |
| Pigs . . .   | 15,800,000 | 8,890,000  | 9,100,000  | 9,200,000  |
| Goats . . .  | ...        | 1,600,000  | 1,200,000  | 1,370,000  |

The production of meat, at 500 lbs. per beef carcase, 50 lbs. per sheep, and 100 lbs. per pig, was as follows :—

| Year         | Tons, Meat | Lbs. per Inhabitant |
|--------------|------------|---------------------|
| 1828 . . . . | 1,430,000  | 66                  |
| 1850 . . . . | 1,670,000  | 67                  |
| 1870 . . . . | 1,760,000  | 60                  |
| 1889 . . . . | 1,885,000  | 51                  |

The value of live-stock was approximately as follows :—

|                | No.        | Price, £            | Value, £ |
|----------------|------------|---------------------|----------|
| Horses . . . . | 20,020,000 | See Part II. p. 619 |          |
| Cattle . . . . | 23,840,000 |                     |          |
| Sheep . . . .  | 47,510,000 |                     |          |
| Pigs . . . .   | 9,200,000  |                     |          |
| Goats . . . .  | 1,370,000  |                     |          |
| Total . . . .  | ...        | ...                 | ...      |

The value of products in 1887 was as follows :—

|                     | Tons       | £           | Sundries           | £           |
|---------------------|------------|-------------|--------------------|-------------|
| Wheat . . .         | 7,500,000  | 37,100,000  | Wine . . .         | 3,800,000   |
| Rye . . .           | 18,900,000 | 79,200,000  | Beetroot . .       | 4,000,000   |
| Barley . . .        | 3,750,000  | 14,800,000  | Vegetables .       | 32,000,000  |
| Oats . . .          | 10,350,000 | 35,000,000  | Poultry . . .      | 12,000,000  |
| Buckwheat &c. . }   | 3,750,000  | 15,000,000  | Tobacco . . .      | 3,200,000   |
|                     |            |             | Dairy . . .        | 47,700,000  |
|                     |            |             | Timber . . .       | 40,000,000  |
| All grain . .       | 44,250,000 | 181,100,000 | Meat . . .         | 63,000,000  |
| Straw . . .         | 44,000,000 | 22,000,000  | Foals . . .        | 38,000,000  |
| Hay . . .           | 60,000,000 | 60,000,000  | Hides, wool, &c. } | 28,000,000  |
| Potatoes . .        | 7,500,000  | 11,200,000  |                    |             |
| Flax, &c. .         | 540,000    | 16,200,000  |                    |             |
| Principal crops . } | ...        | 290,500,000 | Sundries . .       | 272,500,000 |

|                               | £           |
|-------------------------------|-------------|
| Agricultural products . . . . | 373,200,000 |
| Animal products . . . .       | 189,800,000 |
| Total . . . .                 | 563,000,000 |

The values at the following dates were approximately :—

| Year         | Millions, £ Sterling |        |       |
|--------------|----------------------|--------|-------|
|              | Agricultural         | Animal | Total |
| 1834 . . . . | 188                  | 60     | 248   |
| 1850 . . . . | 213                  | 82     | 295   |
| 1872 . . . . | 287                  | 135    | 422   |
| 1887 . . . . | 373                  | 190    | 563   |

The agricultural population in 1884 was approximately 56,815,000, but the number of adults engaged in tillage and pasture was not over 22,700,000, which gives an average product yearly of £25 per head.

#### LAND VALUE

Before the Crimean war the ordinary price of land was about £1 per acre, but when the emancipation of the serfs

was decreed in 1861, the Government paid an indemnity to the nobles averaging 29 shillings per acre. According to the British Ambassador, Sir A. Buchanan, the value in 1869 was doubled by the emancipation, and this is confirmed by Strebinsky, whose estimate in 1879 was £3 per acre. This applies only to cultivated land, the value of waste and forest being about one-tenth. The following table shows the values :—

| Year | Area, Millions of Acres |                |       | Value, Millions £ Sterling |        |       |
|------|-------------------------|----------------|-------|----------------------------|--------|-------|
|      | Culti-<br>vated         | Forest,<br>&c. | Total | Culti-<br>vated            | Forest | Total |
| 1834 | 183                     | 1,061          | 1,244 | 183                        | 106    | 289   |
| 1850 | 200                     | 1,044          | 1,244 | 200                        | 104    | 304   |
| 1870 | 305                     | 939            | 1,244 | 610                        | 188    | 798   |

#### AGRICULTURAL CAPITAL

| Year           | Millions £ Sterling |        |          |       |
|----------------|---------------------|--------|----------|-------|
|                | Land                | Cattle | Sundries | Total |
| 1834 . . . . . | 289                 | 176    | 52       | 517   |
| 1850 . . . . . | 304                 | 223    | 59       | 586   |
| 1870 . . . . . | 798                 | 409    | 134      | 1,341 |

The increase of agricultural capital was as follows :—

| Period            | Millions £ Sterling | Per Annum, £ |
|-------------------|---------------------|--------------|
| 1834-50 . . . . . | 69                  | 4,060,000    |
| 1851-70 . . . . . | 755                 | 37,750,000   |

The emancipation of the serfs added about 1200 millions sterling to the rural wealth in 26 years, from 1860 to 1886. See *Lands*.

#### POLAND

Poland has an area of 32 million acres, of which nearly one-half is cultivated. In 1864 feudalism was abolished, the nobles receiving £24,000,000 for 21 million acres, distributed in ten-acre lots among 2,064,000 male serfs of all ages, three-fourths of the amount being advanced by Government and the rest made good by the serfs. The number of serfs is one-tenth of those who were emancipated in Russia; the area of the land given them (21 million acres) is one-ninth of the land so expropriated in Russia.

According to Kaufmann the average crops of Poland in the years 1870-78 were as follows :—

|                     | Million Bushels | Value, £   |
|---------------------|-----------------|------------|
| Wheat . . . . .     | 15              | 3,600,000  |
| Rye . . . . .       | 47              | 8,100,000  |
| Oats . . . . .      | 36              | 3,600,000  |
| Barley, &c. . . . . | 25              | 4,000,000  |
| Total . . . . .     | 123             | 19,300,000 |

According to Fisher (Food-Supply, 1860) the products of Poland increased as follows :—

|                    | Tons Produced |           |
|--------------------|---------------|-----------|
|                    | 1822          | 1857      |
| Grain . . . . .    | 800,000       | 2,300,000 |
| Potatoes . . . . . | 280,000       | 1,750,000 |
| Meat . . . . .     | 85,000        | 157,000   |

The total value of farm products may be set down approximately thus :—

|                          |              |
|--------------------------|--------------|
| Grain crops . . . . .    | £ 19,300,000 |
| Other products . . . . . | 14,700,000   |
| Cattle farming . . . . . | 21,000,000   |
| Total . . . . .          | 55,000,000   |

The value of farms varies from £2 to £8 per acre, and the total agricultural capital is more or less £200 millions sterling, of which three-fourths are represented by land.

The number of agricultural male peasants was 1,240,000 in 1867, and is now about 1,600,000; the ratio of agricultural products is about £34 per head.

#### FINLAND

This territory is distinct from Russia, and has an area of 92 million acres, viz. :—

| Estate Class       | Acres      |
|--------------------|------------|
| Nobles . . . . .   | 5,800,000  |
| Peasants . . . . . | 50,200,000 |
| Crown . . . . .    | 30,600,000 |
| Waste, &c. . . . . | 5,600,000  |
| Total . . . . .    | 92,200,000 |

Nobles' estates average 3000 acres, peasants 250 acres. Cultivated lands cover 7 million acres, of which 6 millions are meadow, forest comprising 50 million acres, and the remaining 35 millions being waste land or lakes. Grain crop averages 12 million bushels; not enough for home consumption.

Neumann Spallart gives the following agricultural statistics for the average of 1875-81 :—

|                   | Acres     | Crop, Bushels | Value, £  |
|-------------------|-----------|---------------|-----------|
| Wheat . . . . .   | 7,000     | 100,000       | 20,000    |
| Rye . . . . .     | 700,000   | 10,000,000    | 1,700,000 |
| Barley . . . . .  | 300,000   | 5,000,000     | 900,000   |
| Oats . . . . .    | 300,000   | 7,000,000     | 900,000   |
| Various . . . . . | 15,000    | 500,000       | 40,000    |
| Total . . . . .   | 1,322,000 | 22,600,000    | 3,560,000 |

Cattle comprised 1,030,000 horned cattle, 1,030,000 sheep, and 150,000 pigs, which would produce yearly 70,000 tons of meat, worth £3,500,000. The total products would be approximately worth 15 millions sterling, and the capital about 70 millions. Agricultural population about 400,000 male adults.

#### AUSTRIA-HUNGARY

Not more than 43 per cent. of the Empire is cultivated, 31 per cent. being forest, and 26 per cent. pasture plains or waste lands. The area under crops, other than meadow, has increased only 120,000 acres per annum in the last fifty years.

| Year | Acres under Crops | Grain Crop, Mill. Bush. | Wine, Mill. Gall. | Authority |
|------|-------------------|-------------------------|-------------------|-----------|
| 1828 | ...               | 367                     | 590               | Malchus   |
| 1836 | 38,400,000        | 364                     | 470               | Becker    |
| 1846 | ...               | 480                     | ...               | Fisher    |
| 1850 | ...               | 550                     | 500               | Brachelli |
| 1862 | ...               | 560                     | 500               | Official  |
| 1876 | 37,500,000        | 480                     | 160               | "         |
| 1880 | 39,600,000        | 601                     | 92                | "         |
| 1885 | 44,500,000        | 676                     | 207               | "         |

Becker's and other tables for 1836 (excluding the Italian provinces) compare with those of 1887 as follows, the latter not including Bosnia or Herzegovina :—

|                             | Crop, Million Bushels, 1836. |         |       | Million Bushels, 1887 |         |       |
|-----------------------------|------------------------------|---------|-------|-----------------------|---------|-------|
|                             | Austria                      | Hungary | Total | Austria               | Hungary | Total |
| Wheat . . . .               | 17                           | 48      | 65    | 51                    | 141     | 192   |
| Oats . . . . .              | 68                           | 48      | 116   | 102                   | 60      | 162   |
| Rye . . . . .               | 52                           | 48      | 100   | 88                    | 50      | 138   |
| Barley, &c. . .             | 35                           | 48      | 83    | 90                    | 136     | 226   |
| All grain . . .             | 172                          | 192     | 364   | 331                   | 387     | 718   |
| Wine, million gallons . . } | 75                           | 392     | 467   | 103                   | 109     | 212   |

Grain has increased 90 per cent. since 1836, although the area under crops has barely risen 20 per cent. ; this is due to improved methods and machinery since the expropriation of the lands in 1848, when they were distributed among the peasantry (see *Serfs*).

Wine has declined more than one-half.

The production of potatoes has increased as follows :—

| Year           | Tons       | Authority |
|----------------|------------|-----------|
| 1846 . . . . . | 2,300,000  | Fisher    |
| 1859 . . . . . | 5,100,000  | "         |
| 1885 . . . . . | 11,000,000 | Official  |

The acreage of the two kingdoms in 1887 was thus :—

|                   | Austria    | Hungary    | Total       |
|-------------------|------------|------------|-------------|
| Wheat . . . . .   | 2,875,000  | 6,860,000  | 9,735,000   |
| Barley . . . . .  | 2,795,000  | 2,480,000  | 5,275,000   |
| Oats . . . . .    | 4,630,000  | 2,580,000  | 7,210,000   |
| Rye . . . . .     | 4,985,000  | 2,770,000  | 7,755,000   |
| Maize . . . . .   | 890,000    | 4,520,000  | 5,410,000   |
| Buckwheat, &c. .  | 1,490,000  | 605,000    | 2,095,000   |
| All grain . . . . | 17,665,000 | 19,815,000 | 37,480,000  |
| Potatoes . . . .  | 2,760,000  | 1,020,000  | 3,780,000   |
| Beetroot . . . .  | 760,000    | 340,000    | 1,100,000   |
| Vineyards . . . . | 580,000    | 870,000    | 1,450,000   |
| Hops . . . . .    | 35,000     | ...        | 35,000      |
| Tobacco . . . . . | 5,000      | 135,000    | 140,000     |
| Clover . . . . .  | 2,010,000  | ...        | 2,010,000   |
| Gardens . . . . . | 920,000    | 130,000    | 1,050,000   |
| Meadow . . . . .  | 7,700,000  | 6,360,000  | 14,060,000  |
| Pasture . . . . . | 13,015,000 | 32,015,000 | 45,030,000  |
| Forest . . . . .  | 24,150,000 | 22,515,000 | 46,665,000  |
| Total . . . . .   | 69,600,000 | 83,200,000 | 152,800,000 |

The value of grain crops is stated by Spallart thus :—

MILLIONS £ PER ANNUM

| Years             | Austria | Hungary | Total |
|-------------------|---------|---------|-------|
| 1850 . . . . .    | ...     | ...     | 60    |
| 1870 . . . . .    | ...     | ...     | 83    |
| 1877-80 . . . . . | 40      | 50      | 90    |
| 1881-84 . . . . . | 41      | 57      | 98    |

The ordinary yield of grain is only fivefold ; 130 million bushels are required for seed.

Becker's and Schnabel's tables of live-stock and subsequent official returns show :—

|                  | 1836       | 1850       | 1870       | 1880       |
|------------------|------------|------------|------------|------------|
| Horses . . . .   | 2,060,000  | 3,240,000  | 3,540,000  | 3,560,000  |
| Cattle . . . . . | 10,010,000 | 10,460,000 | 12,630,000 | 13,850,000 |
| Sheep . . . . .  | 15,990,000 | 17,080,010 | 20,100,000 | 13,680,000 |
| Pigs . . . . .   | 5,500,000  | 7,410,000  | 6,990,000  | 6,880,000  |
| Goats . . . . .  | 850,000    | ...        | 1,550,000  | 1,280,000  |

The numbers respectively for Austria and Hungary in 1880 were :—

|                  | Austria   | Hungary   | Total      | Percentage |         |       |
|------------------|-----------|-----------|------------|------------|---------|-------|
|                  |           |           |            | Austria    | Hungary | Total |
| Horses . . . .   | 1,480,000 | 2,080,000 | 3,560,000  | 42         | 58      | 100   |
| Cattle . . . . . | 8,580,000 | 5,310,000 | 13,890,000 | 61         | 39      | 100   |
| Sheep . . . . .  | 3,840,000 | 9,840,000 | 13,680,000 | 28         | 72      | 100   |
| Pigs . . . . .   | 2,720,000 | 4,160,000 | 6,880,000  | 39         | 61      | 100   |
| Goats . . . . .  | 1,010,000 | 330,000   | 1,340,000  | 75         | 25      | 100   |

The production of meat, taking the carcase of beef at 500 lbs., sheep 56 lbs., and pig 100 lbs., was as follows :—

| Year           | Meat, Tons | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1836 . . . . . | 840,000    | 67                  |
| 1850 . . . . . | 880,000    | 66                  |
| 1870 . . . . . | 970,000    | 62                  |
| 1880 . . . . . | 980,000    | 57                  |

Assuming the values of the various kinds of stock to be 20 per cent. per head less than in Germany, we find :—

|                  | No.        | Price, £ | Value, £    |
|------------------|------------|----------|-------------|
| Horses . . . .   | 3,560,000  | 19       | 67,600,000  |
| Cattle . . . . . | 13,890,000 | 8        | 111,200,000 |
| Sheep . . . . .  | 13,680,000 | 0.6      | 8,300,000   |
| Pigs . . . . .   | 6,880,000  | 2        | 13,800,000  |
| Goats . . . . .  | 1,340,000  | 0.6      | 800,000     |
| Total . . . . .  | ...        | ...      | 201,700,000 |

The value of products in 1887 was approximately thus :—

|                   | Tons       | £           | Sundries         | £           |
|-------------------|------------|-------------|------------------|-------------|
| Wheat . . . .     | 5,300,000  | 37,100,000  | Wine . . . .     | 17,300,000  |
| Oats . . . . .    | 2,800,000  | 14,000,000  | Vegetables . .   | 22,000,000  |
| Rye . . . . .     | 3,600,000  | 19,800,000  | Timber . . . .   | 18,000,000  |
| Barley . . . .    | 2,600,000  | 15,600,000  | Tobacco . . . .  | 1,800,000   |
| Maize . . . . .   | 2,200,000  | 12,100,000  | Flax, &c. . . .  | 2,200,000   |
| Buckwheat &c. . } | 600,000    | 3,600,000   | Dairy . . . . .  | 34,500,000  |
|                   |            |             | Poultry . . . .  | 7,800,000   |
|                   |            |             | Meat . . . . .   | 44,100,000  |
| All grain . . .   | 17,100,000 | 102,200,000 | Foals . . . . .  | 10,000,000  |
| Straw . . . . .   | 17,000,000 | 12,800,000  | Hides, . . . . . | 10,100,000  |
| Hay . . . . .     | 14,000,000 | 21,000,000  | wool, &c. }      | 10,100,000  |
| Potatoes . . .    | 11,000,000 | 22,000,000  |                  |             |
| Beetroot . . .    | 6,500,000  | 5,000,000   | Sundries . . . . | 167,800,000 |
| Principal crops } | ...        | 163,000,000 |                  |             |

|                                 | £           |
|---------------------------------|-------------|
| Agricultural products . . . . . | 224,700,000 |
| Animal products . . . . .       | 106,100,000 |
| Total . . . . .                 | 330,800,000 |

Becker's estimate of products in 1840 compares with later years as follows :—

| Year           | Millions, £ Sterling |          |       |
|----------------|----------------------|----------|-------|
|                | Agricultural         | Pastoral | Total |
| 1840 . . . . . | 160                  | 45       | 205   |
| 1863 . . . . . | 194                  | 87       | 281   |
| 1887 . . . . . | 225                  | 106      | 331   |

The shares corresponding to the two kingdoms in 1887 were as follows :—

|                        | Millions, £ Sterling |         |       |
|------------------------|----------------------|---------|-------|
|                        | Austria              | Hungary | Total |
| Agricultural . . . . . | 120                  | 105     | 225   |
| Pastoral . . . . .     | 55                   | 51      | 106   |
| Total . . . . .        | 175                  | 156     | 331   |

The number of hands engaged in agriculture in 1870 and 1880 showed thus :—

| Year | Austria   | Hungary   | Total      |
|------|-----------|-----------|------------|
| 1870 | 5,520,000 | 5,010,000 | 10,530,000 |
| 1880 | 6,160,000 | 4,520,000 | 10,680,000 |

The result in 1887 shows an average product of £29 per head in Austria and £35 in Hungary, or £31 for the whole.

#### LAND VALUE

The emancipation of Austrian serfs in 1849 had such effect that Austrian economists say the value of land doubled between 1846 and 1866. In the latter year, according to the Embassy report, it was £15 per acre for cultivated, and £3 for forest or waste land. In 1884 another valuation was made, respecting which Professor Sternegg made investigations, and found the real value was 66 per cent. higher, viz. :—

|                                |              |
|--------------------------------|--------------|
| Nominal annual value . . . . . | £ 16,500,000 |
| Real rental . . . . .          | 27,500,000   |

Capitalising the rental at twenty-five-fold, we find the value of lands in Austria proper (excluding Crown-lands and forests) was 688 millions sterling.

The values of land would, therefore, appear to have been as follows :—

| Year | MILLIONS, £ STERLING |                    |       |
|------|----------------------|--------------------|-------|
|      | Cultivated           | Forest and Pasture | Total |
| 1840 | 396                  | 147                | 543   |
| 1866 | 885                  | 276                | 1,161 |
| 1885 | 1,073                | 284                | 1,357 |

The proportions in 1885 were as follows :—

|                      | Austria | Hungary | Total, Million £ |
|----------------------|---------|---------|------------------|
| Cultivated . . . . . | 594     | 479     | 1,073            |
| Forest, &c. . . . .  | 112     | 172     | 284              |
| Total . . . . .      | 706     | 651     | 1,357            |

#### AGRICULTURAL CAPITAL

| Year           | Millions, £ Sterling |        |          |       |
|----------------|----------------------|--------|----------|-------|
|                | Land                 | Cattle | Sundries | Total |
| 1840 . . . . . | 543                  | 89     | 70       | 702   |
| 1866 . . . . . | 1,161                | 150    | 146      | 1,457 |
| 1885 . . . . . | 1,357                | 202    | 173      | 1,732 |

The distribution of capital in the two kingdoms in 1887 was approximately thus :—

#### Millions, £ Sterling

|                    | Austria | Hungary | Total |
|--------------------|---------|---------|-------|
| Land . . . . .     | 706     | 651     | 1,357 |
| Cattle . . . . .   | 106     | 96      | 202   |
| Sundries . . . . . | 90      | 83      | 173   |
| Total . . . . .    | 902     | 830     | 1,732 |

The ratio between capital and product was as follows :—

|                   | Millions, £ Sterling |         | Ratio to Capital |
|-------------------|----------------------|---------|------------------|
|                   | Capital              | Product |                  |
| Austria . . . . . | 902                  | 175     | 19.3             |
| Hungary . . . . . | 830                  | 156     | 18.8             |
| Total . . . . .   | 1,732                | 331     | 19.1             |

The ratios of the whole monarchy between capital and product at various dates are shown approximately as follows :—

| Year           | Millions, £ Sterling |         | Ratio to Capital |
|----------------|----------------------|---------|------------------|
|                | Capital              | Product |                  |
| 1840 . . . . . | 702                  | 205     | 29.2             |
| 1866 . . . . . | 1,457                | 281     | 19.3             |
| 1887 . . . . . | 1,732                | 331     | 19.1             |

The increase of capital has been as follows :—

| Period   | Millions, £ Sterling | £ per Annum |
|----------|----------------------|-------------|
| 1840-66  | 755                  | 27,700,000  |
| 1867-85  | 284                  | 14,900,000  |
| 46 years | 1,039                | 22,600,000  |

#### BOSNIA

The provinces of Bosnia and Herzegovina, recently annexed to Austria, produce 8 million bushels of grain, viz. :—

| Grain Crop, Bushels       |           | Live Stock       |           |
|---------------------------|-----------|------------------|-----------|
| Wheat . . . . .           | 1,500,000 | Horses . . . . . | 210,000   |
| Maize . . . . .           | 3,300,000 | Cows . . . . .   | 505,000   |
| Oats, barley, &c. . . . . | 3,000,000 | Sheep . . . . .  | 1,315,000 |
| Total . . . . .           | 7,800,000 |                  |           |

#### MONTENEGRO

This little principality has an area of 2,100,000 acres, or 9 to each inhabitant. Some maize, oats, and potatoes are grown. The live-stock comprises 3000 horses, 60,000 cows, and 350,000 sheep and goats.

#### ITALY

The area of the kingdom has been distributed as follows :—

|                             | Acres      |            |            |
|-----------------------------|------------|------------|------------|
|                             | 1868       | 1874       | 1880       |
| Wheat . . . . .             | 9,500,000  | 11,700,000 | 11,700,000 |
| Maize, &c. . . . .          | 6,200,000  | 8,200,000  | 8,600,000  |
| Meadow . . . . .            | 2,900,000  | 6,000,000  | 6,000,000  |
| Olives . . . . .            | 1,400,000  | 2,200,000  | 2,200,000  |
| Chestnuts . . . . .         | 1,500,000  | 1,200,000  | 1,200,990  |
| Vineyards . . . . .         | 4,000,000  | 4,500,000  | 4,800,000  |
| Forest . . . . .            | 10,200,000 | 9,000,000  | 10,300,000 |
| Pasture and waste . . . . . | 35,100,000 | 28,000,000 | 26,000,000 |
| Total . . . . .             | 70,800,000 | 70,800,000 | 70,800,000 |



The above are official returns, except as regards vineyards in 1868, and meadow 1874 and 1880, the latter being estimated on basis of the hay-crop officially stated

(at one ton per acre). It appears from the foregoing that 9 million acres have been brought into cultivation in twelve years.

We have statistics in 1840 for Naples, Sicily, Austrian Italy, and Papal States, viz. :-

|                        | Acreage (1840)    |                  |                   |                   |                   |
|------------------------|-------------------|------------------|-------------------|-------------------|-------------------|
|                        | Naples            | Sicily           | Austrian Prov.    | Papal States      | Total             |
| Arable . . . . .       | 7,700,000         | 3,100,000        | 2,200,000         | 1,200,000         | 14,200,000        |
| Vineyards . . . . .    | 500,000           | 1,000,000        | 2,500,000         | 100,000           | 4,100,000         |
| Forest . . . . .       | 1,900,000         | 1,100,000        | 1,600,000         | 900,000           | 5,500,000         |
| Pasture, &c. . . . .   | 8,600,000         | 1,000,000        | 6,400,000         | 8,700,000         | 24,700,000        |
| <b>Total . . . . .</b> | <b>18,700,000</b> | <b>6,200,000</b> | <b>12,700,000</b> | <b>10,900,000</b> | <b>48,500,000</b> |

The kingdom of Sardinia, which is not included above, was found in 1870 to produce 16 per cent. of the grain, and 18 per cent. of the wine of Italy. Taking this into account, the total figures for Italy in 1840 as compared with 1888 would stand thus :-

|                     | Acreage    |            |
|---------------------|------------|------------|
|                     | 1840       | 1888       |
| Arable . . . . .    | 16,900,000 | 21,440,000 |
| Vineyards . . . . . | 5,000,000  | 7,700,000  |

There have been various estimates of the production of grain and wine since 1828, from which it would appear that both have doubled in sixty years. A notable improvement of agriculture followed the expulsion of the Austrians in 1859, the returns for Lombardy showing as follows :-

|                      | Lombardy, Annual Crops |            | Increase<br>Per Cent. |
|----------------------|------------------------|------------|-----------------------|
|                      | 1848-58                | 1870-74    |                       |
| Wheat, bushels . . . | 4,100,000              | 7,300,000  | 80                    |
| Maize, " . . . . .   | 6,300,000              | 12,300,000 | 95                    |
| Rice, " . . . . .    | 1,000,000              | 4,400,000  | 340                   |
| Potatoes, cwts. . .  | 220,000                | 1,120,000  | 410                   |
| Oil, gallons . . . . | 66,000                 | 138,000    | 110                   |
| Wine, " . . . . .    | 31,000,000             | 42,000,000 | 35                    |

The production of grain and wine was approximately for all Italy as follows :-

| Year           | Grain, Million<br>Bushels | Wine, Million<br>Gallons |
|----------------|---------------------------|--------------------------|
| 1828 . . . . . | 116                       | ...                      |
| 1840 . . . . . | 130                       | 360                      |
| 1870 . . . . . | 203                       | 480                      |
| 1888 . . . . . | 223                       | 715                      |

The detailed official report for 1888 shows as follows :-

|                        | Acres      | Tons        | Value,<br>£        | Cwts.<br>per Acre | Value per<br>Ton, £ |
|------------------------|------------|-------------|--------------------|-------------------|---------------------|
| Wheat . . . . .        | 11,010,000 | 2,530,000   | 32,100,000         | 4.6               | 12.7                |
| Maize . . . . .        | 4,720,000  | 1,610,000   | 15,300,000         | 6.9               | 9.5                 |
| Oats . . . . .         | 1,100,000  | 340,000     | 1,900,000          | 6.2               | 5.5                 |
| Barley . . . . .       | 860,000    | 165,000     | 1,900,000          | 4.0               | 11.0                |
| Rye and pulse . . .    | 2,200,000  | 370,000     | 4,800,000          | 3.3               | 13.0                |
| Rice . . . . .         | 500,000    | 290,000     | 5,400,000          | 11.6              | 18.6                |
| Chestnuts . . . . .    | 1,050,000  | 320,000     | 3,300,000          | 6.0               | 10.2                |
| Potatoes . . . . .     | 370,000    | 620,000     | 1,600,000          | 33.5              | 2.6                 |
| Hemp . . . . .         | 300,000    | 65,000      | 2,900,000          | 4.3               | 45.0                |
| Flax . . . . .         | 170,000    | 13,000      | 800,000            | 1.5               | 62.0                |
| Wine . . . . .         | 7,700,000  | 715,000,000 | 42,600,000         | 938               | ...                 |
| Oil . . . . .          | 2,250,000  | 50,000,000  | 13,400,000         | 238               | ...                 |
| Tobacco . . . . .      | 9,000      | 2,000       | 160,000            | 4.4               | 80.0                |
| Silk cocoons . . . .   | ...        | 44,000      | 6,200,000          | ...               | 141.0               |
| Oranges . . . . .      | ...        | 225,000     | 3,000,000          | ...               | 13.3                |
| <b>Total . . . . .</b> | <b>...</b> | <b>...</b>  | <b>135,360,000</b> | <b>...</b>        | <b>...</b>          |

The above values are, however, in many cases too high, and such important items as hay, straw, &c., are omitted. The following table is more in harmony with European prices :-

|                       | Tons        | £          | Sundries         | £          |
|-----------------------|-------------|------------|------------------|------------|
| Wheat . . . . .       | 2,530,000   | 21,500,000 | Oranges . . .    | 3,000,000  |
| Maize . . . . .       | 1,610,000   | 10,700,000 | Vegetables . .   | 22,500,000 |
| Oats . . . . .        | 340,000     | 1,900,000  | Hemp and flax .  | 2,800,000  |
| Barley . . . . .      | 165,000     | 1,150,000  | Chestnuts . . .  | 800,000    |
| Rye, &c. . . . .      | 370,000     | 2,600,000  | Tobacco . . .    | 70,000     |
| Rice . . . . .        | 290,000     | 2,200,000  | Cocoons . . .    | 6,200,000  |
| All grain . . . . .   | 5,305,000   | 40,050,000 | Timber . . . .   | 4,000,000  |
| Potatoes . . . . .    | 620,000     | 1,250,000  | Dairy . . . . .  | 14,400,000 |
| Straw . . . . .       | 5,000,000   | 4,000,000  | Poultry . . . .  | 6,000,000  |
| Hay . . . . .         | 12,000,000  | 18,000,000 | Meat . . . . .   | 18,000,000 |
| Wine . . . . .        | ...         | 42,600,000 | Foals . . . . .  | 3,000,000  |
| Oil . . . . .         | ...         | 13,400,000 | Hides, wool, &c. | 4,130,000  |
| Principal crops } ... | 119,300,000 |            | Sundries . . .   | 84,900,000 |

|                                 |               |
|---------------------------------|---------------|
| Agricultural products . . . . . | £ 153,000,000 |
| Animal products . . . . .       | 51,200,000    |

Total . . . . . 204,200,000

The distribution of crops in 1870 was said to be as follows :-

|                         | Grain      | Wine       | Chestnuts  | Hay        |
|-------------------------|------------|------------|------------|------------|
| Venetia . . . . .       | 6          | 5          | ...        | 32         |
| Lombardy . . . . .      | 9          | 5          | 2          | 18         |
| Piedmont . . . . .      | 16         | 18         | 30         | 20         |
| Tuscany, Romagna, &c. . | 21         | 22         | 34         | 30         |
| Naples . . . . .        | 32         | 28         | 34         | ...        |
| Sicily . . . . .        | 16         | 22         | ...        | ...        |
| <b>Total . . . . .</b>  | <b>100</b> | <b>100</b> | <b>100</b> | <b>100</b> |

The official returns of live-stock are of recent date, besides which we have the estimates of Schnabel and Malchus for 1828, and of Spallart for 1852 :-

|                  | 1828      | 1852      | 1874      | 1882      |
|------------------|-----------|-----------|-----------|-----------|
| Horses . . . . . | 800,000   | 800,000   | 1,070,000 | 1,120,000 |
| Cattle . . . . . | 3,500,000 | 3,660,000 | 3,490,000 | 4,780,000 |
| Sheep . . . . .  | 6,500,000 | 7,000,000 | 6,980,000 | 8,595,000 |
| Pigs . . . . .   | 2,500,000 | 2,000,000 | 1,550,000 | 1,160,000 |
| Goats . . . . .  | 800,000   | ...       | 1,690,000 | 2,020,000 |

The production of meat at 500 lbs. per carcass of beef, 56 lbs. per sheep, and 100 lbs. per pig, was as follows :-

| Year           | Meat, Tons | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1828 . . . . . | 335,000    | 44                  |
| 1874 . . . . . | 300,000    | 24                  |
| 1882 . . . . . | 260,000    | 28                  |

The value of all kinds of live-stock may be set down approximately thus :—

|                  | Number    | Value, £   | £ per Head |
|------------------|-----------|------------|------------|
| Horses . . . . . | 1,120,000 | 23,500,000 | 21.0       |
| Cattle . . . . . | 4,780,000 | 47,800,000 | 10.0       |
| Sheep . . . . .  | 8,600,000 | 6,900,000  | 0.8        |
| Pigs . . . . .   | 1,160,000 | 2,900,000  | 2.5        |
| Goats . . . . .  | 2,020,000 | 1,400,000  | 0.7        |
| Total . . . . .  | ...       | 82,500,000 | ...        |

The value of products at different dates was approximately as follows :—

| Year           | Millions, £ Sterling |          |       | Hands     | Product per Hand, £ |
|----------------|----------------------|----------|-------|-----------|---------------------|
|                | Agricultural         | Pastoral | Total |           |                     |
| 1840 . . . . . | 92                   | 22       | 114   | 3,600,000 | 32                  |
| 1874 . . . . . | 146                  | 34       | 180   | 5,100,000 | 35                  |
| 1888 . . . . . | 153                  | 51       | 204   | 5,400,000 | 38                  |

The relation between capital and product was approximately as follows :—

| Year           | Millions, £ Sterling |         | Ratio to Capital |
|----------------|----------------------|---------|------------------|
|                | Capital              | Product |                  |
| 1840 . . . . . | 452                  | 114     | 25.3             |
| 1874 . . . . . | 801                  | 180     | 22.5             |
| 1888 . . . . . | 1,405                | 204     | 14.6             |

# LAND VALUE

According to Dr. Bodio's estimate, the value of land is 34 times the assessed rental; taking the same ratio for 1863 and 1871, and accepting the Foreign Office reports of 1844, which gave £11 per acre cultivated and £5 for pasture and woodland, the result is as follows :—

| Year           | Assessed Rental, £ | Land Value, Million Sterling |
|----------------|--------------------|------------------------------|
| 1840 . . . . . | ...                | 377                          |
| 1863 . . . . . | 16,000,000         | 544                          |
| 1871 . . . . . | 19,000,000         | 661                          |
| 1885 . . . . . | 34,700,000         | 1,182                        |

The accuracy of Dr. Bodio's estimate for 1885 is borne out by the fact that the prices obtained for Church-lands sold by Government in 1870-77 in all parts of Italy gave a medium of £16 per acre, ranging from £8 in Romagna to £36 in Piedmont.

This average of £16 for 70 million acres would show a total value of 1120 millions. See *Lands*.

# AGRICULTURAL CAPITAL

| Year           | Millions, £ Sterling |        |          |       |
|----------------|----------------------|--------|----------|-------|
|                | Land                 | Cattle | Sundries | Total |
| 1840 . . . . . | 377                  | 30     | 45       | 452   |
| 1863 . . . . . | 544                  | 45     | 66       | 655   |
| 1871 . . . . . | 661                  | 60     | 80       | 801   |
| 1885 . . . . . | 1,182                | 83     | 140      | 1,405 |

The increase of capital was as follows :—

| Period             | Millions, £ Sterling | £ per Annum |
|--------------------|----------------------|-------------|
| 1840-63 . . . . .  | 203                  | 8,500,000   |
| 1864-71 . . . . .  | 146                  | 18,300,000  |
| 1872-85 . . . . .  | 604                  | 43,100,000  |
| 46 years . . . . . | 953                  | 20,700,000  |

It may be observed that the assessed rentals of 1863 and 1871 were probably below the reality, in which case the increase of landed values and agricultural capital would be less than appears above.

# SPAIN

About 37 per cent. of Spain is cultivated, 26 per cent. being pasture or forest, and 37 per cent. barren mountains. In former times the cultivated area was said to be much greater.

| Year           | Millions of Acres |              |       | Authority |
|----------------|-------------------|--------------|-------|-----------|
|                | Cultivated        | Uncultivated | Total |           |
| 1860 . . . . . | 43                | 78           | 121   | Ozorio    |
| 1803 . . . . . | 60                | 61           | 121   | Registro  |
| 1828 . . . . . | 23                | 98           | 121   | Malchus   |
| 1876 . . . . . | 32                | 89           | 121   | Spallart  |

The production of grain and wine has been as follows :—

| Year           | Grain, Million Bushels | Wine, Million Gallons | Authority         |
|----------------|------------------------|-----------------------|-------------------|
| 1803 . . . . . | 98                     | ...                   | Registro          |
| 1828 . . . . . | 136                    | 170                   | Malchus           |
| 1876 . . . . . | 326                    | 550                   | N. Spallart *     |
| 1888 . . . . . | 300                    | 550                   | Moniteur Agricole |

The distribution of area in 1876 and 1888 was variously stated, as follows :—

|                      | Acres       |             |
|----------------------|-------------|-------------|
|                      | 1876        | 1888        |
| Tillage . . . . .    | 28,000,000  | 40,800,000  |
| Vineyards . . . . .  | 3,000,000   | 4,400,000   |
| Olives . . . . .     | 1,000,000   | 1,900,000   |
| Pasture, &c. . . . . | 28,000,000  | 24,000,000  |
| Forest . . . . .     | 7,000,000   | 7,000,000   |
| Waste . . . . .      | 55,000,000  | 42,900,000  |
| Total . . . . .      | 121,000,000 | 121,000,000 |

The following statistics of live-stock are official, except Brachelli's for 1841 :—

|                  | 1826       | 1841       | 1860       | 1880       |
|------------------|------------|------------|------------|------------|
| Horses . . . . . | 900,000    | 1,000,000  | 1,080,000  | 1,830,000  |
| Cattle . . . . . | 2,950,000  | 3,000,000  | 1,870,000  | 3,090,000  |
| Sheep . . . . .  | 13,000,000 | 14,000,000 | 17,600,000 | 22,800,000 |
| Pigs . . . . .   | 2,730,000  | 1,000,000  | 1,610,000  | 4,465,000  |
| Goats . . . . .  | 5,300,000  | 2,600,000  | 3,150,000  | 4,530,000  |

In the foregoing table horses include also mules and asses, one mule or four asses being equivalent to a horse; thus in 1880 the actual numbers were—horses, 670,000; mules, 940,000; and asses, 890,000.

The production of meat at an average of 450 lbs. per beef carcass, 50 lbs. per sheep, 25 lbs. per goat, and 90 lbs. per pig, was as follows :—

| Year           | Meat, Tons | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1826 . . . . . | 405,000    | 77                  |
| 1841 . . . . . | 300,000    | 55                  |
| 1860 . . . . . | 310,000    | 45                  |
| 1880 . . . . . | 525,000    | 71                  |

\* N. Spallart's estimate was as follows :—Wheat, 168; barley, 77; maize, 36; rye, 33; oats, 12 million bushels.

The fluctuations of live-stock were doubtless the result of civil wars.

The value of the stock was approximately as follows :—

|                | No.        | Value, £   | £ per Head |
|----------------|------------|------------|------------|
| Horses . . . . | 1,830,000  | 36,600,000 | 20.0       |
| Cattle . . . . | 3,090,000  | 30,900,000 | 10.0       |
| Sheep . . . .  | 22,800,000 | 18,200,000 | 0.8        |
| Pigs . . . .   | 4,465,000  | 6,700,000  | 1.5        |
| Goats . . . .  | 4,530,000  | 2,300,000  | 0.5        |
| Total . . . .  | ...        | 94,700,000 | ...        |

The value of products in 1836 was approximately thus :—

|                         | Tons      | £          | Sundries               | £           |
|-------------------------|-----------|------------|------------------------|-------------|
| Wheat . . . .           | 3,800,000 | 30,400,000 | Wine . . . .           | 44,000,000  |
| Barley . . . .          | 1,700,000 | 10,200,000 | Vegetables, &c. . . .  | 9,000,000   |
| Maize . . . .           | 1,050,000 | 6,900,000  | Cork oil . . . .       | 3,000,000   |
| Oats . . . .            | 350,000   | 2,400,000  | Dairy . . . .          | 9,300,000   |
| Rye, &c. . . .          | 800,000   | 5,200,000  | Poultry . . . .        | 4,500,000   |
| All grain . . . .       | 7,700,000 | 55,100,000 | Meat . . . .           | 26,200,000  |
| Straw . . . .           | 8,000,000 | 6,000,000  | Foals . . . .          | 3,000,000   |
| Hay . . . .             | 6,000,000 | 9,000,000  | Hides, wool, &c. . . . | 4,200,000   |
| Principal crops . . . . | ...       | 70,100,000 | Sundries . . . .       | 103,200,000 |

Agricultural products . . . . . £ 126,100,000  
Animal products . . . . . 47,200,000

Total . . . . . 173,300,000

The value of products at various dates was as follows :—

| Year | Millions, £ Sterling |          |       | Authority |
|------|----------------------|----------|-------|-----------|
|      | Agricultural         | Pastoral | Total |           |
| 1808 | 54                   | 19       | 73    | Official  |
| 1826 | 56                   | 21       | 77    | Miñano    |
| 1832 | 86                   | 16       | 102   | Argüelles |
| 1886 | 126                  | 47       | 173   | ...       |

The Census of 1871 showed 2,723,000 persons engaged in agriculture; the product therefore averages £64 per head.

#### LAND VALUE

According to the report of the Junta de Medios, the total farming capital in 1832 was 724 millions sterling, between land, cattle, and sundries. The Embassy report of 1869 classified the land under three heads, with the respective rental values. If we capitalise the rental at thirty years, we find the values thus :—

The statistics of Portuguese live-stock were as follows :—

|                | 1828      | 1850      | 1868      | 1883      | Value in 1883 |
|----------------|-----------|-----------|-----------|-----------|---------------|
| Horses . . . . | ...       | 120,000   | 130,000   | 140,000   | £ 2,800,000   |
| Cattle . . . . | 650,000   | 750,000   | 520,000   | 625,000   | 6,200,000     |
| Sheep . . . .  | 1,200,000 | 1,980,000 | 2,420,000 | 2,980,000 | 2,400,000     |
| Pigs . . . .   | 700,000   | 750,000   | 860,000   | 970,000   | 1,500,000     |
| Goats . . . .  | 600,000   | 1,500,000 | ...       | 940,000   | 400,000       |
|                | ...       | ...       | ...       | ...       | ...           |
|                | ...       | ...       | ...       | ...       | 13,300,000    |

|                     | Acres       | Rent, Shillings per Acre | Value, Million £ |
|---------------------|-------------|--------------------------|------------------|
| Irrigated . . . .   | 2,000,000   | 80                       | 240              |
| Ordinary arable . . | 30,000,000  | 12                       | 540              |
| Pasture, &c. . . .  | 34,000,000  | 4                        | 204              |
| Waste . . . .       | 55,000,000  | ...                      | ...              |
| Total . . . .       | 121,000,000 | ...                      | 984              |

#### AGRICULTURAL CAPITAL MILLIONS, £ STERLING

|              | Land | Cattle | Sundries | Total |
|--------------|------|--------|----------|-------|
| 1832 . . . . | 614  | 38     | 72       | 724   |
| 1888 . . . . | 984  | 95     | 120      | 1,199 |

Spanish statistics are doubtful, being often official exaggerations.

#### PORTUGAL

The estimates of Malchus, Brachelli, Tisserand, and the Statistique Agricole give the following :—

| Year         | Grain, Million Bushels | Wine, Million Gallons |
|--------------|------------------------|-----------------------|
| 1827 . . . . | 21                     | 75                    |
| 1850 . . . . | 30                     | ...                   |
| 1868 . . . . | 31                     | 132                   |
| 1886 . . . . | 40                     | 125                   |

The cultivated area is less than 5 million acres, that of waste land 17,600,000, the former being barely 21 per cent. of the kingdom.

The crops in 1868 (latest complete returns) were as follows :—

|                   | Acres     | Bushels     | Value of Crops, £ |
|-------------------|-----------|-------------|-------------------|
| Wheat . . . .     | 620,000   | 5,500,000   | 1,600,000         |
| Maize . . . .     | 750,000   | 15,400,000  | 2,800,000         |
| Barley . . . .    | 170,000   | 2,000,000   | 260,000           |
| Rye . . . .       | 980,000   | 7,000,000   | 770,000           |
| Oats . . . .      | 30,000    | 500,000     | 70,000            |
| Rice . . . .      | 10,000    | 400,000     | 80,000            |
| All grain . . . . | 2,560,000 | 30,800,000  | 5,580,000         |
| Vines . . . .     | 480,000   | 132,000,000 | 8,000,000         |
| Gardens . . . .   | 200,000   | ...         | 1,800,000         |
| Olives . . . .    | 100,000   | ...         | 500,000           |
| Meadow . . . .    | 500,000   | ...         | 2,120,000         |
| Fallow . . . .    | 750,000   | ...         | ...               |
| Forest . . . .    | 250,000   | ...         | ...               |
| Total . . . .     | 4,840,000 | ...         | 18,000,000        |

Neumann Spallart gives the following for 1877 :—

|                   | Acres     | Bushels    |
|-------------------|-----------|------------|
| Wheat . . . .     | 650,000   | 8,200,000  |
| Rye . . . .       | 650,000   | 6,100,000  |
| Maize . . . .     | 1,300,000 | 20,000,000 |
| Barley, &c. . . . | 200,000   | 2,700,000  |
| Total . . . .     | 2,800,000 | 37,000,000 |

The production of meat at the same weight of carcase as in Spain was :—

| Year           | Meat, Tons | Lbs. per Inhab. |
|----------------|------------|-----------------|
| 1828 . . . . . | 70,000     | 46              |
| 1868 . . . . . | 77,000     | 41              |
| 1883 . . . . . | 95,000     | 49              |

The value of products in 1886 was approximately thus :—

|                     | Tons      | £          | Sundries            | £          |
|---------------------|-----------|------------|---------------------|------------|
| Wheat . . .         | 270,000   | 2,200,000  | Cork . . .          | 600,000    |
| Maize . . .         | 400,000   | 2,400,000  | Vegetables, &c. . . | 2,200,000  |
| Rye, &c. . .        | 380,000   | 2,400,000  | Poultry . . .       | 1,100,000  |
| All grain . .       | 1,050,000 | 7,000,000  | Dairy . . .         | 1,900,000  |
| Hay and straw . .   | 2,000,000 | 3,000,000  | Meat . . .          | 4,700,000  |
| Wine . . .          | ...       | 10,000,000 | Hides, &c. . .      | 700,000    |
| Principal crops . . | ...       | 20,000,000 | Sundries . . .      | 11,200,000 |

|                                 |              |
|---------------------------------|--------------|
| Agricultural products . . . . . | £ 23,000,000 |
| Animal products . . . . .       | 8,200,000    |
| Total . . . . .                 | 31,200,000   |

According to the Census of 1861, the number of persons engaged was 870,000, of whom 310,000 in pasture. Ratio of product £35 per head.

The landed value is approximately as follows :—

|                  | Area       | Value, Million £ | Per Acre, £ |
|------------------|------------|------------------|-------------|
| Cultivated . . . | 5,000,000  | 90               | 18          |
| Pasture . . . .  | 7,000,000  | 42               | 6           |
| Waste . . . . .  | 10,450,000 | ...              | ...         |
| Total . . . . .  | 22,450,000 | 132              | ...         |

Agricultural capital is only about £36 per head of the total population, being made up thus :—

|                    | Millions £ |
|--------------------|------------|
| Land . . . . .     | 132        |
| Cattle . . . . .   | 13         |
| Sundries . . . . . | 16         |
| Total . . . . .    | 161        |

The value of products is 19 per cent. on the capital.

#### SWEDEN

Agriculture was in its infancy till 1818, when the nobles (whose estates were heavily encumbered) began to sell their lands to the peasants; by the year 1840 they had sold 16 million acres. As a consequence, we find that the cultivated area increased by 140,000 acres per annum between 1812 and 1837, and by 165,000 per

annum between the latter year and 1884, as official returns show :—

| Year         | Acres Cultivated | Million Bushels |          |
|--------------|------------------|-----------------|----------|
|              |                  | Grain           | Potatoes |
| 1812 . . . . | 1,360,000        | 1               | ...      |
| 1837 . . . . | 4,830,000        | 28              | 16       |
| 1859 . . . . | ...              | 39              | 21       |
| 1876 . . . . | 11,590,000       | 80              | 39       |
| 1887 . . . . | 12,200,000       | 106             | 59       |

Only 12 per cent. of the kingdom is cultivated, the area in 1886 showing :—

|                      | Acres       |
|----------------------|-------------|
| Cultivated . . . . . | 12,200,000  |
| Forest . . . . .     | 44,900,000  |
| Waste . . . . .      | 43,200,000  |
| Total . . . . .      | 100,300,000 |

The principal crops of recent years compare with those of 1837 thus :—

|                    | 1837       | 1880        | 1886        |
|--------------------|------------|-------------|-------------|
| Wheat, bushels . . | 500,000    | 3,100,000   | 3,700,000   |
| Rye, " . . . .     | 4,500,000  | 18,300,000  | 19,600,000  |
| Barley, " . . .    | 3,600,000  | 14,300,000  | 15,600,000  |
| Oats, &c. . . .    | 5,200,000  | 54,700,000  | 63,600,000  |
| Potatoes, " . .    | 8,200,000  | 55,400,000  | 49,100,000  |
| Total . . . . .    | 22,000,000 | 145,800,000 | 151,600,000 |

The production of meat, at 500 lbs. per beef carcase, 56 lbs. per sheep, and 100 lbs. per pig, was as follows :—

| Year           | Meat, Tons | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1837 . . . . . | 106,000    | 78                  |
| 1870 . . . . . | 120,000    | 63                  |
| 1886 . . . . . | 140,000    | 62                  |

The yield of grain is poor. Oats and barley, fourfold; rye, fivefold; and wheat, in good years, sixfold; potatoes give sevenfold.

The value of products in 1886 was as follows :—

|                     | Tons      | £          | Sundries           | £          |
|---------------------|-----------|------------|--------------------|------------|
| Wheat . . .         | 100,000   | 800,000    | Vegetables . .     | 2,300,000  |
| Oats . . . .        | 950,000   | 5,700,000  | Timber . . .       | 8,000,000  |
| Barley . . .        | 350,000   | 2,200,000  | Poultry . . .      | 1,200,000  |
| Rye, &c. . .        | 750,000   | 5,000,000  | Dairy . . . .      | 7,000,000  |
| All grain . .       | 2,150,000 | 13,700,000 | Meat . . . .       | 7,000,000  |
| Straw . . .         | 2,000,000 | 1,500,000  | Foals . . . .      | 1,200,000  |
| Hay . . . .         | 2,000,000 | 3,000,000  | Tallow . . .       | 600,000    |
| Potatoes . .        | 1,200,000 | 2,400,000  | Hides, wool, &c. } | 1,200,000  |
| Principal crops . . | ...       | 20,600,000 | Sundries . . .     | 28,500,000 |

The following are the returns of live-stock :—

|                | 1836      | 1860      | 1870      | 1880      | 1886      | Approximate Value in 1886, £ |
|----------------|-----------|-----------|-----------|-----------|-----------|------------------------------|
| Horses . . . . | 385,000   | 400,000   | 430,000   | 460,000   | 485,000   | 9,700,000                    |
| Cattle . . . . | 1,660,000 | 1,920,000 | 1,970,000 | 2,230,000 | 2,380,000 | 23,800,000                   |
| Sheep . . . .  | 1,410,000 | 1,640,000 | 1,600,000 | 1,460,000 | 1,440,000 | 1,200,000                    |
| Pigs . . . . . | 500,000   | 460,000   | 350,000   | 420,000   | 550,000   | 1,100,000                    |
| Goats . . . .  | 100,000   | 130,000   | 120,000   | 110,000   | 90,000    | 50,000                       |
|                |           |           |           |           |           | 35,850,000                   |

Besides the foregoing, there are 220,000 reindeer.

|                             |            |
|-----------------------------|------------|
|                             | £          |
| Agricultural products . . . | 31,100,000 |
| Pastoral products . . .     | 18,000,000 |
| Total . . .                 | 49,100,000 |

The number of hands engaged in agriculture is 853,000, which gives an average product of £57 per head.

# LANDED VALUE

Two official valuations exist—that of 1836, amounting to 33 millions sterling, and that of 1880, which reached millions sterling. We can also determine the value in 1818–20, the average price then obtained by the nobles being 18d. per acre—say £8,000,000 for the whole kingdom.

| Year       | Agricultural Capital, Millions £ |        |          |       |
|------------|----------------------------------|--------|----------|-------|
|            | Land                             | Cattle | Sundries | Total |
| 1818 . . . | 8                                | 10     | 2        | 20    |
| 1837 . . . | 33                               | 13     | 5        | 51    |

See Part II., page 622.

# NORWAY

Agriculture has not made so much progress as in Sweden. We have no statistics earlier than 1835, since

The following are the official returns of live-stock :—

|                    | 1835      | 1845      | 1855      | 1865      | 1875      | Approximate Value in 1875, £ |
|--------------------|-----------|-----------|-----------|-----------|-----------|------------------------------|
| Horses . . . . .   | 110,000   | 130,000   | 150,000   | 150,000   | 150,000   | 3,000,000                    |
| Cattle . . . . .   | 640,000   | 840,000   | 950,000   | 950,000   | 1,020,000 | 10,200,000                   |
| Sheep . . . . .    | 1,030,000 | 1,450,000 | 1,600,000 | 1,700,000 | 1,690,000 | 1,400,000                    |
| Pigs . . . . .     | 80,000    | 90,000    | 110,000   | 100,000   | 100,000   | 200,000                      |
| Goats . . . . .    | 180,000   | 290,000   | 360,000   | 290,000   | 320,000   | 200,000                      |
| Reindeer . . . . . | 80,000    | 90,000    | 120,000   | 100,000   | 100,000   | 150,000                      |
| Total              | ...       | ...       | ...       | ...       | ...       | 15,150,000                   |

The production of meat at the same weight of carcase as in Sweden was :—

| Year       | Meat, Tons | Lbs. per Inhabitant |
|------------|------------|---------------------|
| 1835 . . . | 44,000     | 80                  |
| 1855 . . . | 64,000     | 95                  |
| 1875 . . . | 67,000     | 78                  |

The value of products in 1886 was approximately thus :—

|                 | Tons    | £         | Sundries       | £          |
|-----------------|---------|-----------|----------------|------------|
| Wheat . . .     | 7,000   | 60,000    | Vegetables . . | 1,000,000  |
| Barley . . .    | 100,000 | 640,000   | Timber . . .   | 4,000,000  |
| Oats . . .      | 150,000 | 900,000   | Dairy . . .    | 3,000,000  |
| Rye, &c. . .    | 73,000  | 500,000   | Poultry . . .  | 500,000    |
|                 |         |           | Meat . . .     | 3,300,000  |
| All grain . .   | 330,000 | 2,100,000 | Foals . . .    | 400,000    |
| Potatoes . .    | 490,000 | 1,000,000 | Hides, &c. . . | 800,000    |
| Hay and straw   | 700,000 | 900,000   | Sundries . .   | 13,000,000 |
| Principal crops | ...     | 4,000,000 |                |            |

which date the area under grain and potatoes and the yield have been as follows :—

| Year           | Acres   | Million Bushels |
|----------------|---------|-----------------|
| 1835 . . . . . | 360,000 | 13              |
| 1855 . . . . . | ...     | 31              |
| 1865 . . . . . | 530,000 | 32              |
| 1875 . . . . . | 560,000 | 36              |

Not more than 5 per cent. of the country is cultivated, viz. (1880) :—

|                      | Acres      |
|----------------------|------------|
| Cultivated . . . . . | 4,060,000  |
| Forest . . . . .     | 15,800,000 |
| Waste . . . . .      | 58,840,000 |
| Total                | 78,700,000 |

The yield per acre has notably improved since 1835, viz. :—

|                 | Bushels per Acre |      |
|-----------------|------------------|------|
|                 | 1835             | 1875 |
| Wheat . . . . . | 13               | 20   |
| Oats . . . . .  | 26               | 40   |

Nevertheless the climate is so little suited to cereals that we notice hardly any increase in the quantity produced, except in potatoes, viz. :—

|              | 1855       | 1865       | 1875       | Acreeage in 1875 |
|--------------|------------|------------|------------|------------------|
|              | Bushels    | Bushels    | Bushels    |                  |
| Wheat . . .  | 200,000    | 270,000    | 280,000    | 11,000           |
| Barley . . . | 3,500,000  | 3,400,000  | 4,300,000  | 138,000          |
| Oats . . .   | 8,100,000  | 7,900,000  | 8,900,000  | 224,000          |
| Rye, &c. .   | 3,000,000  | 2,630,000  | 3,120,000  | 99,000           |
| Potatoes . . | 16,500,000 | 18,000,000 | 19,600,000 | 86,000           |
| Total        | 31,300,000 | 32,200,000 | 36,200,000 | 558,000          |

|                             |            |
|-----------------------------|------------|
|                             | £          |
| Agricultural products . . . | 9,000,000  |
| Animal products . . .       | 8,000,000  |
| Total . . . . .             | 17,000,000 |

The number of hands employed is about 380,000.

See Part II., page 622.

DENMARK

Malchus estimated the grain product in 1828 at 40 million bushels; Brachelli, in 1850, at 65 millions.

The agricultural area of Denmark and the duchies of Schleswig-Holstein in 1834 was stated thus:—

|                    | Acres      |
|--------------------|------------|
| Arable . . . . .   | 8,630,000  |
| Meadow . . . . .   | 605,000    |
| Forest . . . . .   | 538,000    |
| Waste, &c. . . . . | 637,000    |
| Total . . . . .    | 10,410,000 |

|              | Acreage   |           |           | Million Bushels |      |
|--------------|-----------|-----------|-----------|-----------------|------|
|              | 1866      | 1876      | 1881      | 1876            | 1886 |
| Wheat . . .  | 120,000   | 150,000   | 140,000   | 5               | 5    |
| Barley . . . | 680,000   | 760,000   | 780,000   | 23              | 23   |
| Oats . . .   | 830,000   | 940,000   | 990,000   | 31              | 33   |
| Rye, &c. . . | 750,000   | 950,000   | 1,010,000 | 24              | 25   |
| Potatoes . . | 85,000    | 100,000   | 110,000   | 10              | 14   |
| Turnips, &c. | 42,000    | 40,000    | 85,000    | 15              | 29   |
| Garden . . . | ...       | 50,000    | 60,000    | ...             | ...  |
| Fallow . . . | 440,000   | 610,000   | 640,000   | ...             | ...  |
| Grass . . .  | 2,670,000 | 3,070,000 | 3,560,000 | ...             | ...  |
| Forest . . . | 400,000   | 400,000   | 400,000   | ...             | ...  |
| Waste . . .  | 2,553,000 | 1,500,000 | 795,000   | ...             | ...  |
| Total . . .  | 8,570,000 | 8,570,000 | 8,570,000 | ...             | ...  |

From 1866 to 1876 the reclamation of waste lands averaged 100,000 acres yearly, and from 1876 to 1881 no less than 140,000 yearly. Most of it went into meadow and pasture. Wheat averages 28 bushels an acre, and yields ninefold; other grain, eightfold; clover, two tons per acre. Statistics of live-stock (those for 1830 including Schleswig-Holstein) show as follows:—

|              | 1830      | 1866      | 1876      | 1881      | Approximate Value in 1881, £ |
|--------------|-----------|-----------|-----------|-----------|------------------------------|
| Horses . . . | 550,000   | 350,000   | 350,000   | 350,000   | 11,000,000                   |
| Cattle . . . | 1,610,000 | 1,190,000 | 1,350,000 | 1,470,000 | 16,100,000                   |
| Sheep . . .  | 1,900,000 | 1,880,000 | 1,720,000 | 1,550,000 | 1,500,000                    |
| Pigs . . .   | 450,000   | 380,000   | 500,000   | 530,000   | 1,200,000                    |
|              |           |           |           |           | 29,800,000                   |

The conquest of Schleswig-Holstein by Germany in 1864 caused a great diminution in the live-stock of Denmark. The production of meat, at 560 lbs. per beef carcase, 56 lbs. per sheep, and 112 lbs. per pig, was:—

| Year           | Meat, Tons | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1850 . . . . . | 76,000     | 130                 |
| 1866 . . . . . | 92,000     | 120                 |
| 1881 . . . . . | 108,000    | 120                 |

Official returns regarding Denmark proper show as follows:—

|                 | Tons      | £          | Sundries      | £          |
|-----------------|-----------|------------|---------------|------------|
| Wheat . . .     | 140,000   | 1,200,000  | Roots . . .   | 1,100,000  |
| Barley . . .    | 520,000   | 3,500,000  | Vegetables .  | 1,000,000  |
| Oats . . .      | 560,000   | 3,900,000  | Timber . . .  | 200,000    |
| Rye, &c. . .    | 600,000   | 4,000,000  | Poultry . . . | 500,000    |
|                 |           |            | Dairy . . .   | 6,400,000  |
| All grain . .   | 1,820,000 | 12,600,000 | Meat . . .    | 5,400,000  |
| Straw . . .     | 2,000,000 | 1,800,000  | Foals . . .   | 1,100,000  |
| Hay . . .       | 900,000   | 1,800,000  | Hides, &c. .  | 1,500,000  |
| Potatoes . .    | 700,000   | 1,400,000  |               |            |
| Principal crops | ...       | 17,600,000 | Sundries . .  | 17,200,000 |

|                                 |              |
|---------------------------------|--------------|
| Agricultural products . . . . . | £ 19,800,000 |
| Animal products . . . . .       | 15,000,000   |
|                                 | 34,800,000   |

The values, approximately, of products in 1850 compare with those of 1886 thus:—

| Year           | Millions, £ Sterling |          |       |
|----------------|----------------------|----------|-------|
|                | Agricultural         | Pastoral | Total |
| 1850 . . . . . | 13                   | 9        | 22    |
| 1886 . . . . . | 20                   | 15       | 35    |

Agricultural hands 420,000, showing an average of £84 per head.

LANDED VALUE

The valuation of 1830 for landed estates amounted to £25,600,000. The Embassy report of 1869 gives average prices which would sum up thus:—

|                | Acre      | Per Acre, £ | Value, Million £ |
|----------------|-----------|-------------|------------------|
| Arable . . . . | 2,950,000 | 35          | 103              |
| Grass . . . .  | 3,070,000 | 23          | 70               |
| Waste . . . .  | 2,550,000 | ...         | ...              |
| Total . . . .  | 8,570,000 | ...         | 173              |

At the same valuation per acre as in 1869 the landed value would now stand as follows:—

|                | Acres     | Value, £    | Per Acre, £ |
|----------------|-----------|-------------|-------------|
| Arable . . . . | 3,815,000 | 133,500,000 | 35          |
| Grass . . . .  | 3,560,000 | 81,900,000  | 23          |
| Forest . . . . | 400,000   | 2,000,000   | 5           |
| Waste . . . .  | 795,000   | ...         | ...         |
| Total . . . .  | 8,570,000 | 217,400,000 | ...         |

The Government valuation for 1884 gives real estate 257 millions sterling, but this includes urban house property as well as lands.

| Year           | Agricultural Capital, Millions £ |        |          |       |
|----------------|----------------------------------|--------|----------|-------|
|                | Land                             | Cattle | Sundries | Total |
| 1840 . . . . . | 26                               | 16     | 4        | 46    |
| 1869 . . . . . | 173                              | 19     | 21       | 213   |
| 1889 . . . . . | 217                              | 30     | 27       | 274   |

The product in 1889 was 13 per cent. on capital.

The increase of capital was as follows:—

| Interval          | Millions, £ | Per Annum, £ |
|-------------------|-------------|--------------|
| 1830-69 . . . . . | 167         | ...          |
| 1870-89 . . . . . | 61          | ...          |
|                   |             | 3,050,000    |

For Tenure, &c., see *Land*.

HOLLAND

Tillage forms a secondary industry in Dutch agriculture. The production of grain, according to Brachelli and others, was as follows:—

| Year           | Bushels    |
|----------------|------------|
| 1828 . . . . . | 16,000,000 |
| 1861 . . . . . | 34,000,000 |
| 1885 . . . . . | 40,000,000 |

The reports of 1879 and 1885 compare as follows :—

|                    | Acres     |           |                        | Average for 1871-80 |            |
|--------------------|-----------|-----------|------------------------|---------------------|------------|
|                    | 1879      | 1885      |                        | Acres               | Bushels    |
| Grain . . . . .    | 1,570,000 | 1,460,000 | Wheat . . . . .        | 210,000             | 5,200,000  |
| Potatoes . . . . . | 350,000   | 350,000   | Rye . . . . .          | 500,000             | 9,500,000  |
| Beetroot . . . . . | 40,000    | 60,000    | Oats . . . . .         | 270,000             | 10,500,000 |
| Sundries . . . . . | 130,000   | 280,000   | Barley . . . . .       | 120,000             | 5,000,000  |
| Grass . . . . .    | 2,940,000 | 2,950,000 | Buckwheat, &c. . . . . | 280,000             | 5,800,000  |
| Forest . . . . .   | 530,000   | 560,000   | Total . . . . .        | 1,380,000           | 36,000,000 |
| Waste . . . . .    | 2,240,000 | 2,140,000 |                        |                     |            |
| Total . . . . .    | 7,800,000 | 7,800,000 |                        |                     |            |

The statistics of live-stock showed as follows :—

|                  | 1840      | 1860      | 1870      | 1884      |
|------------------|-----------|-----------|-----------|-----------|
| Horses . . . . . | 210,000   | 240,000   | 250,000   | 270,000   |
| Cattle . . . . . | 1,050,000 | 1,250,000 | 1,410,000 | 1,480,000 |
| Sheep . . . . .  | 720,000   | 870,000   | 900,000   | 750,000   |
| Pigs . . . . .   | ...       | 270,000   | 330,000   | 430,000   |
| Goats . . . . .  | ...       | 110,000   | 140,000   | 160,000   |

The production of meat, at 700 lbs. per beef carcase, 70 lbs. per sheep, and 120 lbs. per pig, was as follows :—

| Year           | Meat, Tons | Lbs. per Inhabitant |
|----------------|------------|---------------------|
| 1860 . . . . . | 104,000    | 62                  |
| 1870 . . . . . | 118,000    | 67                  |
| 1884 . . . . . | 125,000    | 69                  |

The value of products in Holland in 1886 was approximately as follows :—

|                           | Tons      | £          | Sundries             | £          |
|---------------------------|-----------|------------|----------------------|------------|
| Wheat . . . . .           | 140,000   | 1,200,000  | Beetroot . . . . .   | 300,000    |
| Rye . . . . .             | 270,000   | 1,900,000  | Vegetables . . . . . | 3,000,000  |
| Oats . . . . .            | 250,000   | 1,700,000  | Poultry . . . . .    | 1,200,000  |
| Barley . . . . .          | 100,000   | 700,000    | Flax . . . . .       | 300,000    |
| Buckwheat, &c. . . . .    | 140,000   | 900,000    | Meat . . . . .       | 6,200,000  |
| All grain . . . . .       | 900,000   | 6,400,000  | Tallow . . . . .     | 400,000    |
| Potatoes . . . . .        | 1,600,000 | 3,200,000  | Dairy . . . . .      | 9,500,000  |
| Straw . . . . .           | 900,000   | 900,000    | Foals . . . . .      | 900,000    |
| Hay . . . . .             | 3,000,000 | 6,000,000  | Hides, &c. . . . .   | 1,000,000  |
| Principal crops . . . . . | ...       | 16,500,000 | Sundries . . . . .   | 22,800,000 |

|                                 |            |
|---------------------------------|------------|
| Agricultural products . . . . . | 20,100,000 |
| Animal products . . . . .       | 19,200,000 |
| Products of Holland . . . . .   | 39,300,000 |

The value of products in 1850 compares with the above thus :—

| Year           | Millions, £ Sterling |          |       |
|----------------|----------------------|----------|-------|
|                | Agricultural         | Pastoral | Total |
| 1850 . . . . . | 12                   | 10       | 22    |
| 1886 . . . . . | 20                   | 19       | 39    |

Agricultural hands, 840,000, showing £46 per head.

LAND VALUE

In 1836 the value of the kingdom (excluding waste land) was estimated thus :—

|                    | Acres     | Per Acre, £ | Value, Million £ |
|--------------------|-----------|-------------|------------------|
| Good . . . . .     | 2,000,000 | 54          | 108              |
| Inferior . . . . . | 3,300,000 | 30          | 99               |
| Total . . . . .    | 5,300,000 | ...         | 207              |

The Bulletin Statistique for 1886 states the value at 314 millions sterling, an increase of 107 millions in 50 years :—

| Year           | Agricultural Capital, Million £ |        |          |       |
|----------------|---------------------------------|--------|----------|-------|
|                | Land                            | Cattle | Sundries | Total |
| 1836 . . . . . | 207                             | 14     | 24       | 245   |
| 1886 . . . . . | 314                             | 28     | 38       | 380   |

The increase averaged £2,700,000 per annum. The product in 1885 was only 10 per cent. on capital.

BELGIUM

The production of grain and potatoes has been, according to Malchus and the official returns, as follows :—

| Year           | Acres     | Grain, Million Bushels | Potatoes, Tons |
|----------------|-----------|------------------------|----------------|
| 1828 . . . . . | ...       | 33                     | ...            |
| 1846 . . . . . | ...       | 52                     | 1,800,000      |
| 1856 . . . . . | 2,340,000 | 69                     | 1,800,000      |
| 1866 . . . . . | 2,900,000 | 70                     | 1,700,000      |
| 1880 . . . . . | 2,880,000 | 75                     | 2,800,000      |
| 1886 . . . . . | ...       | 74                     | 3,000,000      |

The distribution of area in Belgium is shown officially as follows :—

|                    | Acreage   |           |           |                        | Average Product for Years 1871-80 | Official Valuation |
|--------------------|-----------|-----------|-----------|------------------------|-----------------------------------|--------------------|
|                    | 1856      | 1866      | 1880      |                        |                                   |                    |
| Grain . . . . .    | 2,480,000 | 2,480,000 | 2,390,000 | Wheat . . . . .        | Tons 430,000                      | £ 5,400,000        |
| Potatoes . . . . . | 370,000   | 420,000   | 490,000   | Rye . . . . .          | 420,000                           | 3,600,000          |
| Beetroot . . . . . | 30,000    | 90,000    | 150,000   | Oats . . . . .         | 390,000                           | 3,300,000          |
| Flax . . . . .     | 80,000    | 140,000   | 100,000   | Barley . . . . .       | 80,000                            | 700,000            |
| Grass . . . . .    | 1,170,000 | 1,340,000 | 1,420,000 | Buckwheat, &c. . . . . | 130,000                           | 1,200,000          |
| Sundries . . . . . | 400,000   | 640,000   | 420,000   | All grain . . . . .    | 1,450,000                         | 14,200,000         |
| Forest . . . . .   | 1,070,000 | 1,210,000 | 1,210,000 | Potatoes . . . . .     | 2,490,000                         | 9,200,000          |
| Waste . . . . .    | 2,760,000 | 1,100,000 | 1,100,000 | Beetroot . . . . .     | 2,050,000                         | 1,600,000          |
| Total . . . . .    | 7,280,000 | 7,280,000 | 7,280,000 | Hay . . . . .          | 5,220,000                         | 10,200,000         |

The average of ten years to 1880 gave the weight of seed and the crop to the acre as follows:—

|                  | Seed, lbs.<br>per Acre | Crop, lbs.<br>per Acre | Yield to 1<br>lb. Seed |
|------------------|------------------------|------------------------|------------------------|
| Wheat . . . . .  | 113                    | 1,360                  | 12.0                   |
| Rye . . . . .    | 107                    | 1,300                  | 12.1                   |
| Oats . . . . .   | 173                    | 1,590                  | 8.8                    |
| Barley . . . . . | 123                    | 1,610                  | 13.1                   |

The acreage of the principal kinds of grain at various dates was as follows:—

|                  | 1846      | 1856      | 1866      | 1880      |
|------------------|-----------|-----------|-----------|-----------|
| Wheat . . . . .  | 580,000   | 660,000   | 700,000   | 690,000   |
| Rye . . . . .    | 700,000   | 720,000   | 710,000   | 690,000   |
| Oats . . . . .   | 500,000   | 550,000   | 570,000   | 620,000   |
| Barley . . . . . | 100,000   | 110,000   | 110,000   | 100,000   |
| Total . . . . .  | 1,880,000 | 2,040,000 | 2,090,000 | 2,100,000 |

Returns of live-stock are as follows:—

|                  | 1840    | 1866      | 1880      | Approximate<br>Value in 1880 |
|------------------|---------|-----------|-----------|------------------------------|
| Horses . . . . . | 246,000 | 280,000   | 270,000   | 5,400,000                    |
| Cattle . . . . . | 910,000 | 1,240,000 | 1,380,000 | 16,600,000                   |
| Sheep . . . . .  | 750,000 | 600,000   | 370,000   | 300,000                      |
| Pigs . . . . .   | 420,000 | 630,000   | 650,000   | 1,300,000                    |
| Goats . . . . .  | 80,000  | 200,000   | 250,000   | 100,000                      |

The production of meat, at 600 lbs. per beef carcase, 70 lbs. per sheep, and 112 lbs. per pig, was:—

| Year           | Meat, Tons | Lbs. per<br>Inhabitant |
|----------------|------------|------------------------|
| 1840 . . . . . | 77,000     | 43                     |
| 1866 . . . . . | 106,000    | 54                     |
| 1880 . . . . . | 110,000    | 43                     |

The official valuation of products gave the following average for ten years ending 1880:—

|                           | £          |
|---------------------------|------------|
| Grain . . . . .           | 21,700,000 |
| Green crops . . . . .     | 6,400,000  |
| Hay . . . . .             | 10,200,000 |
| Sundries . . . . .        | 18,200,000 |
| All crops . . . . .       | 56,500,000 |
| Cattle products . . . . . | 9,500,000  |
| Total . . . . .           | 66,000,000 |

According to the preceding scale the value at various dates was as follows:—

|                      | Acres     |           |           |           | Value, Millions, £ |      |      |      |
|----------------------|-----------|-----------|-----------|-----------|--------------------|------|------|------|
|                      | 1846      | 1856      | 1866      | 1880      | 1846               | 1856 | 1866 | 1880 |
| Cultivated . . . . . | 3,930,000 | 4,520,000 | 5,110,000 | 4,970,000 | 165                | 243  | 337  | 336  |
| Forest . . . . .     | 1,400,000 | 1,300,000 | 1,070,000 | 1,210,000 | 29                 | 35   | 35   | 39   |
| Waste . . . . .      | 1,950,000 | 1,460,000 | 1,100,000 | 1,100,000 | 2                  | 2    | 2    | 2    |
| Total . . . . .      | 7,280,000 | 7,280,000 | 7,280,000 | 7,280,000 | 196                | 280  | 374  | 377  |

| Year           | Agricultural Capital, Millions, £ |        |          |       |
|----------------|-----------------------------------|--------|----------|-------|
|                | Land                              | Cattle | Sundries | Total |
| 1846 . . . . . | 196                               | 16     | 23       | 235   |
| 1856 . . . . . | 280                               | 18     | 33       | 331   |
| 1866 . . . . . | 374                               | 20     | 44       | 438   |
| 1880 . . . . . | 377                               | 24     | 44       | 445   |

The actual values at present are much lower. The value of all products in 1886 was approximately as follows:—

|                              | Tons      | £          | Sundries                     | £          |
|------------------------------|-----------|------------|------------------------------|------------|
| Wheat . . . . .              | 450,000   | 4,050,000  | Vegetables . . . . .         | 4,500,000  |
| Spelt . . . . .              | 150,000   | 1,200,000  | Timber . . . . .             | 800,000    |
| Barley . . . . .             | 80,000    | 500,000    | Beetroot . . . . .           | 1,600,000  |
| Oats . . . . .               | 490,000   | 3,400,000  | Flax . . . . .               | 2,700,000  |
| Rye, &c. . . . .             | 450,000   | 3,050,000  | Turnips . . . . .            | 1,800,000  |
| All grain . . . . .          | 1,620,000 | 12,200,000 | Poultry . . . . .            | 1,600,000  |
| Straw . . . . .              | 1,600,000 | 1,600,000  | Dairy . . . . .              | 5,000,000  |
| Hay . . . . .                | 5,000,000 | 10,000,000 | Meat . . . . .               | 5,500,000  |
| Potatoes . . . . .           | 3,000,000 | 6,000,000  | Hides and<br>foals . . . . . | 2,000,000  |
| Principal<br>crops . . . . . | ...       | 29,800,000 | Sundries . . . . .           | 25,500,000 |

|                                 | £          |
|---------------------------------|------------|
| Agricultural products . . . . . | 41,200,000 |
| Animal products . . . . .       | 14,100,000 |
| Total . . . . .                 | 55,300,000 |

The number of adults engaged in 1880 was 980,000. This gives an average of £56 per head.

#### LANDED VALUE

An official report, dated 1886, gives the rental and the selling price of land (under cultivation) at various dates as follows:—

| Year           | Rent,<br>Shillings per Acre | Price,<br>£ per Acre |
|----------------|-----------------------------|----------------------|
| 1846 . . . . . | 22.2                        | 42                   |
| 1856 . . . . . | 26.4                        | 54                   |
| 1866 . . . . . | 32.5                        | 66                   |
| 1880 . . . . . | 36.6                        | 67                   |

The value of lands in 1880 was officially set down as follows:—

|                  | Acres     | £           | £ per Acre |
|------------------|-----------|-------------|------------|
| Arable . . . . . | 3,960,000 | 271,800,000 | 67         |
| Meadow . . . . . | 970,000   | 64,500,000  | 67         |
| Forest . . . . . | 1,210,000 | 39,200,000  | 33         |
| Waste . . . . .  | 1,140,000 | 1,800,000   | 1.5        |
| Total . . . . .  | 7,280,000 | 377,300,000 | ...        |

The increase of capital was as follows:—

| Interval           | Millions, £ | £ per Annum |
|--------------------|-------------|-------------|
| 1846-56 . . . . .  | 96          | 9,600,000   |
| 1856-66 . . . . .  | 107         | 10,700,000  |
| 1866-80 . . . . .  | 7           | 500,000     |
| 34 years . . . . . | 210         | 6,200,000   |



Mr. Block estimated the value of all products in 1850 at 21 millions sterling, being about 7 per cent. on capital. In 1886 it was, as already shown, 55 millions, say 12½ per cent. on capital.

SWITZERLAND

Official returns are as follows :—

|                     | Acres     |
|---------------------|-----------|
| Tillage . . . . .   | 1,450,000 |
| Meadow . . . . .    | 1,600,000 |
| Vineyards . . . . . | 70,000    |
| Pasture . . . . .   | 1,960,000 |
| Forest . . . . .    | 1,760,000 |
| Waste . . . . .     | 2,550,000 |

Total area . . . . . 9,390,000

Live-stock, according to Schnabel and later authorities, showed thus :—

|                  | 1830    | 1842    | 1852    | 1861    | 1886      |
|------------------|---------|---------|---------|---------|-----------|
| Horses . . . . . | ...     | ...     | ...     | 94,000  | 98,000    |
| Cattle . . . . . | 800,000 | 815,000 | 950,000 | 940,000 | 1,210,000 |
| Sheep . . . . .  | 500,000 | 465,000 | 550,000 | 430,000 | 340,000   |
| Pigs . . . . .   | 250,000 | 310,000 | 280,000 | 330,000 | 395,000   |
| Goats . . . . .  | ...     | 345,000 | ...     | 370,000 | 420,000   |

The production of meat is about 82,000 tons yearly. The value of all products in 1886 was approximately thus :—

|                           | Tons      | £         | Sundries                | £          |
|---------------------------|-----------|-----------|-------------------------|------------|
| Wheat . . . . .           | 55,000    | 500,000   | Vegetables, &c. . . . . | 1,500,000  |
| Barley . . . . .          | 45,000    | 300,000   |                         |            |
| Oats . . . . .            | 80,000    | 500,000   | Poultry . . . . .       | 900,000    |
| Rye . . . . .             | 210,000   | 1,300,000 | Dairy . . . . .         | 4,800,000  |
|                           |           |           | Timber . . . . .        | 1,200,000  |
| All grain . . . . .       | 390,000   | 2,600,000 | Meat . . . . .          | 4,100,000  |
| Hay and straw . . . . .   | 1,700,000 | 2,000,000 | Foals . . . . .         | 300,000    |
| Wine . . . . .            | ...       | 1,400,000 | Hides, &c. . . . .      | 500,000    |
| Principal crops . . . . . | ...       | 6,000,000 | Sundries . . . . .      | 13,300,000 |

|                                 |            |
|---------------------------------|------------|
| Agricultural products . . . . . | 9,000,000  |
| Animal products . . . . .       | 10,300,000 |
| Total . . . . .                 | 19,300,000 |

Agricultural capital is approximately as follows :—

|                            |            |
|----------------------------|------------|
| Land, cultivated . . . . . | 93,000,000 |
| Forest, &c. . . . .        | 27,000,000 |
| Cattle . . . . .           | 10,000,000 |
| Sundries . . . . .         | 14,000,000 |

Total . . . . . 144,000,000

The annual product is about 13½ per cent. on capital.

GREECE

The official report for 1885 gives the following :—

|                           | Acres     | Sundries           | Acres      |
|---------------------------|-----------|--------------------|------------|
| Grain . . . . .           | 2,000,000 | Fallow . . . . .   | 1,000,000  |
| Olives . . . . .          | 325,000   | Gardens . . . . .  | 40,000     |
| Currants . . . . .        | 125,000   | Meadows . . . . .  | 1,000,000  |
| Grapes . . . . .          | 250,000   | Pasture . . . . .  | 5,000,000  |
| Tobacco . . . . .         | 250,000   | Forest . . . . .   | 1,500,000  |
| Cotton . . . . .          | 250,000   | Waste . . . . .    | 4,510,000  |
| Principal crops . . . . . | 2,950,000 | Sundries . . . . . | 13,050,000 |

Live-stock comprised 160,000 horses, 164,000 cattle, 3,460,000 sheep, 45,000 pigs, and 2,510,000 goats, re-

presenting an aggregate value of 24 millions sterling. The value of products in 1885 was approximately as follows :—

|                           | Tons      | £         | Sundries                    | £          |
|---------------------------|-----------|-----------|-----------------------------|------------|
| Wheat . . . . .           | 190,000   | 1,600,000 | Wine . . . . .              | 2,500,000  |
| Barley . . . . .          | 70,000    | 500,000   | Timber . . . . .            | 800,000    |
| Rye . . . . .             | 20,000    | 130,000   | Olives . . . . .            | 900,000    |
| Maize . . . . .           | 100,000   | 670,000   | Vegetables . . . . .        | 1,100,000  |
| All grain . . . . .       | 380,000   | 2,900,000 | Dairy and poultry . . . . . | 1,400,000  |
| Hay and straw . . . . .   | 1,200,000 | 2,000,000 | Meat . . . . .              | 2,500,000  |
| Currants . . . . .        | 120,000   | 3,100,000 | Foals, hides &c. . . . .    | 1,700,000  |
| Principal crops . . . . . | ...       | 8,000,000 | Sundries . . . . .          | 10,900,000 |

|                                 |            |
|---------------------------------|------------|
| Agricultural products . . . . . | 13,700,000 |
| Animal products . . . . .       | 5,200,000  |
| Total . . . . .                 | 18,900,000 |

In 1836 the Government sold the productive land at £3 an acre—say, in all, 15 millions sterling.

In 1869 the Embassy report makes the arable land worth about £22 an acre, the rest £5, viz. :—

|                   | Acres     | Per Acre, £ | Value, Millions £ |
|-------------------|-----------|-------------|-------------------|
| Arable . . . . .  | 1,800,000 | 22          | 40                |
| Pasture . . . . . | 3,200,000 | 5           | 16                |
| Total . . . . .   | 5,000,000 | 11          | 56                |

The acquisition of Thessaly, in 1881, added 5000 square miles to the area of Greece, and the present landed value, at the prices of the Embassy report of 1869, would be as follows :—

|                      | Acres      | Value, £    |
|----------------------|------------|-------------|
| Cultivated . . . . . | 5,000,000  | 110,000,000 |
| Pasture . . . . .    | 5,000,000  | 25,000,000  |
| Forest . . . . .     | 1,500,000  | 3,000,000   |
| Waste . . . . .      | 4,500,000  | ...         |
| Total . . . . .      | 16,000,000 | 138,000,000 |

See Part II., page 624.

ROUMANIA

The latest returns give the acreage as follows :—

|                      | Acres     |                        | Acres      |
|----------------------|-----------|------------------------|------------|
| Grain . . . . .      | 7,500,000 | Pasture . . . . .      | 6,500,000  |
| Meadow . . . . .     | 1,400,000 | Forest . . . . .       | 5,200,000  |
| Vines . . . . .      | 300,000   | Waste . . . . .        | 10,000,000 |
| Cultivated . . . . . | 9,200,000 | Uncultivated . . . . . | 21,700,000 |

Spallart says that the production of grain in 1876 was 20 per cent. greater than ten years before. The weight

of crops is variously estimated from 100 to 110 million bushels. The latest returns of live-stock show 600,000 horses, 2,380,000 cattle, 4,650,000 sheep, 2,310,000 pigs, and 190,000 goats, representing an aggregate value of about 37 millions sterling. The production of meat is approximately as follows:—

|                  | Tons    | Value, £  |
|------------------|---------|-----------|
| Beef . . . . .   | 106,000 | 4,500,000 |
| Mutton . . . . . | 41,000  | 1,800,000 |
| Pork . . . . .   | 100,000 | 4,500,000 |

Total . . . . . 247,000 10,800,000

The value of all products may be put down approximately thus:—

|                             | Tons       | £          | Sundries                 | £          |
|-----------------------------|------------|------------|--------------------------|------------|
| Wheat . . . . .             | 700,000    | 5,000,000  | Vegetables               | 2,500,000  |
| Barley . . . . .            | 330,000    | 2,000,000  | Meat . . . . .           | 10,800,000 |
| Maize . . . . .             | 1,600,000  | 9,000,000  | Dairy . . . . .          | 4,800,000  |
| Rye, &c. . . . .            | 220,000    | 1,300,000  | Poultry . . . . .        | 1,100,000  |
|                             |            |            | Timber . . . . .         | 900,000    |
| All grain . . . . .         | 2,850,000  | 17,300,000 | Foals . . . . .          | 1,200,000  |
| Straw . . . . .             | 3,000,000  | 1,500,000  | Tallow . . . . .         | 700,000    |
| Hay . . . . .               | 1,400,000  | 2,100,000  | Hides, wool, &c. . . . . | 1,200,000  |
| Wine, gallons . . . . .     | 40,000,000 | 3,100,000  |                          |            |
| Principal crops } . . . . . |            | 24,000,000 | Sundries . . . . .       | 23,200,000 |

|                                 | £          |
|---------------------------------|------------|
| Agricultural products . . . . . | 27,400,000 |
| Animal products . . . . .       | 19,800,000 |

Total . . . . . 47,200,000

The value of the land appears to be approximately as follows:—

|                              | Acres      | Value, £    |
|------------------------------|------------|-------------|
| Cultivated . . . . .         | 9,200,000  | 184,000,000 |
| Forest and pasture . . . . . | 11,700,000 | 70,000,000  |
| Waste . . . . .              | 10,000,000 | ...         |
| Total . . . . .              | 30,900,000 | 254,000,000 |

See Part II., page 624.

### SERVIA

The total area of this little kingdom is thus distributed:—

|                      | Acres     | Acres                            |
|----------------------|-----------|----------------------------------|
| Grain . . . . .      | 1,160,000 | Forest . . . . . 2,200,000       |
| Vines . . . . .      | 440,000   | Pasture . . . . . 6,170,000      |
| Meadow . . . . .     | 600,000   | Waste . . . . . 1,430,000        |
| Cultivated . . . . . | 2,200,000 | Uncultivated . . . . . 9,800,000 |

An official report for 1887, not trustworthy, gives as follows:—

|                          | Acres      |
|--------------------------|------------|
| Grain and wine . . . . . | 7,030,000  |
| Forest . . . . .         | 2,200,000  |
| Waste, &c. . . . .       | 2,770,000  |
| Total . . . . .          | 12,000,000 |

The apparent error in this report is including pasture-land as grain-bearing. The crops have been sometimes said to reach 20 million bushels, but Spallart says 14 millions, and the average weight seems to be 16 millions bushels. The value of product is approximately thus:—

|                             | Tons       | £         | Sundries                 | £         |
|-----------------------------|------------|-----------|--------------------------|-----------|
| Wheat . . . . .             | 100,000    | 700,000   | Vegetables               | 1,000,000 |
| Barley . . . . .            | 70,000     | 400,000   | Timber . . . . .         | 400,000   |
| Maize . . . . .             | 130,000    | 700,000   | Poultry . . . . .        | 400,000   |
| Oats, rye, &c. . . . .      | 100,000    | 600,000   | Dairy . . . . .          | 2,000,000 |
|                             |            |           | Meat . . . . .           | 4,000,000 |
| All grain . . . . .         | 400,000    | 2,400,000 | Foals . . . . .          | 400,000   |
| Straw . . . . .             | 400,000    | 200,000   | Tallow . . . . .         | 300,000   |
| Hay . . . . .               | 600,000    | 1,000,000 | Hides, wool, &c. . . . . | 500,000   |
| Wine, galls. . . . .        | 16,000,000 | 1,200,000 |                          |           |
| Principal crops } . . . . . | ...        | 4,800,000 | Sundries . . . . .       | 9,000,000 |

|                                 | £          |
|---------------------------------|------------|
| Agricultural products . . . . . | 6,200,000  |
| Animal products . . . . .       | 7,600,000  |
| Total . . . . .                 | 13,800,000 |

Statistics of live-stock in 1882 were:—Horses, 160,000; cattle, 960,000; sheep, 3,600,000; pigs, 1,700,000; and goats, 100,000—representing a total value of nearly 16 millions sterling. The production of meat was about 90,000 tons. The value of land was approximately thus:—

|                      | Acres      | £          |
|----------------------|------------|------------|
| Cultivated . . . . . | 2,200,000  | 44,000,000 |
| Pasture . . . . .    | 6,200,000  | 37,000,000 |
| Forest . . . . .     | 2,200,000  | 13,000,000 |
| Waste . . . . .      | 1,400,000  | ...        |
| Total . . . . .      | 12,000,000 | 94,000,000 |

Agricultural capital is approximately as follows:—

|                    | Millions, £ |
|--------------------|-------------|
| Land . . . . .     | 94          |
| Cattle . . . . .   | 16          |
| Sundries . . . . . | 12          |
| Total . . . . .    | 122         |

The product is about 11½ per cent. on capital, and £28 per head of adults engaged.

### BULGARIA

The area, including Eastern Roumelia, is somewhat larger than that of Ireland, viz:—

|                            | Acres      |
|----------------------------|------------|
| Bulgaria proper . . . . .  | 16,000,000 |
| Eastern Roumelia . . . . . | 8,300,000  |
| Total . . . . .            | 24,300,000 |

The extent under grain in Eastern Roumelia is 1,660,000 acres, and in Bulgaria proper close on 4,000,000 acres. The crops of Bulgaria proper average 44 million bushels, of which 23 millions are wheat. The total grain crop of the Principality must be over 60 million bushels, or approximately 1,500,000 tons, representing a value of 10 millions sterling.

### TURKEY

Agriculture is very backward, owing to the despotism of the Pashas and the exactions of money-lenders. Every province, meantime, has its own features and modes of

agriculture. If we include the territories taken from Turkey by the Treaty of Berlin in 1878, we find as follows:—

|                     | Acres      | Population | Acres per Inhabitant |
|---------------------|------------|------------|----------------------|
| Bosnia-Herzegovina  | 15,000,000 | 1,500,000  | 10                   |
| Bulgaria . . . . .  | 24,300,000 | 3,150,000  | 8                    |
| Turkey proper . . . | 41,000,000 | 4,350,000  | 9½                   |
| Turkey in Europe    | 80,300,000 | 9,000,000  | 9                    |

Mr. Spallart compares the average grain crops of 1881-85 with those of 1868 thus:—

|                  | 1881-85, Millions of Bushels |          |             |       | 1868 |
|------------------|------------------------------|----------|-------------|-------|------|
|                  | Bosnia                       | Bulgaria | Eur. Turkey | Total |      |
| Wheat . . . . .  | 2                            | 23       | 22          | 47    | 39   |
| Maize . . . . .  | 3                            | 7        | 8           | 18    | 30   |
| Barley . . . . . | 2                            | 11       | 12          | 25    | 25   |
| Rye, &c. . . . . | 1                            | 3        | 15          | 19    | 13   |
| Total . . . . .  | 8                            | 44       | 57          | 109   | 107  |

Bosnia and Bulgaria have been already described. One of the most productive provinces in Turkey was Bessarabia, which was transferred to Russia by the Berlin Treaty of 1878: it is rich in corn and wine. The vineyards often yield per acre 300 gallons of wine, worth £18; and the grain farms 60 bushels of maize per acre. The serfs were emancipated in 1870, the Boyars or nobles being compelled to either give the tenant half his farm gratis or sell the whole for 26s. per acre. Four hundred Boyars preferred the former, and let the remainder of their lands at 5s. an acre. In 1874 there were 350,000 small landowners whose farms averaged 30 acres each, maize being the chief product.

Turkey proper is held partly by Pashas, who let the lands in small farms of 20 acres to Murabàs, on the "metayer" system, the tenant giving half the crops in lieu of rent; partly by peasant proprietors in 50-acre farm-lots, viz.:—

|                      | Number of Farms | Acres      |
|----------------------|-----------------|------------|
| Murabàs . . . . .    | 650,000         | 13,000,000 |
| Peasant landowners . | 600,000         | 29,700,000 |
| Total . . . . .      | 1,250,000       | 42,700,000 |

The price of arable land ranges from £20 to £60 per acre, and it may be rented from 20s. to 40s. per annum. Waste land sells at £3 per acre. Live-stock is supposed to comprise 600,000 horses, 1,000,000 cattle, and 10,000,000 sheep, besides numbers of goats, pigs, and poultry.

Epirus is backward, the labours of the field devolving mostly on women, and large tracts of good land lying waste for want of hands to cultivate it. The country about Adrianople, on the other hand, is progressive, the use of steam-threshers being general. Oxen and buffaloes are employed for ploughing; wheat and maize are the chief crops. The area under crops is not known; probably about 8 or 10 million acres. The grain crops may be put down roughly at 80 million bushels.

#### ASIA MINOR

This portion of the Turkish Empire is sometimes called Anatolia, with an area of 220,000 square miles or 141 million acres, and a population of about 5,000,000 souls

About one-third of the area is actually farmed, either as Murabàs on the "metayer" system, or by the tenant proprietors, viz.:—

|                     | Number of Farms | Acres      | Average Farm, Acres |
|---------------------|-----------------|------------|---------------------|
| Murabàs . . . . .   | 1,395,000       | 28,000,000 | 20                  |
| Proprietors . . . . | 1,284,000       | 22,000,000 | 18                  |
| Total . . . . .     | 2,679,000       | 50,000,000 | 19                  |

Such is the want of roads, that the freight of a ton of grain 100 miles would be £9, or about the value of the grain. Tithes are oppressive, as well as transit custom-dues on products going from one province to another. Most of the lands, moreover, belong to the State or to the Vacouf institutions; and although the soil is fertile, no progress is made.

Smyrna or Ardin is the best part of Asiatic Turkey, with an area of 35,500 square miles or 22 million acres, and a population of 1,000,000, nine-tenths Moslems. Most of the territory consists of Chiftliks or large estates, worked by the peasants on the Murabàs system. Some small proprietors have bought their farms at 40s. per acre, the lowness of price being the result of heavy taxation, viz.:—1st, one-tenth of all crops and fruit to the State; 2nd, four per mil, equal to one penny yearly for each £ of selling value of land and houses, or about 4 per cent. on the rental value; 3rd, a charge of 5 per cent. on every transfer; 4th, a cattle-tax of 32d. per sheep, and 21d. per pig or goat yearly. Land is allowed to lie fallow every third year. The ordinary yield of crops is wheat or barley twelve-fold, beans twenty-fold, maize thirty-fold. Vallonia is an important crop, Smyrna exporting 100,000 tons yearly.

#### EGYPT

The area under tillage has almost trebled in fifty years, the official report published in 1888 containing the following table:—

| Year | Acres under Crops | Year | Acres under Crops |
|------|-------------------|------|-------------------|
| 1833 | 1,930,000         | 1875 | 4,890,000         |
| 1840 | 4,020,000         | 1880 | 4,960,000         |
| 1863 | 4,570,000         | 1888 | 5,080,000         |

A statement of the crops in 1834 was as follows:—18 million bushels grain, 22 million lbs. raw cotton, 5000 tons tobacco, 3000 tons flax, and 1600 tons sugar, representing a total value of £4,000,000 sterling.

When Mehemet Ali was dying, in 1848, he could boast that in his reign Egypt had more than doubled the area under crops. Progress was also made under his grandson, Abbas, and still more under Ismail Pacha, from 1863 to 1879, in which period were made 8400 miles of canals, irrigating 1,370,000 acres, the cultivation of cotton being specially stimulated by high prices consequent on the American war.

The cotton crop is shown for the last sixty-seven years as follows:—

| Period            | Million lbs. Yearly | Value     | Price per Lb. |
|-------------------|---------------------|-----------|---------------|
| 1821-30 . . . . . | 14                  | £392,000  | 6.7           |
| 1831-40 . . . . . | 18                  | 677,000   | 9.0           |
| 1841-50 . . . . . | 24                  | 504,000   | 5.0           |
| 1851-60 . . . . . | 51                  | 1,120,000 | 5.3           |
| 1861-70 . . . . . | 127                 | 6,860,000 | 13.0          |
| 1871-80 . . . . . | 237                 | 7,580,000 | 7.7           |
| 1881-87 . . . . . | 288                 | 7,490,000 | 6.2           |

The distribution of tillage in 1888 was as follows :—

|                     | Acres     | Crop, Tons |
|---------------------|-----------|------------|
| Wheat . . . . .     | 1,290,000 | 500,000    |
| Maize . . . . .     | 710,000   | 300,000    |
| Barley . . . . .    | 540,000   | 160,000    |
| Peas, &c. . . . .   | 1,955,000 | 900,000    |
| All grain . . . . . | 4,495,000 | 1,860,000  |
| Cotton . . . . .    | 900,000   | 130,000    |
| Clover . . . . .    | 980,000   | 2,000,000  |
| Total . . . . .     | 6,375,000 | ...        |

Some of the land bears double crops, which accounts for the discrepancy between this and the previous table. There are 3,450,000 date-palms, producing annually 300,000 tons of fruit. There is room for further development, since there are still idle 2,200,000 acres suitable for tillage. More than three-fourths of the lands are State property, the Khedive holding 3,800,000 acres, which he lets to the Fellahs at a yearly rent of 8s. per acre in Upper Egypt and 30s. in the Nile Valley.

A statement of tenure in 1879 was as follows :—

| Farmed by         | Title   | Acres     | Tax, £    | Shillings per Acre |
|-------------------|---------|-----------|-----------|--------------------|
| Gentry . . . . .  | Ouchour | 1,329,000 | 470,000   | 7                  |
| Fellahs . . . . . | Karadji | 3,514,000 | 3,850,000 | 22                 |
| Do. . . . .       | Abadich | 620,000   | 500,000   | 16                 |
| Total . . . . .   | ...     | 5,463,000 | 4,828,000 | 18                 |

An official return of the value of crops in 1884 was :—

|                           | £          | Sundries                   | £         |
|---------------------------|------------|----------------------------|-----------|
| Grain . . . . .           | 13,300,000 | Clover . . . . .           | 2,500,000 |
| Cotton . . . . .          | 7,900,000  | Dates and sugar . . . . .  | 1,700,000 |
| Cotton-seed . . . . .     | 1,400,000  | Lentils, flax, &c. . . . . | 3,200,000 |
| Principal crops . . . . . | 22,600,000 | Sundries . . . . .         | 7,400,000 |

Making a total of 30 millions sterling. The crop, however, depends so much on the Nile, that a difference

The returns for 1886 were as follows :—

|                     | Acreage   |           |           | Crop, Tons |           |           |
|---------------------|-----------|-----------|-----------|------------|-----------|-----------|
|                     | European  | Arab      | Total     | European   | Arab      | Total     |
| Wheat . . . . .     | 620,000   | 2,500,000 | 3,120,000 | 127,000    | 505,000   | 632,000   |
| Barley . . . . .    | 300,000   | 3,300,000 | 3,600,000 | 100,000    | 850,000   | 950,000   |
| Oats . . . . .      | 100,000   | ...       | 100,000   | 50,000     | ...       | 50,000    |
| Maize, &c. . . . .  | 40,000    | 100,000   | 140,000   | 13,000     | 15,000    | 28,000    |
| All grain . . . . . | 1,060,000 | 5,900,000 | 6,960,000 | 290,000    | 1,370,000 | 1,660,000 |

The European settlers had also 190,000 acres under vines, which produced 36 million gallons of wine in 1886, the yield in 1890 being expected to reach 60 million gallons. The tenure of land in 1886 was as follows :—

| Province              | Acres held by |         |         |          |           |
|-----------------------|---------------|---------|---------|----------|-----------|
|                       | Arabs         | Jews    | French  | Settlers | Total     |
| Algiers . . . . .     | 2,900,000     | 40,000  | 230,000 | 170,000  | 3,340,000 |
| Oran . . . . .        | 1,540,000     | 40,000  | 160,000 | 230,000  | 1,970,000 |
| Constantine . . . . . | 3,570,000     | 30,000  | 150,000 | 100,000  | 3,850,000 |
| Total . . . . .       | 8,010,000     | 110,000 | 540,000 | 500,000  | 9,160,000 |

of one foot in flood-level is worth £2,000,000, the average Nile rising 24 feet. In ordinary years the cost of irrigation is 4s. an acre per annum. The agricultural condition of the country is shown thus :—

|                             | Lower Egypt | Upper Egypt | Total     |
|-----------------------------|-------------|-------------|-----------|
| Villages . . . . .          | 2,359       | 1,420       | 3,779     |
| Inhabitants . . . . .       | 3,180,000   | 2,630,000   | 5,810,000 |
| Acres cultivated . . . . .  | 2,880,000   | 2,330,000   | 5,210,000 |
| Horses and cattle . . . . . | 466,000     | 284,000     | 750,000   |
| Sheep and goats . . . . .   | 380,000     | 555,000     | 935,000   |
| Date-palms . . . . .        | 1,100,000   | 2,350,000   | 3,450,000 |

In Lower Egypt the soil gives four crops in three years; in Upper Egypt seven crops in six years.

#### CYPRUS

Area 2,300,000 acres, being 13 acres per inhabitant. The island is held partly by nobles, who have eighty Tchiffiks or large estates, the rest being cut up in 70-acre farms belonging to peasant proprietors. The chief products are :—

|                                    | Value, £ |
|------------------------------------|----------|
| Grain, 3 million bushels . . . . . | 500,000  |
| Wine, 450,000 gallons . . . . .    | 40,000   |
| Oil, 50,000 gallons . . . . .      | 18,000   |
| Sundries . . . . .                 | 82,000   |
| Total . . . . .                    | 640,000  |

The farmers have 750,000 sheep, besides cows and horses. There are 600,000 carob or algarroba trees, covering an area of 20,000 acres, yielding 25,000 tons of locust-beans worth £75,000, most of which goes to Scotland to be made into whisky.

#### ALGERIA

The cultivated portion is about 16 per cent. of the total, viz :—

|                            | Acres      |
|----------------------------|------------|
| Under crops . . . . .      | 7,720,000  |
| Pasture . . . . .          | 4,800,000  |
| Forest and waste . . . . . | 63,920,000 |
| Total . . . . .            | 76,440,000 |

The returns of live-stock were :—

|                  | Owned by  |           |           |
|------------------|-----------|-----------|-----------|
|                  | Europeans | Arabs     | Total     |
| Horses . . . . . | 51,000    | 260,000   | 311,000   |
| Asses . . . . .  | 13,000    | 270,000   | 283,000   |
| Camels . . . . . | 300       | 275,500   | 275,800   |
| Cattle . . . . . | 137,000   | 1,060,000 | 1,197,000 |
| Sheep . . . . .  | 321,000   | 9,036,000 | 9,357,000 |
| Goats . . . . .  | 74,000    | 4,592,000 | 4,666,000 |
| Pigs . . . . .   | 85,000    | ...       | 85,000    |

The value of all live-stock was about 28 millions sterling; the production of meat about 160,000 tons yearly. The grain crop has increased 50 per cent in the last twenty years. The value of products in 1886 was approximately thus :—

|                   | Tons      | £          | Sundries         | £          |
|-------------------|-----------|------------|------------------|------------|
| Wheat . . .       | 630,000   | 5,000,000  | Meat . . .       | 6,400,000  |
| Barley, &c. .     | 1,030,000 | 6,200,000  | Dairy and        | 2,600,000  |
| Wine . . .        | ...       | 2,200,000  | poultry          |            |
| Principal crops } | ...       | 13,400,000 | Wool, hides, &c. | 3,300,000  |
|                   |           |            | Sundries         | 12,300,000 |

# UNITED STATES

Tillage was a chief occupation of the first settlers. In 1602 Captain Gosnold grew peas and beans in Massachusetts, and in 1611 wheat was grown in Virginia. The Dutch of Manhattan (New York) sent home some wheat to Holland in 1626. Potatoes, previously unknown in North America, were introduced from England in 1629 and successfully grown in Massachusetts. Stebbins relates that in 1637 there were 100 ploughs at work in Virginia, and 37 in Massachusetts. In 1640 Mr. Endicott of Salem sold 500 fruit-trees for 250 acres of land, and in the preceding year Manhattan apples were sent to Holland. South Carolina exported 700 bushels of potatoes in 1749. New York 70,000 barrels of flour in 1750. The production of grain in the eighteenth century can only be roughly estimated on the basis of population; exact returns begin with the year 1840.

| Year | Grain Product, Million of Bushels |                  |          | Value of Crop, Million £ |
|------|-----------------------------------|------------------|----------|--------------------------|
|      | Production                        | Home Consumption | Exported |                          |
| 1700 | 5                                 | 5                | ...      | 1                        |
| 1750 | 20                                | 20               | ...      | 3                        |
| 1775 | 60                                | 60               | ...      | 8                        |
| 1790 | 120                               | 120              | ...      | 14                       |
| 1800 | 160                               | 160              | ...      | 18                       |
| 1820 | 343                               | 336              | 7        | 34                       |
| 1830 | 463                               | 455              | 8        | 46                       |
| 1840 | 616                               | 601              | 15       | 62                       |
| 1850 | 867                               | 855              | 12       | 97                       |
| 1860 | 1,240                             | 1,220            | 20       | 173                      |
| 1870 | 1,629                             | 1,569            | 60       | 198                      |
| 1880 | 2,718                             | 2,425            | 293      | 276                      |
| 1889 | 3,454                             | ...              | ...      | 243                      |

The production is at present 52 bushels per inhabitant, against 30 in the year 1800. It forms 33 per cent. of the whole grain-crop of the world, and the ratio per inhabitant is only approached by Denmark, which has 42 bushels per inhabitant.

The progress of grain-growing in twenty years is shown in the Agricultural Report for 1889 as follows :—

|                 | Acreage    |            |             |             | Increase of 20 Years | Per Cent. |
|-----------------|------------|------------|-------------|-------------|----------------------|-----------|
|                 | 1869       | 1870-79    | 1880-88     | 1889        |                      |           |
| Wheat . . .     | 19,180,000 | 25,190,000 | 37,280,000  | 38,120,000  | 18,940,000           | 99        |
| Maize . . .     | 37,100,000 | 43,740,000 | 70,540,000  | 78,320,000  | 41,220,000           | 111       |
| Oats . . .      | 9,460,000  | 11,080,000 | 22,000,000  | 27,460,000  | 18,000,000           | 190       |
| Barley . . .    | 1,030,000  | 1,530,000  | 2,480,000   | 3,000,000   | 1,970,000            | 191       |
| Rye . . .       | 1,660,000  | 1,310,000  | 2,120,000   | 2,360,000   | 700,000              | 42        |
| Buckwheat . . . | 1,030,000  | 550,000    | 880,000     | 910,000     | ...                  | ...       |
| All grain . . . | 69,460,000 | 83,400,000 | 135,300,000 | 150,170,000 | 80,710,000           | 116       |

The various crops since 1840 show as follows :—

| Year | Millions of Bushels |      |       |        |          |       | Bushels per Inhabitant |
|------|---------------------|------|-------|--------|----------|-------|------------------------|
|      | Maize               | Oats | Wheat | Barley | Rye, &c. | Total |                        |
| 1840 | 378                 | 123  | 85    | 4      | 26       | 616   | 36                     |
| 1850 | 592                 | 147  | 101   | 5      | 23       | 868   | 38                     |
| 1860 | 840                 | 173  | 173   | 16     | 38       | 1,240 | 40                     |
| 1870 | 1,094               | 248  | 236   | 26     | 25       | 1,629 | 42                     |
| 1880 | 1,717               | 418  | 499   | 45     | 39       | 2,718 | 54                     |
| 1889 | 2,110               | 750  | 490   | 64     | 40       | 3,454 | 53                     |

The production of grain in various parts of the Union was as follows :—

| Year | Millions of Bushels |               |          |         |       |
|------|---------------------|---------------|----------|---------|-------|
|      | New England         | Middle States | Southern | Western | Total |
| 1840 | 22                  | 135           | 280      | 179     | 616   |
| 1850 | 20                  | 170           | 360      | 318     | 868   |
| 1860 | 21                  | 204           | 412      | 603     | 1,240 |
| 1870 | 16                  | 216           | 301      | 1,096   | 1,629 |
| 1880 | 18                  | 233           | 442      | 2,025   | 2,718 |
| 1887 | 20                  | 244           | 605      | 1,797   | 2,666 |

The ratio of bushels produced per inhabitant was as follows :—

| Year | New England | Middle States | Southern | Western | Union |
|------|-------------|---------------|----------|---------|-------|
| 1840 | 10          | 27            | 44       | 54      | 36    |
| 1850 | 7           | 25            | 43       | 57      | 38    |
| 1860 | 7           | 25            | 40       | 62      | 40    |
| 1870 | 5           | 22            | 27       | 61      | 42    |
| 1880 | 4           | 20            | 20       | 106     | 54    |
| 1887 | 5           | 18            | 36       | 78      | 44    |

The aggregate of crops of 1887 was 10 per cent. below the average of 1884-88.

The distribution of the various crops in 1887 compares with that of 1850 as follows :—

| States       | 1850  |       |           |       | 1887  |       |           |       |
|--------------|-------|-------|-----------|-------|-------|-------|-----------|-------|
|              | Wheat | Maize | Oats, &c. | Total | Wheat | Maize | Oats, &c. | Total |
| New England  | 1     | 11    | 8         | 20    | 1     | 9     | 10        | 20    |
| Middle . . . | 32    | 61    | 77        | 170   | 33    | 103   | 108       | 244   |
| Southern . . | 19    | 298   | 43        | 360   | 47    | 474   | 84        | 605   |
| Western . .  | 49    | 222   | 47        | 318   | 375   | 870   | 552       | 1,797 |
| Union . . .  | 101   | 592   | 175       | 868   | 456   | 1,456 | 754       | 2,666 |

|                     | Value, £ Sterling |             |             |             | Increase of<br>20 Years | Per Cent. |
|---------------------|-------------------|-------------|-------------|-------------|-------------------------|-----------|
|                     | 1869              | 1870-79     | 1880-88     | 1889        |                         |           |
| Wheat . . . . .     | 51,000,000        | 68,100,000  | 77,300,000  | 71,300,000  | 20,300,000              | 40        |
| Maize . . . . .     | 135,700,000       | 104,700,000 | 138,900,000 | 123,700,000 | ...                     | ...       |
| Oats . . . . .      | 28,500,000        | 23,100,000  | 37,600,000  | 36,100,000  | 7,600,000               | 27        |
| Barley . . . . .    | 4,900,000         | 5,200,000   | 6,600,000   | 6,600,000   | 1,700,000               | 35        |
| Rye . . . . .       | 4,600,000         | 2,700,000   | 3,300,000   | 3,500,000   | ...                     | ...       |
| Buckwheat . . . . . | 3,300,000         | 1,500,000   | 1,500,000   | 1,600,000   | ...                     | ...       |
| All grain . . . . . | 228,000,000       | 205,300,000 | 265,200,000 | 242,800,000 | 13,200,000              | 6         |

|                     | Yield, Million Bushels |         |         |       | Increase of<br>20 Years | Per<br>Cent. |
|---------------------|------------------------|---------|---------|-------|-------------------------|--------------|
|                     | 1869                   | 1870-79 | 1880-88 | 1889  |                         |              |
| Wheat . . . . .     | 260                    | 310     | 450     | 490   | 230                     | 88           |
| Maize . . . . .     | 870                    | 1,180   | 1,700   | 2,110 | 1,240                   | 142          |
| Oats . . . . .      | 290                    | 310     | 580     | 750   | 460                     | 158          |
| Barley . . . . .    | 29                     | 34      | 54      | 64    | 35                      | 121          |
| Rye . . . . .       | 23                     | 18      | 25      | 28    | 5                       | 22           |
| Buckwheat . . . . . | 17                     | 10      | 11      | 12    | ...                     | ...          |
| All grain . . . . . | 1,489                  | 1,862   | 2,820   | 3,454 | 1,965                   | 131          |

|                     | Average Bushels, per Acre |         |         |      | Pence per Bushel |         |         |      |
|---------------------|---------------------------|---------|---------|------|------------------|---------|---------|------|
|                     | 1869                      | 1870-79 | 1880-88 | 1889 | 1869             | 1870-79 | 1880-88 | 1889 |
| Wheat . . . . .     | 13.5                      | 12.4    | 12.1    | 12.9 | 47               | 52      | 41      | 35   |
| Maize . . . . .     | 23.6                      | 27.1    | 24.1    | 27.0 | 38               | 21      | 20      | 14   |
| Oats . . . . .      | 30.4                      | 28.4    | 26.6    | 27.4 | 24               | 18      | 15      | 11   |
| Barley . . . . .    | 27.9                      | 22.0    | 21.7    | 21.3 | 41               | 37      | 29      | 25   |
| Rye . . . . .       | 13.5                      | 14.1    | 11.9    | 12.0 | 48               | 35      | 31      | 29   |
| Buckwheat . . . . . | 16.9                      | 17.7    | 12.8    | 13.2 | 45               | 36      | 32      | 32   |
| All grain . . . . . | 21.4                      | 22.3    | 20.9    | 23.0 | 36               | 27      | 23      | 17   |

COTTON PRODUCTION, MILLION LBS.

| Year | Production | Home Use | Exported | Value of Crop, Million £ |
|------|------------|----------|----------|--------------------------|
| 1800 | 36         | 16       | 20       | 2                        |
| 1810 | 115        | 20       | 95       | 5                        |
| 1820 | 160        | 32       | 128      | 6                        |
| 1830 | 350        | 52       | 298      | 6                        |
| 1840 | 878        | 134      | 744      | 15                       |
| 1850 | 890        | 225      | 665      | 17                       |
| 1860 | 1,880      | 434      | 1,446    | 40                       |
| 1870 | 1,540      | 530      | 1,010    | 41                       |
| 1880 | 2,593      | 771      | 1,822    | 59                       |
| 1888 | 3,440      | 1,060    | 2,380    | 61                       |

The average crop is 190 lbs. ginned cotton per acre. The crop of cotton-seed usually reaches 3,000,000 tons, worth 22s. per ton.

The production of cotton in 1840 and 1886 was as follows:—

|                          | Millions of Lbs. |       | Ratio |       |
|--------------------------|------------------|-------|-------|-------|
|                          | 1840             | 1888  | 1840  | 1888  |
| Mississippi . . . . .    | 193              | 524   | 21.9  | 15.2  |
| Georgia . . . . .        | 163              | 464   | 18.5  | 13.5  |
| Louisiana . . . . .      | 153              | 220   | 17.4  | 6.4   |
| Alabama . . . . .        | 117              | 457   | 13.3  | 13.3  |
| South Carolina . . . . . | 62               | 267   | 7.1   | 7.8   |
| North Carolina . . . . . | 52               | 177   | 5.9   | 6.2   |
| Arkansas, Tennessee, &c. | 138              | 1,331 | 15.9  | 38.6  |
| Total . . . . .          | 878              | 3,440 | 100.0 | 100.0 |

TOBACCO PRODUCTION, MILLION LBS.

| Year | Production | Home Use | Export | Value of Crop, £ |
|------|------------|----------|--------|------------------|
| 1800 | 107        | 18       | 89     | 1,300,000        |
| 1810 | 117        | 25       | 92     | 1,200,000        |
| 1820 | 127        | 34       | 93     | 2,100,000        |
| 1830 | 142        | 46       | 96     | 2,600,000        |
| 1840 | 219        | 78       | 141    | 3,900,000        |
| 1850 | 250        | 82       | 168    | 5,300,000        |
| 1860 | 303        | 110      | 193    | 3,700,000        |
| 1870 | 426        | 238      | 188    | 9,400,000        |
| 1880 | 460        | 243      | 217    | 7,500,000        |
| 1888 | 566        | 224      | 342    | 9,100,000        |

The production of tobacco in 1840 and 1886 was as follows:—

|                          | Millions of Lbs. |      | Ratio |       |
|--------------------------|------------------|------|-------|-------|
|                          | 1840             | 1886 | 1840  | 1886  |
| Virginia . . . . .       | 75               | 94   | 34.3  | 18.6  |
| Kentucky . . . . .       | 53               | 194  | 24.2  | 36.2  |
| Tennessee . . . . .      | 30               | 32   | 13.8  | 6.0   |
| Maryland . . . . .       | 25               | 25   | 11.4  | 4.7   |
| North Carolina . . . . . | 17               | 32   | 7.7   | 6.0   |
| Other States . . . . .   | 19               | 152  | 8.6   | 28.5  |
| Total . . . . .          | 219              | 529  | 100.0 | 100.0 |

The production of butter and cheese in 1850 and 1880 was as follows:—

|                        | Millions of Lbs. |      |        |      | Milk, Million Gallons |
|------------------------|------------------|------|--------|------|-----------------------|
|                        | Butter           |      | Cheese |      |                       |
|                        | 1850             | 1880 | 1850   | 1880 |                       |
|                        | 1850             | 1880 | 1850   | 1880 | 1880                  |
| New York . . . . .     | 80               | 112  | 50     | 84   | 232                   |
| Pennsylvania . . . . . | 40               | 79   | 3      | 10   | 37                    |
| Ohio . . . . .         | 34               | 67   | 21     | 22   | 47                    |
| Illinois . . . . .     | 13               | 54   | 1      | 10   | 45                    |
| Indiana . . . . .      | 13               | 37   | 1      | 4    | 7                     |
| Vermont . . . . .      | 12               | 25   | 9      | 15   | 7                     |
| Virginia . . . . .     | 11               | 21   | 1      | 1    | 2                     |
| Kentucky . . . . .     | 10               | 18   | 1      | 1    | 3                     |
| Iowa . . . . .         | 2                | 55   | ...    | 11   | 16                    |
| Michigan . . . . .     | 7                | 39   | 1      | 4    | 8                     |
| Wisconsin . . . . .    | 4                | 33   | ...    | 23   | 25                    |
| Missouri . . . . .     | 8                | 29   | ...    | 3    | 3                     |
| Kansas . . . . .       | ...              | 22   | ...    | 5    | 1                     |
| Tennessee . . . . .    | 8                | 18   | ...    | 1    | 1                     |
| Maine . . . . .        | 9                | 14   | 2      | 12   | 4                     |
| California . . . . .   | ...              | 14   | ...    | 26   | 12                    |
| Texas . . . . .        | 2                | 14   | ...    | 1    | 1                     |
| Other States . . . . . | 60               | 126  | 16     | 39   | 79                    |
| Total . . . . .        | 313              | 777  | 106    | 272  | 530                   |

The production of other articles was as follows :—

|                         | 1840 | 1850 | 1860 | 1870 | 1880 | 1886 |
|-------------------------|------|------|------|------|------|------|
| Sugar, million lbs. . . | 155  | 248  | 269  | 166  | 246  | 240  |
| Rice, " " " " . . .     | 81   | 215  | 187  | 74   | 110  | ...  |
| Butter, " " " " . . .   | ...  | 313  | 460  | 514  | 777  | 960  |
| Cheese, " " " " . . .   | ...  | 106  | 104  | 153  | 272  | 380  |
| Wool, " " " " . . .     | 36   | 52   | 112  | 162  | 233  | 320  |
| Hay, tons . . . . .     | 10   | 14   | 19   | 27   | 35   | 42   |
| Potatoes, bushels . .   | 108  | 104  | 111  | 143  | 169  | 168  |

Sugar is grown almost exclusively in Louisiana, rice in South Carolina and Georgia.

The following table shows the area under farms :—

| Year          | Millions of Acres |            |       |
|---------------|-------------------|------------|-------|
|               | Improved          | Unimproved | Total |
| 1810. . . . . | 64                | 100        | 164   |
| 1850. . . . . | 113               | 180        | 293   |
| 1870. . . . . | 190               | 220        | 410   |
| 1880. . . . . | 285               | 249        | 534   |
| 1888. . . . . | 345               | 302        | 647   |

The above figures are official except as regards 1888 : this last is an estimate, adding 21 per cent. to the figures for 1880, as the agricultural report shows similar rise in the area under crops, namely, from 165 million acres in 1880 to 200 millions in 1886 (see *Lanús*).

The distribution of the wheat, maize, hay, and potato crops in 1883-89 was as follows :—

|                      | Acres      |            |            |           |
|----------------------|------------|------------|------------|-----------|
|                      | Wheat      | Maize      | Hay        | Potatoes  |
| Illinois . . . . .   | 2,380,000  | 8,020,000  | 3,300,000  | 140,000   |
| Iowa . . . . .       | 1,605,000  | 8,860,000  | 3,640,000  | 190,000   |
| Indiana . . . . .    | 2,800,000  | 3,680,000  | 1,450,000  | 80,000    |
| Kansas . . . . .     | 1,680,000  | 6,810,000  | 1,550,000  | 140,000   |
| Missouri . . . . .   | 1,590,000  | 6,800,000  | 1,500,000  | 90,000    |
| Ohio . . . . .       | 2,520,000  | 3,005,000  | 2,570,000  | 150,000   |
| Michigan . . . . .   | 1,610,000  | 970,000    | 1,400,000  | 120,000   |
| Wisconsin . . . . .  | 1,190,000  | 1,080,000  | 1,730,000  | 140,000   |
| Pennsylvania . . . . | 1,350,000  | 1,380,000  | 2,720,000  | 205,000   |
| Tennessee . . . . .  | 1,210,000  | 3,670,000  | ...        | 40,000    |
| California . . . . . | 3,290,000  | 160,000    | 1,180,000  | 60,000    |
| Kentucky . . . . .   | 980,000    | 2,840,000  | ...        | 50,000    |
| New York . . . . .   | 650,000    | 700,000    | 4,930,000  | 370,000   |
| Texas . . . . .      | 600,000    | 4,570,000  | 150,000    | ...       |
| Various . . . . .    | 14,665,000 | 25,775,000 | 12,470,000 | 755,000   |
| Total . . . . .      | 38,120,000 | 78,320,000 | 38,590,000 | 2,530,000 |

The increase of farming area between 1850 and 1880 was as follows :—

| States              | Millions of Acres |      | Rate of Increase, per Cent. |
|---------------------|-------------------|------|-----------------------------|
|                     | 1850              | 1880 |                             |
| New England . . . . | 18                | 22   | 22                          |
| Middle . . . . .    | 43                | 53   | 23                          |
| Southern . . . . .  | 165               | 227  | 38                          |
| Western . . . . .   | 67                | 232  | 248                         |
| Union . . . . .     | 293               | 534  | 82                          |

The area of improved lands increased in the same interval thus :—

| States              | Millions of Acres |      | Rate of Increase, per Cent. |
|---------------------|-------------------|------|-----------------------------|
|                     | 1850              | 1880 |                             |
| New England . . . . | 11                | 13   | 28                          |
| Middle . . . . .    | 26                | 37   | 42                          |
| Southern . . . . .  | 49                | 82   | 67                          |
| Western . . . . .   | 27                | 153  | 467                         |
| Union . . . . .     | 113               | 285  | 152                         |

The acreage, product, and value of the principal crops in 1889 were as follows :—

|                     | Acres       | Tons       | Value, £    | Value per Ton, £ | Product per Acre, £ |
|---------------------|-------------|------------|-------------|------------------|---------------------|
| Wheat . . . . .     | 38,120,000  | 13,200,000 | 71,300,000  | 5.40             | 1.87                |
| Maize . . . . .     | 78,320,000  | 52,700,000 | 123,700,000 | 2.35             | 1.58                |
| Oats . . . . .      | 27,460,000  | 10,700,000 | 36,100,000  | 3.37             | 1.31                |
| Barley . . . . .    | 3,000,000   | 1,400,000  | 6,600,000   | 4.72             | 2.20                |
| Rye . . . . .       | 2,360,000   | 700,000    | 3,500,000   | 5.00             | 1.50                |
| Buckwheat . . . . . | 910,000     | 250,000    | 1,600,000   | 6.40             | 1.76                |
| All grain . . . . . | 150,170,000 | 78,950,000 | 242,800,000 | 3.07             | 1.62                |
| Potatoes . . . . .  | 2,530,000   | 5,060,000  | 17,000,000  | 3.35             | 6.70                |
| Hay . . . . .       | 38,590,000  | 46,600,000 | 85,000,000  | 1.82             | 2.22                |
| Cotton . . . . .    | 19,060,000  | 1,540,000  | 60,800,000  | 39.50            | 3.20                |
| Tobacco . . . . .   | 750,000     | 250,000    | 9,100,000   | 36.40            | 12.10               |
| Total . . . . .     | 211,100,000 | ...        | 414,700,000 | ...              | 1.97                |

The acreage of the principal crops at various dates was approximately as follows :—

|                     | Acres      |            |             |             |             |
|---------------------|------------|------------|-------------|-------------|-------------|
|                     | 1850       | 1860       | 1870        | 1880        | 1889        |
| Wheat . . . . .     | 8,000,000  | 14,500,000 | 18,990,000  | 37,990,000  | 38,120,000  |
| Maize . . . . .     | 21,000,000 | 30,500,000 | 38,640,000  | 62,320,000  | 78,320,000  |
| Oats . . . . .      | 5,200,000  | 6,200,000  | 8,790,000   | 16,190,000  | 27,460,000  |
| Barley . . . . .    | 200,000    | 600,000    | 1,110,000   | 1,840,000   | 3,000,000   |
| Rye, &c. . . . .    | 1,800,000  | 2,500,000  | 1,720,000   | 2,590,000   | 3,280,000   |
| All grain . . . . . | 36,200,000 | 54,300,000 | 69,250,000  | 120,930,000 | 150,190,000 |
| Potatoes . . . . .  | 1,200,000  | 1,300,000  | 1,700,000   | 1,840,000   | 2,530,000   |
| Cotton . . . . .    | 6,000,000  | 12,000,000 | 10,200,000  | 15,950,000  | 19,060,000  |
| Tobacco . . . . .   | 360,000    | 430,000    | 550,000     | 610,000     | 750,000     |
| Sugar . . . . .     | 250,000    | 270,000    | 170,000     | 230,000     | 230,000     |
| Rice . . . . .      | 330,000    | 290,000    | 110,000     | 170,000     | 170,000     |
| Meadow . . . . .    | 10,000,000 | 13,000,000 | 20,000,000  | 25,860,000  | 38,590,000  |
| Total . . . . .     | 54,340,000 | 81,590,000 | 101,980,000 | 165,590,000 | 211,520,000 |

There are no returns as to rice and sugar in 1889, but they are doubtless the same as in 1880. The maize crop covers an area as large as Great Britain and Ireland, and the total acreage under grain exceeds the dimensions of the German Empire. The cotton covers as much land as the kingdoms of Holland and Belgium in the aggregate.

The area under hay is as large as England. The dimensions of the United States may be briefly expressed thus :—

|                         | Millions of Acres | Ratio |
|-------------------------|-------------------|-------|
| Under crops . . . .     | 212               | 9.2   |
| Under pasture . . . .   | 447               | 19.5  |
| Under forest . . . .    | 176               | 7.6   |
| Unsettled lands . . . . | 1,456             | 63.7  |
| Total . . . .           | 2,291             | 100.0 |

The following statistics are official :—

|                | 1810    | 1840       | 1850       | 1860       | 1870       | 1880       | 1890       |
|----------------|---------|------------|------------|------------|------------|------------|------------|
| Horses . . . . | 300,000 | 4,300,000  | 4,900,000  | 6,200,000  | 7,100,000  | 10,400,000 | 14,200,000 |
| Mules . . . .  | ...     | ...        | ...        | 1,200,000  | 1,100,000  | 1,800,000  | 2,300,000  |
| Cattle . . . . | 600,000 | 14,900,000 | 17,800,000 | 25,600,000 | 23,800,000 | 35,900,000 | 52,800,000 |
| Sheep . . . .  | 600,000 | 19,300,000 | 21,700,000 | 22,500,000 | 28,500,000 | 35,200,000 | 44,300,000 |
| Pigs . . . .   | ...     | 26,300,000 | 30,350,000 | 33,500,000 | 25,100,000 | 47,700,000 | 51,600,000 |

Meat supply may be taken at 500 lbs. per beef carcase, 50 lbs. per sheep, and 110 lbs. per pig. Tallow is as 14 to 100 lbs. of beef or mutton, and lard 20 to 100 lbs. of pig's meat.

The values of cattle in 1870 and 1890 were as follows :—

|                    | 1870       |             |             | 1890       |             |             |
|--------------------|------------|-------------|-------------|------------|-------------|-------------|
|                    | Number     | Value, £    | Per Head, £ | Number     | Value, £    | Per Head, £ |
| Horses . . . .     | 8,250,000  | 121,000,000 | 14.9        | 14,210,000 | 201,900,000 | 14.2        |
| Mules . . . .      | 1,180,000  | 23,400,000  | 20.0        | 2,330,000  | 38,100,000  | 16.3        |
| Milch-cows . . . . | 10,100,000 | 71,000,000  | 7.0         | 15,950,000 | 73,400,000  | 4.6         |
| Oxen . . . .       | 15,400,000 | 62,000,000  | 4.0         | 36,850,000 | 116,600,000 | 3.2         |
| Sheep . . . .      | 40,850,000 | 16,800,000  | 0.4         | 44,340,000 | 20,900,000  | 0.5         |
| Swine . . . .      | 26,750,000 | 34,000,000  | 1.3         | 51,600,000 | 50,700,000  | 1.0         |
| Total . . . .      | ...        | 328,200,000 | ...         | ...        | 501,600,000 | ...         |

The distribution of live-stock in the great divisions of the Union in 1890 was as follows :—

| States              | Number     |           |            |            |            | Value, £ Sterling |
|---------------------|------------|-----------|------------|------------|------------|-------------------|
|                     | Horses     | Mules     | Cattle     | Sheep      | Pigs       |                   |
| New England . . . . | 360,000    | ...       | 1,502,000  | 1,220,000  | 350,000    | 16,600,000        |
| Middle . . . .      | 1,680,000  | 60,000    | 5,170,000  | 3,280,000  | 2,960,000  | 68,000,000        |
| South . . . .       | 1,730,000  | 1,200,000 | 6,980,000  | 3,440,000  | 13,130,000 | 77,400,000        |
| West . . . .        | 10,440,000 | 1,070,000 | 39,148,000 | 36,400,000 | 35,160,000 | 339,100,000       |
| Total . . . .       | 14,210,000 | 2,330,000 | 52,800,000 | 44,340,000 | 51,600,000 | 501,100,000       |

The average value in dollars was as follows :—

| States              | Horses | Mules | Cows | Oxen | Sheep | Pigs |
|---------------------|--------|-------|------|------|-------|------|
| New England . . . . | 94     | ...   | 28   | 24   | 3.0   | 9.0  |
| Middle . . . .      | 91     | 102   | 28   | 25   | 3.4   | 6.5  |
| South . . . .       | 71     | 85    | 18   | 12   | 2.0   | 3.5  |
| West . . . .        | 64     | 71    | 20   | 15   | 2.3   | 5.0  |
| The Union . . . .   | 68     | 78    | 22   | 16   | 2.3   | 4.8  |

These values, as shown above, are much lower than prevailed in 1870, which in the foregoing table are computed in gold, after allowing 13 per cent. discount on greenbacks. If prices had not fallen, the live-stock of 1890 would represent a total value of 591 millions £ sterling.

Cattle were first introduced into Virginia in 1609, and into New England in 1624. They increased so rapidly that in 1639 the number in the colonies was estimated at 30,000. Dairy-farming prospered in the eighteenth century, one farmer of Rhode Island in 1750 counting 100 milch-cows, and another in the same year selling six tons of cheese.

Nevertheless cattle-farming at first contended with difficulties. It is recorded that the first hogs, goats, and sheep introduced were killed and eaten by the colonists for want of food. A second supply was brought from the West Indies, and it was made in Virginia punishable with death to kill any of these animals. The records of New York show that in 1627 the price of a cow was £30, of a yoke of oxen £40; those of Philadelphia, that the city market consumed twenty head of horned cattle weekly, besides sheep and hogs. Sheep were found to thrive in Virginia, but no use was made of the wool; the sheep were shorn to keep them cool.

Although the prices in the Western States are lower than in other parts of the Union, the wealth which they possess in cattle is two-thirds of the total, amounting to 339 millions sterling. This sum far exceeds the value of live-stock in any European country except Russia, and is five times as great as that of the cattle of all kinds in Australasia. The increase numerically of stock in the Western States has been as follows :—

|                | 1860       | 1880       | 1890       |
|----------------|------------|------------|------------|
| Horses . . . . | 3,220,000  | 7,030,000  | 10,440,000 |
| Cattle . . . . | 12,900,000 | 22,700,000 | 39,148,000 |
| Sheep . . . .  | 11,150,000 | 25,200,000 | 36,400,000 |
| Pigs . . . .   | 15,200,000 | 32,050,000 | 35,160,000 |



The States richest in live-stock were as follows :—

|                        | NUMBER           |            |            |            |            |                   |
|------------------------|------------------|------------|------------|------------|------------|-------------------|
|                        | Horses and Mules | Milch-Cows | Oxen       | Sheep      | Pigs       | Value, £ Sterling |
| Iowa . . . . .         | 1,140,000        | 1,330,000  | 2,580,000  | 480,000    | 5,810,000  | 39,900,000        |
| Illinois . . . . .     | 1,230,000        | 1,070,000  | 1,710,000  | 690,000    | 5,430,000  | 37,400,000        |
| Texas . . . . .        | 1,560,000        | 840,000    | 7,170,000  | 4,750,000  | 2,320,000  | 30,400,000        |
| New York . . . . .     | 680,000          | 1,550,000  | 780,000    | 1,550,000  | 690,000    | 29,300,000        |
| Ohio . . . . .         | 790,000          | 790,000    | 990,000    | 3,940,000  | 2,610,000  | 27,600,000        |
| Missouri . . . . .     | 1,020,000        | 770,000    | 1,520,000  | 1,200,000  | 5,100,000  | 25,600,000        |
| Pennsylvania . . . . . | 630,000          | 940,000    | 850,000    | 950,000    | 1,190,000  | 24,300,000        |
| Kansas . . . . .       | 820,000          | 750,000    | 1,830,000  | 440,000    | 2,730,000  | 23,700,000        |
| Indiana . . . . .      | 720,000          | 600,000    | 960,000    | 1,280,000  | 2,850,000  | 22,300,000        |
| Nebraska . . . . .     | 590,000          | 420,000    | 1,310,000  | 240,000    | 2,310,000  | 17,900,000        |
| Michigan . . . . .     | 480,000          | 450,000    | 550,000    | 2,240,000  | 980,000    | 16,000,000        |
| Wisconsin . . . . .    | 440,000          | 670,000    | 810,000    | 810,000    | 1,090,000  | 15,000,000        |
| Kentucky . . . . .     | 550,000          | 320,000    | 520,000    | 810,000    | 2,260,000  | 13,900,000        |
| Tennessee . . . . .    | 530,000          | 380,000    | 480,000    | 510,000    | 2,240,000  | 12,300,000        |
| California . . . . .   | 420,000          | 270,000    | 700,000    | 4,040,000  | 650,000    | 11,900,000        |
| Minnesota . . . . .    | 410,000          | 490,000    | 620,000    | 330,000    | 530,000    | 11,700,000        |
| Dakota . . . . .       | 310,000          | 250,000    | 820,000    | 270,000    | 480,000    | 8,900,000         |
| Arkansas . . . . .     | 320,000          | 330,000    | 590,000    | 270,000    | 1,660,000  | 7,100,000         |
| Colorado . . . . .     | 150,000          | 70,000     | 1,050,000  | 1,780,000  | 30,000     | 6,600,000         |
| Various . . . . .      | 3,750,000        | 3,660,000  | 11,010,000 | 17,760,000 | 10,640,000 | 119,300,000       |
| Total . . . . .        | 16,540,000       | 15,950,000 | 36,850,000 | 44,340,000 | 51,600,000 | 501,100,000       |

PRODUCT OF MEAT AND TALLOW

| Year | Tons      |             | Value, Million £ Sterling |        |       | Exported Meat, Tons |
|------|-----------|-------------|---------------------------|--------|-------|---------------------|
|      | Meat      | Tallow, &c. | Meat                      | Tallow | Total |                     |
| 1840 | 2,120,000 | 370,000     | 23                        | 6      | 29    | 30,000              |
| 1850 | 2,460,000 | 440,000     | 26                        | 8      | 34    | 75,000              |
| 1860 | 2,970,000 | 530,000     | 52                        | 16     | 68    | 40,000              |
| 1870 | 2,540,000 | 460,000     | 68                        | 14     | 82    | 46,000              |
| 1880 | 4,240,000 | 760,000     | 99                        | 15     | 114   | 550,000             |
| 1886 | 4,750,000 | 880,000     | 140                       | 16     | 156   | 380,000             |

The value of all agricultural products since 1840 is shown as follows :—

|                                | Million £ Sterling |      |      |      |      |      |
|--------------------------------|--------------------|------|------|------|------|------|
|                                | 1840               | 1850 | 1860 | 1870 | 1880 | 1886 |
| Grain . . . . .                | 62                 | 97   | 173  | 194  | 276  | 243  |
| Cotton . . . . .               | 15                 | 18   | 40   | 41   | 59   | 53   |
| Hay . . . . .                  | 20                 | 29   | 33   | 40   | 62   | 74   |
| Potatoes . . . . .             | 8                  | 9    | 10   | 12   | 14   | 16   |
| Tobacco . . . . .              | 4                  | 5    | 4    | 9    | 8    | 8    |
| Vegetables and fruit . . . . . | 16                 | 22   | 29   | 36   | 47   | 57   |
| Meat and tallow . . . . .      | 29                 | 34   | 68   | 82   | 114  | 156  |
| Dairy products . . . . .       | 14                 | 17   | 34   | 41   | 57   | 78   |
| Eggs and poultry . . . . .     | 7                  | 8    | 17   | 20   | 29   | 39   |
| Wool . . . . .                 | 2                  | 3    | 5    | 8    | 12   | 16   |
| Hides, &c. . . . .             | 7                  | 8    | 16   | 19   | 25   | 36   |
| Total . . . . .                | 184                | 250  | 429  | 502  | 703  | 776  |
| Official value . . . . .       | 129                | 208  | 398  | 435  | 461  | 776  |

The difference between my statement of values and the official tables (excepting 1886) can only be explained by supposing that meat, dairy products, poultry, vegetables, &c., were omitted by Census Commissioners. On the other hand, the Commissioner for Agriculture in 1886 has omitted nothing, and I adopt his figures in every item. There is no allowance for forestry, because the Americans do not regard it as an agricultural pursuit.

According to the Census of 1880 it appears that 76 per cent. of all farming hands were males between 16 and 60

years of age. If we suppose the same ratio for previous dates, we find the product per male adult has been as follows :—

| Year | Agricultural Hands | Male Adults | Product, Million £ | Product per Male Adult, £ |
|------|--------------------|-------------|--------------------|---------------------------|
| 1840 | 2,550,000          | 1,935,000   | 184                | 95                        |
| 1850 | 3,311,000          | 2,515,000   | 250                | 99                        |
| 1860 | 4,342,000          | 3,305,000   | 429                | 130                       |
| 1870 | 5,923,000          | 4,500,000   | 502                | 111                       |
| 1880 | 7,671,000          | 5,890,000   | 703                | 119                       |
| 1886 | 9,000,000          | 6,840,000   | 776                | 113                       |

The number of agricultural hands in the above table is based on the Census returns for each date and the Commissioner's estimate in his agricultural report for 1886; but as the Census returns for 1840-60 do not include slaves, I have added for those years 50 per cent. of the adult slaves. It will be seen that the highest product per head was in 1860, although improved machinery has rendered farm labour much more productive in later years. The explanation is that wheat, for example, has fallen 60 cents a bushel, and maize in the same ratio. If prices had remained the same, the average product per head in 1886 would have been £180.

It is not possible to ascertain how the 9,000,000 hands in 1886 were distributed, but if it were in the same ratio as in 1880, the agricultural power of the great divisions of the country would be thus :—

| States                | Agricultural Hands | Male Adults | Product, Millions £ | Product per Male Adult, £ |
|-----------------------|--------------------|-------------|---------------------|---------------------------|
| New England . . . . . | 351,000            | 267,000     | 35                  | 130                       |
| Middle . . . . .      | 981,000            | 745,000     | 123                 | 164                       |
| Southern . . . . .    | 4,220,000          | 3,200,000   | 206                 | 64                        |
| Western . . . . .     | 3,448,000          | 2,628,000   | 412                 | 160                       |
| Union . . . . .       | 9,000,000          | 6,840,000   | 776                 | 113                       |

In Massachusetts, according to the Agricultural Report for 1888, the gross product of land per cultivated acre was, in English money, as follows :—

|                    |    |                   |     |                        |     |
|--------------------|----|-------------------|-----|------------------------|-----|
| Grain . . . . .    | £5 | Onions . . . . .  | £29 | Tobacco . . . . .      | £37 |
| Potatoes . . . . . | 11 | Cabbage . . . . . | 36  | Strawberries . . . . . | 42  |

The value of products consumed at home and exported were :—

| Year | Millions, £ Sterling |          |       | Value Home Consumption £ per Inhab. |
|------|----------------------|----------|-------|-------------------------------------|
|      | Home Consumption     | Exported | Total |                                     |
| 1840 | 167                  | 17       | 184   | 10                                  |
| 1850 | 224                  | 26       | 250   | 10                                  |
| 1860 | 367                  | 62       | 429   | 12                                  |
| 1870 | 420                  | 82       | 502   | 11                                  |
| 1880 | 561                  | 142      | 703   | 11                                  |
| 1886 | 675                  | 101      | 776   | 13                                  |

The principal States in order of production in 1886 were :—

| States       | Value of Product, Million £ Sterling |          |       |               | Ratio |       |
|--------------|--------------------------------------|----------|-------|---------------|-------|-------|
|              | In 1886                              |          |       | Nominal, 1880 | 1880  | 1886  |
|              | Agricultural                         | Pastoral | Total |               |       |       |
| New York     | 28                                   | 31       | 59    | 37            | 8.0   | 7.6   |
| Illinois     | 36                                   | 22       | 58    | 42            | 9.1   | 7.5   |
| Iowa         | 30                                   | 22       | 52    | 28            | 6.1   | 6.8   |
| Ohio         | 27                                   | 23       | 50    | 33            | 7.2   | 6.4   |
| Pennsylvania | 24                                   | 23       | 47    | 27            | 5.9   | 6.0   |
| Indiana      | 24                                   | 17       | 41    | 24            | 5.3   | 5.2   |
| Texas        | 27                                   | 12       | 39    | 13            | 2.8   | 5.0   |
| Missouri     | 19                                   | 14       | 33    | 20            | 4.4   | 4.2   |
| Kansas       | 15                                   | 13       | 28    | 11            | 2.4   | 3.6   |
| Michigan     | 14                                   | 13       | 27    | 19            | 4.2   | 3.5   |
| Wisconsin    | 14                                   | 11       | 25    | 15            | 3.2   | 3.2   |
| Kentucky     | 15                                   | 7        | 22    | 13            | 2.8   | 2.7   |
| California   | 13                                   | 7        | 20    | 13            | 2.8   | 2.6   |
| Tennessee    | 14                                   | 6        | 20    | 13            | 2.8   | 2.6   |
| Other States | 167                                  | 88       | 255   | 153           | 33.0  | 32.9  |
| Total        | 467                                  | 309      | 776   | 461           | 100.0 | 100.0 |

In the above table for 1886 the agricultural values for each State are as set down in the Agricultural Report with 15 per cent. added for unclassified articles, the total, 467 millions sterling, being as given in the report. The pastoral products for each State are based on a medium of the value of dairy products (1880) and the value of cattle (1886).

The values, according to the great divisions of the country, were :—

| States      | Million £ Sterling (1886) |          |       |               | Ratio |       |
|-------------|---------------------------|----------|-------|---------------|-------|-------|
|             | Agricultural              | Pastoral | Total | Nominal, 1880 | 1880  | 1886  |
|             | Agricultural              | Pastoral | Total | Nominal, 1880 |       |       |
| New England | 18                        | 17       | 35    | 23            | 5.0   | 4.5   |
| Middle      | 62                        | 61       | 123   | 77            | 16.5  | 15.7  |
| Southern    | 150                       | 56       | 206   | 131           | 28.5  | 26.5  |
| Western     | 237                       | 175      | 412   | 230           | 50.0  | 53.3  |
| Union       | 467                       | 309      | 776   | 461           | 100.0 | 100.0 |

The product compares with the area of improved lands (1880) thus :—

|             | Acres Improved | Product, £  | Shillings per Acre |
|-------------|----------------|-------------|--------------------|
| New England | 13,000,000     | 35,000,000  | 54                 |
| Middle      | 37,000,000     | 123,000,000 | 66                 |
| Southern    | 82,000,000     | 206,000,000 | 50                 |
| Western     | 153,000,000    | 412,000,000 | 54                 |
| Union       | 285,000,000    | 776,000,000 | 54                 |

| Year | Agricultural Capital, Million £ Sterling |        |          |       | £ per Inhabitant |
|------|------------------------------------------|--------|----------|-------|------------------|
|      | Land                                     | Cattle | Sundries | Total |                  |
| 1790 | 96                                       | 4      | 24       | 124   | 31               |
| 1810 | 200                                      | 10     | 40       | 250   | 47               |
| 1840 | 400                                      | 96     | 100      | 596   | 35               |
| 1850 | 662                                      | 114    | 161      | 937   | 41               |
| 1860 | 1,382                                    | 226    | 237      | 1,845 | 58               |
| 1870 | 1,673                                    | 274    | 294      | 2,241 | 58               |
| 1880 | 2,116                                    | 340    | 518      | 2,974 | 60               |
| 1887 | 2,560                                    | 501    | 635      | 3,696 | 60               |

The above figures are official except as regards 1810 and 1840, also excepting the value of land in 1887, which is put down at 21 per cent. over 1880, because the area of crops is shown by the Commissioner to have risen 21 per cent. between 1880 and 1886.

The value of farms and cattle (without sundries), according to Census reports, was :—

| Year | Million, £ Sterling |        |          |         |       | £ per Inhabitant |        |          |         |       |
|------|---------------------|--------|----------|---------|-------|------------------|--------|----------|---------|-------|
|      | New England         | Middle | Southern | Western | Union | New England      | Middle | Southern | Western | Union |
| 1850 | 88                  | 276    | 245      | 167     | 776   | 32               | 42     | 30       | 30      | 35    |
| 1860 | 113                 | 423    | 538      | 534     | 1,608 | 36               | 51     | 52       | 55      | 52    |
| 1870 | 124                 | 570    | 318      | 935     | 1,947 | 35               | 58     | 28       | 68      | 59    |
| 1880 | 136                 | 560    | 426      | 1,334   | 2,456 | 34               | 44     | 28       | 70      | 49    |

The increase of agricultural capital was as follows :—

| Period   | Increase, Million £ | £ per Annum | Mean Number of Agricultural Males Adults | Increase per Head, £ | Annual Increase per Head, £ |
|----------|---------------------|-------------|------------------------------------------|----------------------|-----------------------------|
| 1841-60  | 1,249               | 62,500,000  | 2,530,000                                | 500                  | 25                          |
| 1861-70  | 396                 | 39,600,000  | 3,880,000                                | 102                  | 10                          |
| 1871-87  | 1,455               | 85,600,000  | 5,710,000                                | 255                  | 15                          |
| 47 years | 3,100               | 65,700,000  | 4,040,000                                | 775                  | 16                          |

It appears from the foregoing statement that the individual gains of those engaged in agriculture were greatest in the period from 1841 to 1860, averaging £25 a year; the war which ensued in 1861 had a depressing effect, the average accumulation falling to £10 a year in the decade ending 1870, but since the latter year there has been a great recovery, the average reaching £15 per head per annum. This was not the annual average of earnings, but of savings, a result unexampled elsewhere.

#### CANADA

The area in acres is as follows :—

| Province             | Population | Acres         | Acres per Inhabitant |
|----------------------|------------|---------------|----------------------|
| Quebec               | 1,360,000  | 121,200,000   | 90                   |
| Ontario              | 1,920,000  | 117,200,000   | 60                   |
| Nova Scotia          | 440,000    | 13,400,000    | 30                   |
| New Brunswick        | 320,000    | 17,300,000    | 54                   |
| Prince Edward Island | 110,000    | 1,300,000     | 12                   |
| Manitoba             | 65,000     | 38,400,000    | 580                  |
| British Columbia     | 50,000     | 217,600,000   | 4,350                |
| North-West Territory | 55,000     | 1,696,000,000 | 30,600               |
| Total                | 4,320,000  | 2,222,400,000 | 510                  |

The above was the population in 1881, but it is now estimated at 5,200,000, showing an average of 430 acres per inhabitant.

Tillage statistics for 1887 were as follows :—

ACREAGE

|                          | Wheat     | Barley  | Oats      | Maize   | Potatoes | Total     |
|--------------------------|-----------|---------|-----------|---------|----------|-----------|
| Ontario . . . . .        | 1,380,000 | 770,000 | 1,680,000 | 160,000 | 140,000  | 4,130,000 |
| Quebec and Coast . . . . | 380,000   | 90,000  | 800,000   | 20,000  | 280,000  | 1,570,000 |
| Manitoba, &c. . . . .    | 870,000   | 100,000 | 260,000   | ...     | 10,000   | 1,240,000 |
| Total . . . . .          | 2,630,000 | 960,000 | 2,740,000 | 180,000 | 430,000  | 6,940,000 |

CROP, TONS

|                          | Wheat   | Barley  | Oats      | Maize   | Potatoes  | Total     |
|--------------------------|---------|---------|-----------|---------|-----------|-----------|
| Ontario . . . . .        | 550,000 | 400,000 | 800,000   | 220,000 | 260,000   | 2,230,000 |
| Quebec and Coast . . . . | 110,000 | 50,000  | 400,000   | 25,000  | 300,000   | 1,485,000 |
| Manitoba, &c. . . . .    | 330,000 | 50,000  | 120,000   | ...     | 60,000    | 560,000   |
| Total . . . . .          | 990,000 | 500,000 | 1,320,000 | 245,000 | 1,220,000 | 4,275,000 |

The above figures for Quebec and Coast Provinces are estimates based on the crops of 1881.  
The statistics of live-stock at various dates were—

|                        | 1834      | 1861       | 1871       | 1881      | 1888       |
|------------------------|-----------|------------|------------|-----------|------------|
| Horses . . . . .       | 192,000   | 710,000    | 860,000    | 1,070,000 | 1,100,000  |
| Cattle . . . . .       | 885,000   | 2,320,000  | 2,690,000  | 3,510,000 | 3,790,000  |
| Sheep . . . . .        | 1,320,000 | 2,550,000  | 3,300,000  | 3,050,000 | 2,602,000  |
| Pigs . . . . .         | ...       | 1,250,000  | 1,410,000  | 1,210,000 | 1,205,000  |
| Total value, £ . . . . | ...       | 24,000,000 | 33,000,000 | ...       | 44,300,000 |

The grain-crops of the Dominion, measured in bushels, were as follows :—

|                  | 1871       | 1881        | 1884        |
|------------------|------------|-------------|-------------|
| Wheat . . . . .  | 17,000,000 | 30,000,000  | 42,000,000  |
| Oats . . . . .   | 46,000,000 | 64,000,000  | 88,000,000  |
| Barley . . . . . | 12,000,000 | 15,000,000  | 22,000,000  |
| Maize . . . . .  | 4,000,000  | 9,000,000   | 14,000,000  |
| Rye, &c. . . . . | 5,000,000  | 6,000,000   | 6,000,000   |
| Total . . . . .  | 84,000,000 | 124,000,000 | 172,000,000 |

In 1852 the total grain crop was 45 million bushels, and potatoes 6 million bushels.

The value of products in 1887 was approximately :—

|                         | Tons      | £          | Sundries     | £          |
|-------------------------|-----------|------------|--------------|------------|
| Wheat . . . . .         | 990,000   | 6,400,000  | Timber . .   | 8,200,000  |
| Oats . . . . .          | 1,320,000 | 5,300,000  | Vegetables . | 2,500,000  |
| Barley . . . . .        | 500,000   | 2,500,000  | Poultry . .  | 2,000,000  |
| Maize . . . . .         | 245,000   | 1,000,000  | Dairy . . .  | 7,500,000  |
|                         |           |            | Meat . . .   | 7,800,000  |
| All grain . . . . .     | 3,055,000 | 15,200,000 | Foals . . .  | 1,100,000  |
| Straw . . . . .         | 3,000,000 | 1,500,000  | Tallow . .   | 1,200,000  |
| Hay . . . . .           | 4,000,000 | 6,000,000  | Hides, . . } | 1,300,000  |
| Potatoes . . . . .      | 1,200,000 | 1,800,000  | wool, &c. }  |            |
| Principal crops . . . . | ...       | 24,500,000 | Sundries . . | 31,600,000 |

|                               |            |
|-------------------------------|------------|
| Agricultural products . . . . | 35,200,000 |
| Animal products . . . . .     | 20,900,000 |
| Total . . . . .               | 56,100,000 |

Ontario has 48 per cent. of the cattle, 48 per cent. of the area (of Canada proper), and produces 65 per cent. of the grain. It may be said to represent 60 per cent. of the agricultural value of the Dominion. Its farms in 1887 covered 11,100,000 acres of cleared land, of which 7,430,000 were under crops. The official valuation for

1887 is as follows, and enables us to give an estimate for the rest of the Dominion :—

|                      | Ontario       | Quebec and Other Provinces | All Canada    |
|----------------------|---------------|----------------------------|---------------|
| Land . . . . .       | £ 130,870,000 | £ 87,230,000               | £ 218,100,000 |
| Buildings . . . . .  | 38,510,000    | 25,690,000                 | 64,200,000    |
| Cattle . . . . .     | 21,700,000    | 22,600,000                 | 44,300,000    |
| Implements . . . . . | 9,320,000     | 6,180,000                  | 15,500,000    |
| Total . . . . .      | 200,400,000   | 141,700,000                | 342,100,000   |

The official valuation of all land occupied as farms in Canada in 1861 amounted to 102 millions sterling. The agricultural capital was approximately as follows :—

|                    | Millions, £ Sterling |      |
|--------------------|----------------------|------|
|                    | 1861                 | 1887 |
| Farms . . . . .    | 102                  | 282  |
| Cattle . . . . .   | 24                   | 44   |
| Sundries . . . . . | 14                   | 36   |
| Total . . . . .    | 140                  | 362  |

This shows an increase of 222 millions sterling in 26 years, equal to £8,500,000 per annum, or one-tenth of the annual average in the United States from 1871 to 1887, the ratio of population being likewise about one-tenth. The relation between agricultural capital and product in Canada in 1861 and 1887 was as follows :—

| Year           | Millions, £ |         | Ratio to Capital |
|----------------|-------------|---------|------------------|
|                | Capital     | Product |                  |
| 1861 . . . . . | 140         | 21      | 15.0             |
| 1887 . . . . . | 362         | 56      | 15.4             |

In the products of Canada the preceding table includes timber, a considerable item, but the United States does not include it as an agricultural product.

NEWFOUNDLAND

There are 47,000 acres under potatoes, turnips, &c. The live-stock consists of 5000 horses, 20,000 cows, 40,000 sheep, and 20,000 pigs.

MEXICO

The Republic has the following area :—

|                               | Acres       |
|-------------------------------|-------------|
| Arable . . . . .              | 34,500,000  |
| Pasture . . . . .             | 298,000,000 |
| Mountain and forest . . . . . | 129,500,000 |
| Total . . . . .               | 462,000,000 |

The crops in 1888 were as follows :—

|                  | Tons      | Value, £   | Sundries             | £         |
|------------------|-----------|------------|----------------------|-----------|
| Maize . . . . .  | 3,200,000 | 16,000,000 | Cotton . . . . .     | 1,600,000 |
| Barley . . . . . | 150,000   | 900,000    | Sugar . . . . .      | 1,300,000 |
| Wheat . . . . .  | 280,000   | 1,800,000  | Coffee . . . . .     | 500,000   |
| Beans . . . . .  | 200,000   | 1,000,000  | Tobacco, &c. . . . . | 900,000   |
| Grain . . . . .  | 3,830,000 | 19,700,000 | Sundries . . . . .   | 4,300,000 |

The live-stock is supposed to number 2,000,000 horses, 2,000,000 sheep, 5,000,000 goats, and 3,000,000 cattle. There are 20,570 cattle farms, valued at 103 millions £ sterling.

CENTRAL AMERICA

The five little Republics have the following area :—

|                      | Acres       | Population | Acres per Inhabitant |
|----------------------|-------------|------------|----------------------|
| Costa Rica . . . . . | 12,800,000  | 200,000    | 64                   |
| Guatemala . . . . .  | 30,300,000  | 1,400,000  | 21                   |
| Honduras . . . . .   | 30,100,000  | 430,000    | 70                   |
| Nicaragua . . . . .  | 31,700,000  | 400,000    | 80                   |
| Salvador . . . . .   | 4,800,000   | 650,000    | 7                    |
| Total . . . . .      | 109,700,000 | 3,080,000  | 36                   |

Guatemala is the most important of these Republics. The products and live-stock are approximately as follows :—

|                  | Crops, Tons |                |                 | Stock, Number |                |
|------------------|-------------|----------------|-----------------|---------------|----------------|
|                  | Guatemala   | Five Republics |                 | Guatemala     | Five Republics |
| Coffee . . . . . | 30,000      | 50,000         | Horses          | 150,000       | 250,000        |
| Sugar . . . . .  | 25,000      | 30,000         | Cows . . . . .  | 490,000       | 1,200,000      |
| Maize . . . . .  | 90,000      | 150,000        | Sheep . . . . . | 460,000       | 700,000        |
| Wheat . . . . .  | 20,000      | 30,000         | Pigs . . . . .  | 190,000       | 300,000        |

The value of live-stock in Guatemala is £3,600,000, and in all five Republics about £7,000,000. Costa Rica crops are valued at £2,400,000. Those of the five Republics may reach £12,000,000. The value of coffee exported is £2,400,000, say 40,000 tons.

VENEZUELA

The area of the Republic is as follows :—

|                        | Acres        |            |             |
|------------------------|--------------|------------|-------------|
|                        | Public Lands | Private    | Total       |
| Agricultural . . . . . | 56,500,000   | 30,900,000 | 87,400,000  |
| Pastoral . . . . .     | 37,900,000   | 63,400,000 | 101,300,000 |
| Forest . . . . .       | 196,400,000  | 3,100,000  | 199,500,000 |
| Total . . . . .        | 290,800,000  | 97,400,000 | 388,200,000 |

The only crop worth notice is coffee, say 60,000 tons, of which two-thirds are exported, to the value of £2,400,000. The live-stock in 1888 was as follows :—

|                           |           |                  |           |
|---------------------------|-----------|------------------|-----------|
| Cattle . . . . .          | 8,480,000 | Pigs . . . . .   | 1,930,000 |
| Sheep and goats . . . . . | 5,730,000 | Horses . . . . . | 750,000   |

The last item includes 1,160,000 mules and asses, counting two mules or four asses as one horse.

COLUMBIA

Formerly known as New Granada, has an area of 320 million acres, or 82 acres per inhabitant. Some coffee is grown.

The live-stock in 1883 was as follows :—

|                  |         |                           |         |
|------------------|---------|---------------------------|---------|
| Cattle . . . . . | 950,000 | Horses . . . . .          | 140,000 |
| Sheep . . . . .  | 40,000  | Mules and asses . . . . . | 110,000 |
| Goats . . . . .  | 610,000 | Pigs . . . . .            | 340,000 |

The only agricultural product exported is coffee, say 3000 tons, valued at £180,000.

ECUADOR

The Republic has an area of 77 million acres, but the extent under cultivation is trifling. Agricultural exports are as follows :—

|                  | Tons   | Value, £ |
|------------------|--------|----------|
| Cocoa . . . . .  | 10,000 | 700,000  |
| Coffee . . . . . | 10,000 | 600,000  |

Besides a small quantity of indiarubber and chinchona. No statistics of cattle.

PERU

The Republic has an area of 295 million acres, or 112 per inhabitant. There are no agricultural statistics. The only agricultural exports are :—

|                  | Tons   | Value, £ |
|------------------|--------|----------|
| Sugar . . . . .  | 20,000 | 360,000  |
| Wool . . . . .   | 3,000  | 220,000  |
| Cotton . . . . . | 4,000  | 200,000  |

This shows how backward is the condition of the country.

BOLIVIA

Area 540 million acres, of which perhaps one million acres are under cultivation. Among agricultural products are chinchona and coca; the latter is a famous drug for enabling travellers to suffer hunger and hardships in so desolate a region. The crop of coca is valued at £360,000. There are 5,000,000 chinchona trees, and the crop of bark averages 90 tons.

CHILE

In 1882 there were 7,010,000 acres under crops, of which 1,100,000 were irrigated. The area of the Republic is 170 million acres, the acreage under crops being only 4 per cent. of the total.

The production of grain has been almost stationary for 30 years, averaging 450,000 tons of wheat and 150,000 of other grain, mostly barley and maize. About two-thirds of the wheat is required for home consumption, and a balance of 150,000 tons is exported. The official statistics of stock are : horses, 450,000 ; cattle, 1,530,000 ; sheep, 2,500,000, representing a value of £7,800,000 sterling.

Some superior wines are grown, the vineyards counting 86 million vines in 1882, and producing 14 million gallons of wine. The official report gives the following :—

|                                 | £         |
|---------------------------------|-----------|
| Agricultural products . . . . . | 6,200,000 |
| Animal products . . . . .       | 3,600,000 |
| Total . . . . .                 | 9,800,000 |

This is, however, much below the reality, which may be estimated thus :—

|                     | Tons       | £         | Sundries            | £         |
|---------------------|------------|-----------|---------------------|-----------|
| Wheat . .           | 450,000    | 3,200,000 | Vegetables .        | 1,500,000 |
| Barley, &c.         | 150,000    | 900,000   | Dairy and poultry } | 2,800,000 |
| Hay and straw }     | 1,000,000  | 2,000,000 | Meat . .            | 2,600,000 |
| Wine, galls.        | 14,000,000 | 1,400,000 | Hides, wool &c. }   | 900,000   |
| Principal crops . } | ...        | 7,500,000 | Sundries .          | 7,800,000 |

£

Agricultural products . . . . . 9,000,000  
 Animal products . . . . . 6,300,000

Total . . . . . 15,300,000

The value of lands under farming was stated in 1882 to be £50,200,000. The total agricultural capital is therefore thus :—

£

Land . . . . . 50,200,000  
 Cattle . . . . . 7,800,000  
 Sundries . . . . . 6,400,000

Total . . . . . 64,400,000

The product is equal to 24 per cent. on capital. The number of men engaged in agriculture was 114,000 in 1865, and 173,000 in 1875. This gives the average of £89 per head.

#### ARGENTINA

The area under crops, from official returns, was as follows :—

| Year           | Acres     | Acres per Inhabitant |
|----------------|-----------|----------------------|
| 1854 . . . . . | 375,000   | 0.4                  |
| 1864 . . . . . | 506,000   | 0.4                  |
| 1874 . . . . . | 825,000   | 0.4                  |
| 1884 . . . . . | 4,260,000 | 1.4                  |
| 1889 . . . . . | 7,430,000 | 2.2                  |

The area under tillage was as follows :—

|                    | Acres   |           |           |
|--------------------|---------|-----------|-----------|
|                    | 1874    | 1884      | 1889      |
| Wheat . . . . .    | 271,000 | 1,717,000 | 2,820,000 |
| Sundries . . . . . | 554,000 | 2,543,000 | 4,610,000 |
| Total . . . . .    | 825,000 | 4,260,000 | 7,430,000 |

The official statements published in May and December 1889 gave the following :—

|                   | Acres     |           |           |                  |           |
|-------------------|-----------|-----------|-----------|------------------|-----------|
|                   | Wheat     | Maize     | Lucerne   | Flax, Sugar, &c. | Total     |
| Buenos Ayres .    | 1,120,000 | 1,750,000 | 250,000   | 300,000          | 3,420,000 |
| Santa Fé . . .    | 1,005,000 | 150,000   | 75,000    | 240,000          | 1,470,000 |
| Entre Rios . .    | 370,000   | 210,000   | 18,000    | 10,000           | 608,000   |
| Cordoba . . . .   | 140,000   | 200,000   | 195,000   | 55,000           | 590,000   |
| Santiago . . . .  | 75,000    | 150,000   | 40,000    | 35,000           | 300,000   |
| Mendoza . . . .   | 17,000    | 8,000     | 175,000   | 24,000           | 224,000   |
| San Juan . . . .  | 30,000    | 8,000     | 140,000   | 22,000           | 200,000   |
| Corrientes . . .  | ...       | 65,000    | 4,000     | 46,000           | 115,000   |
| Catamarca . . .   | 3,000     | 8,000     | 25,000    | 79,000           | 115,000   |
| Other provinces } | 60,000    | 165,000   | 80,000    | 80,000           | 385,000   |
| Total . . . . .   | 2,820,000 | 2,714,000 | 1,002,000 | 891,000          | 7,427,000 |

Tillage has increased rapidly with the influx of Italian and other immigrants. The surplus grain for exportation was as follows :—

| Year              | Tons    |
|-------------------|---------|
| 1878-80 . . . . . | 40,000  |
| 1881-84 . . . . . | 120,000 |
| 1889 . . . . .    | 400,000 |

The last is only an estimate by local writers.

#### CROP.

|                   | Tons.   |         |           |        | Value of all Crops, £ |
|-------------------|---------|---------|-----------|--------|-----------------------|
|                   | Wheat   | Maize   | Lucerne   | Sugar  |                       |
| Buenos Ayres .    | 280,000 | 520,000 | 500,000   | ...    | 6,800,000             |
| Santa Fé . . . .  | 250,000 | 45,000  | 150,000   | 8,000  | 2,800,000             |
| Entre Rios . . .  | 90,000  | 60,000  | 40,000    | ...    | 1,200,000             |
| Cordoba . . . . . | 35,000  | 60,000  | 400,000   | ...    | 1,200,000             |
| Other provinces   | 50,000  | 125,000 | 910,000   | 44,000 | 5,800,000             |
| Total . . . . .   | 705,000 | 810,000 | 2,000,000 | 52,000 | 17,800,000            |

The summary of estimated crops in 1889 was as follows :—

|                    | Quantity  | Value, £   | Acreage   |
|--------------------|-----------|------------|-----------|
| Wheat, tons . . .  | 705,000   | 4,200,000  | 2,800,000 |
| Maize " . . . . .  | 810,000   | 3,200,000  | 2,700,000 |
| Barley " . . . . . | 120,000   | 600,000    | 300,000   |
| Oats " . . . . .   | 40,000    | 200,000    | 100,000   |
| Lucerne " . . . .  | 2,000,000 | 3,500,000  | 1,000,000 |
| Linseed " . . . .  | 40,000    | 300,000    | 200,000   |
| Tobacco " . . . .  | 10,000    | 300,000    | 20,000    |
| Sugar " . . . . .  | 80,000    | 1,200,000  | 90,000    |
| Wine, galls. . . . | 6,500,000 | 700,000    | 70,000    |
| Sundries . . . . . | ...       | 3,600,000  | 147,000   |
| Total . . . . .    | ...       | 17,800,000 | 7,427,000 |

The live-stock shows the following official returns :—

|                  | 1864       | 1884       | 1888       |
|------------------|------------|------------|------------|
| Horses . . . . . | 3,875,000  | 4,186,000  | 4,400,000  |
| Cattle . . . . . | 10,215,000 | 14,171,000 | 22,870,000 |
| Sheep . . . . .  | 23,111,000 | 70,910,000 | 70,450,000 |

The pastoral returns for 1888 showed thus :—

|                    | Cows       | Horses    | Sheep      | Value, £   |
|--------------------|------------|-----------|------------|------------|
| Buenos Ayres .     | 9,600,000  | 1,860,000 | 55,400,000 | 25,700,000 |
| Entre Rios . . .   | 4,100,000  | 720,000   | 4,900,000  | 7,200,000  |
| Santa Fé . . . . . | 2,300,000  | 530,000   | 2,900,000  | 4,300,000  |
| Cordoba . . . . .  | 2,100,000  | 410,000   | 2,400,000  | 3,700,000  |
| Corrientes . . . . | 1,800,000  | 260,000   | 610,000    | 2,900,000  |
| Santiago . . . . . | 590,000    | 110,000   | 780,000    | 1,060,000  |
| San Luis . . . . . | 480,000    | 110,000   | 240,000    | 810,000    |
| Pampas . . . . .   | 470,000    | 110,000   | 1,670,000  | 1,080,000  |
| Catamarca . . . .  | 240,000    | 50,000    | 150,000    | 410,000    |
| Tucuman . . . . .  | 200,000    | 40,000    | 40,000     | 320,000    |
| Mendoza . . . . .  | 180,000    | 45,000    | 120,000    | 320,000    |
| Salta . . . . .    | 160,000    | 30,000    | 160,000    | 290,000    |
| Jujuy . . . . .    | 90,000     | 20,000    | 600,000    | 270,000    |
| Rioja . . . . .    | 160,000    | 25,000    | 60,000     | 180,000    |
| Rio Negro . . . .  | 80,000     | 20,000    | 300,000    | 180,000    |
| San Juan . . . . . | 50,000     | 25,000    | 60,000     | 110,000    |
| Misiones, &c. . .  | 270,000    | 35,000    | 60,000     | 120,000    |
| Total . . . . .    | 22,870,000 | 4,400,000 | 70,450,000 | 48,950,000 |

The sheep-farming industry since 1830 shows as follows :—

| Year     | Sheep, Millions | Wool Export, Million Lbs. | Price of Sheep |
|----------|-----------------|---------------------------|----------------|
| 1830 . . | 3               | 6                         | 15 pence       |
| 1840 . . | 5               | 13                        | 25 "           |
| 1850 . . | 7               | 21                        | 35 "           |
| 1860 . . | 14              | 45                        | 55 "           |
| 1870 . . | 41              | 137                       | 60 "           |
| 1880 . . | 61              | 215                       | 70 "           |
| 1889 . . | 70              | 300                       | 60 "           |

River Plate wool loses 65 per cent. in the washing, the above being wool in the grease ; whereas Australian loses only 44, and Cape wool 30 per cent. In 1882 the live-stock held by Irish settlers was valued at £7,200,000, and that of Scotch at £2,000,000; the land and stock of Irish and Scotch combined was worth 33 millions sterling.

The value of all farm products was approximately :—

|               | Agricultural | Pastoral   | Total      | Per Inhabitant |
|---------------|--------------|------------|------------|----------------|
| Buenos Ayres  | 6,800,000    | 12,400,000 | 19,200,000 | 17.4           |
| Santa Fé .    | 2,800,000    | 2,100,000  | 4,900,000  | 22.3           |
| Entre Rios .  | 1,200,000    | 3,500,000  | 4,700,000  | 26.0           |
| Cordoba .     | 1,200,000    | 1,800,000  | 3,000,000  | 15.1           |
| Corrientes .  | 200,000      | 1,400,000  | 1,600,000  | 8.5            |
| Mendoza .     | 900,000      | 150,000    | 1,050,000  | 14.0           |
| Tucuman .     | 1,500,000    | 150,000    | 1,650,000  | 9.7            |
| San Juan .    | 600,000      | 100,000    | 700,000    | 8.8            |
| Salta . .     | 600,000      | 150,000    | 750,000    | 5.0            |
| Catamarca .   | 200,000      | 200,000    | 400,000    | 4.4            |
| San Luis .    | 200,000      | 400,000    | 600,000    | 8.0            |
| Santiago .    | 200,000      | 500,000    | 700,000    | 4.7            |
| Rioja . .     | 400,000      | 100,000    | 500,000    | 6.1            |
| Jujuy . .     | 400,000      | 100,000    | 500,000    | 8.0            |
| Territories . | 600,000      | 1,150,000  | 1,750,000  | 11.0           |
| Total .       | 17,800,000   | 24,200,000 | 42,000,000 | 14.0           |

The agricultural wealth of the Republic is distributed approximately as follows (1888) :—

|                       | Land        | Cattle     | Sundries   | Total       | Per Inhabitant |
|-----------------------|-------------|------------|------------|-------------|----------------|
| Buenos Ayres . . . .  | 60,200,000  | 25,700,000 | 9,500,000  | 95,400,000  | 87             |
| Santa Fé . . . . .    | 9,000,000   | 4,300,000  | 1,500,000  | 14,800,000  | 67             |
| Entre Rios . . . . .  | 7,800,000   | 7,200,000  | 1,700,000  | 16,700,000  | 92             |
| Cordoba . . . . .     | 5,200,000   | 3,700,000  | 1,000,000  | 9,900,000   | 32             |
| Corrientes . . . . .  | 5,200,000   | 2,900,000  | 900,000    | 9,000,000   | 47             |
| Mendoza . . . . .     | 3,800,000   | 300,000    | 400,000    | 4,500,000   | 60             |
| Tucuman . . . . .     | 2,800,000   | 300,000    | 300,000    | 3,400,000   | 20             |
| San Juan . . . . .    | 2,600,000   | 100,000    | 300,000    | 3,000,000   | 35             |
| Salta . . . . .       | 2,200,000   | 300,000    | 300,000    | 2,800,000   | 18             |
| Catamarca . . . . .   | 2,000,000   | 400,000    | 300,000    | 2,700,000   | 30             |
| San Luis . . . . .    | 1,800,000   | 800,000    | 300,000    | 2,900,000   | 39             |
| Santiago . . . . .    | 1,200,000   | 1,100,000  | 200,000    | 2,500,000   | 17             |
| Rioja . . . . .       | 1,000,000   | 200,000    | 100,000    | 1,300,000   | 16             |
| Jujuy . . . . .       | 600,000     | 300,000    | 100,000    | 1,000,000   | 15             |
| Territories . . . . . | 5,200,000   | 1,400,000  | 700,000    | 7,300,000   | 45             |
| Total . . . . .       | 110,600,000 | 49,000,000 | 17,600,000 | 177,200,000 | 60             |

#### SUMMARY OF PRODUCTS

|                                |              |
|--------------------------------|--------------|
| Crops already enumerated . .   | £ 17,800,000 |
| Wool, 300 million lbs. . . . . | 7,500,000    |
| Meat, 300,000 tons . . . . .   | 6,000,000    |
| Dairy and poultry . . . . .    | 4,000,000    |
| Hides, tallow, &c. . . . .     | 6,700,000    |
| Total . . . . .                | 42,000,000   |

Agricultural wealth has quadrupled since 1857, viz. :—

|                    | Millions £ Sterling |      |
|--------------------|---------------------|------|
|                    | 1857                | 1888 |
| Land . . . . .     | 22                  | 111  |
| Cattle . . . . .   | 18                  | 49   |
| Sundries . . . . . | 4                   | 17   |
| Total . . . . .    | 44                  | 177  |

The product in 1889 was equal to 24 per cent. on capital. In the preceding valuation the unoccupied lands of Gran Chaco, Patagonia, &c., are not included.

#### URUGUAY

This country (sometimes called Banda Oriental) is chiefly pastoral, but tillage has increased notably in the last thirty years.

| Year | Acres under Crop | Grain, Bushels |           |           |
|------|------------------|----------------|-----------|-----------|
|      |                  | Wheat          | Maize     | Total     |
| 1855 | 150,000          | 700,000        | 400,000   | 1,100,000 |
| 1870 | 400,000          | 2,100,000      | 700,000   | 2,800,000 |
| 1883 | 750,000          | 3,500,000      | 1,200,000 | 4,700,000 |
| 1888 | 1,500,000        | 5,000,000      | 2,000,000 | 7,000,000 |

The above figures are official except for 1888, which is a rough estimate. The area is 45 million acres, and more than half the Republic is owned by Europeans. The Contribucion Directa returns give only the *value* of properties held by each nationality, but if we arrange the area on the same basis, we find that the tenure of land is as follows :—

| Nationality          | Landowners | Acres      | Ratio |
|----------------------|------------|------------|-------|
| Natives . . . . .    | 31,000     | 18,700,000 | 41.6  |
| Spaniards . . . . .  | 4,400      | 6,300,000  | 14.0  |
| Italians . . . . .   | 3,900      | 5,700,000  | 12.6  |
| Brazilians . . . . . | 2,200      | 7,400,000  | 16.5  |
| French . . . . .     | 1,600      | 2,900,000  | 6.4   |
| British . . . . .    | 300        | 1,600,000  | 3.5   |
| Various . . . . .    | 4,200      | 2,400,000  | 5.4   |
| Total . . . . .      | 47,600     | 45,000,000 | 100.0 |

The number of landowners is unknown, but supposed to be one-tenth of the population, as in the above table.

# AGRICULTURE

51

# AGRICULTURE

The returns of live-stock were as follows :—

|                    | 1860      | 1887       |
|--------------------|-----------|------------|
| Cattle . . . . .   | 5,220,000 | 6,120,000  |
| Horses . . . . .   | 740,000   | 410,000    |
| Sheep . . . . .    | 2,590,000 | 15,900,000 |
| Value, £ . . . . . | 6,100,000 | 16,800,000 |

Agricultural and pastoral products in 1887 may be summed up thus :—

|                         | Agricultural |           |                    | Pastoral  |
|-------------------------|--------------|-----------|--------------------|-----------|
|                         | Tons         | £         |                    |           |
| Wheat . . . . .         | 140,000      | 900,000   | Wool . . . . .     | 1,800,000 |
| Maize . . . . .         | 50,000       | 200,000   | Meat . . . . .     | 2,700,000 |
| Hay and straw . . . . . | 300,000      | 600,000   | Dairy, &c. . . . . | 700,000   |
| Vegetables, &c. . . . . | ...          | 500,000   | Hides, &c. . . . . | 2,800,000 |
| Total . . . . .         | ...          | 2,200,000 | Total . . . . .    | 8,000,000 |

Agricultural capital is estimated at 53 millions sterling, of which land stands for 34, and cattle for 14 millions. The product is almost 20 per cent. on capital.

## PARAGUAY

Tillage has constituted almost the sole industry from the time of the Jesuit Missions, founded in 1557. The area under plough at the date of the expulsion of the Jesuits in 1767 was about 200,000 acres. A census was taken by President Lopez in 1863, and another in 1881, the country having been in the interim desolated (and all males over ten years killed) by the Brazilian army in the war of 1865-70. The areas under crops were :—

|                           | Acres   |         |
|---------------------------|---------|---------|
|                           | 1863    | 1881    |
| Maize . . . . .           | 349,000 | 206,000 |
| Mandioca . . . . .        | 110,000 | 120,000 |
| Tobacco . . . . .         | 23,000  | 10,000  |
| Sugar . . . . .           | 25,000  | 20,000  |
| Cotton, rice, &c. . . . . | 43,000  | 46,000  |
| Total . . . . .           | 550,000 | 402,000 |

All field-work is done by women, who cultivate 7 acres each. The men collect yerba-maté or Jesuit's tea, mind cattle, and convey the products to market. The soil is so rich that maize yields one hundred-fold, rice two hundred-fold. The ordinary crops are 4 million bushels of maize, 360,000 tons of mandioca, 10,000 tons sugar, 6000 tons tobacco, 300 million oranges, and 24 million lbs. of yerba-maté. The value of products may be summed up thus :—

|                              |             |
|------------------------------|-------------|
| Maize and mandioca . . . . . | £ 1,600,000 |
| Tobacco and sugar . . . . .  | 300,000     |
| Oranges, timber, &c. . . . . | 200,000     |
| Yerba-maté . . . . .         | 400,000     |
| Meat and sundries . . . . .  | 500,000     |
| Total . . . . .              | 3,000,000   |

The statistics of live-stock show 730,000 cattle, 62,000 horses, 32,000 sheep.

The exports consist of 6000 tons yerba-maté, 7000 tons tobacco, 50 million oranges, and 2,000,000 feet of lumber, the whole worth £200,000 sterling. The price of land is from 1s. to 5s. an acre. In 1870 the Government made a general survey of the Republic, the result of which was as follows :—

|                               | Acres      |
|-------------------------------|------------|
| State lands, arable . . . . . | 27,300,000 |
| Mountain and forest . . . . . | 17,500,000 |
| Yerba-maté groves . . . . .   | 3,200,000  |

|                            |            |
|----------------------------|------------|
| All public lands . . . . . | 48,000,000 |
| Private estates . . . . .  | 9,600,000  |

Total area . . . . . 57,600,000

The above is Paraguay proper, not including the Chaco territory on the western side of the Paraguay river.

## BRAZIL

The total area is 2104 million acres, or almost the same as that of the United States. It is made up thus :—

|                        | Millions of Acres |
|------------------------|-------------------|
| Under crops . . . . .  | 20                |
| Forest . . . . .       | 134               |
| Uncultivated . . . . . | 1,950             |
| Total . . . . .        | 2,104             |

The principal products are as follows :—

|                       | Acres      | Crop, Tons | Value of Crop | Value Exported |
|-----------------------|------------|------------|---------------|----------------|
| Coffee . . . . .      | 1,600,000  | 340,000    | 20,000,000    | 14,000,000     |
| Sugar . . . . .       | 300,000    | 330,000    | 5,000,000     | 2,600,000      |
| Cotton . . . . .      | 70,000     | 24,000     | 1,200,000     | 600,000        |
| Tobacco . . . . .     | 60,000     | 30,000     | 1,500,000     | 1,000,000      |
| Yerba-maté . . . . .  | 10,000,000 | 40,000     | 1,100,000     | 600,000        |
| Indiarubber . . . . . | ...        | 6,000      | 1,200,000     | 1,200,000      |
| Total . . . . .       | 12,030,000 | ...        | 30,000,000    | 22,000,000     |

There are no returns of live-stock. The climate is too hot for sheep, and the number of cows and horses is probably about two millions, judging by the export of hides. Official returns give 16 million cows, a gross exaggeration. In 1882 the coffee-fields had 550 million plants, yielding about 1 lb. each, the number of hands being over 300,000 : the crop has since risen to 340,000 tons ; sugar plantations employ 90,000 negroes, cotton 50,000. The above table takes no account of maize or mandioca, large quantities of which are produced to feed the negroes.

Wheat and rice are also grown on a smaller scale. About one million persons altogether are engaged in agriculture, including 90,000 Germans, mostly in Rio Grande do Sul, and an equal number of Italians in San Paulo, Santa Catherina, and other southern provinces. The gross value of all agricultural products is said to average 40 millions sterling per annum.

An able-bodied man can cultivate the following ; that is, any one of these items :—

|                    | Acres | Crop | Value, £ |
|--------------------|-------|------|----------|
| Coffee . . . . .   | 5     | 25   | 50       |
| Sugar . . . . .    | 5     | 100  | 70       |
| Cotton . . . . .   | 7     | 100  | 70       |
| Mandioca . . . . . | 4     | 160  | 80       |

An acre of coffee has 400 trees ; of cotton, 2000 plants. Coffee was first introduced in 1754.

## AUSTRALIA

The several colonies show as follows :—

|                             | Population | Acres         | Acres per Inhabitant |
|-----------------------------|------------|---------------|----------------------|
| New South Wales . . . . .   | 1,086,000  | 198,400,000   | 182                  |
| Victoria . . . . .          | 1,090,000  | 56,300,000    | 52                   |
| Queensland . . . . .        | 390,000    | 427,500,000   | 1,095                |
| South Australia . . . . .   | 310,000    | 578,000,000   | 1,870                |
| New Zealand . . . . .       | 610,000    | 66,600,000    | 109                  |
| Tasmania . . . . .          | 150,000    | 16,600,000    | 111                  |
| Western Australia . . . . . | 40,000     | 624,000,000   | 15,600               |
| Total . . . . .             | 3,676,000  | 1,967,400,000 | 532                  |

Mr. Coghlan's work on Australia shows the progress of tillage from 1861 to 1888 as follows:—

|                         | Acres Cultivated |           |           |            | Acres per 100 Inhabitants |      |       |       |
|-------------------------|------------------|-----------|-----------|------------|---------------------------|------|-------|-------|
|                         | 1861             | 1871      | 1881      | 1888       | 1861                      | 1871 | 1881  | 1888  |
| New South Wales . . . . | 295,000          | 420,000   | 645,000   | 1,000,000  | 86                        | 84   | 85    | 92    |
| Victoria . . . . .      | 420,000          | 930,000   | 1,680,000 | 2,230,000  | 75                        | 130  | 190   | 202   |
| Queensland . . . . .    | 5,000            | 60,000    | 120,000   | 190,000    | 18                        | 52   | 52    | 50    |
| South Australia . . . . | 400,000          | 840,000   | 2,170,000 | 2,340,000  | 320                       | 455  | 805   | 750   |
| New Zealand . . . . .   | 225,000          | 1,110,000 | 4,940,000 | 7,525,000  | 280                       | 440  | 1,020 | 1,250 |
| Tasmania . . . . .      | 245,000          | 310,000   | 350,000   | 460,000    | 280                       | 310  | 305   | 310   |
| Western Australia . . . | 24,000           | 50,000    | 55,000    | 65,000     | 150                       | 200  | 180   | 155   |
| Total . . . . .         | 1,614,000        | 3,720,000 | 9,960,000 | 13,810,000 | 130                       | 186  | 360   | 375   |

|                         | Acres Cultivated |         |          |           |           |           |           |            |
|-------------------------|------------------|---------|----------|-----------|-----------|-----------|-----------|------------|
|                         | 1861             |         |          |           | 1888      |           |           |            |
|                         | Grain            | Hay     | Sundries | Total     | Grain     | Hay       | Sundries  | Total      |
| New South Wales . . . . | 190,000          | 45,000  | 60,000   | 295,000   | 480,000   | 210,000   | 310,000   | 1,000,000  |
| Victoria . . . . .      | 290,000          | 75,000  | 55,000   | 420,000   | 1,505,000 | 410,000   | 315,000   | 2,230,000  |
| Queensland . . . . .    | ...              | ...     | 5,000    | 5,000     | 95,000    | 20,000    | 75,000    | 190,000    |
| South Australia . . . . | 320,000          | 65,000  | 15,000   | 400,000   | 1,625,000 | 310,000   | 405,000   | 2,340,000  |
| New Zealand . . . . .   | 50,000           | ...     | 175,000  | 225,000   | 780,000   | 50,000    | 6,695,000 | 7,525,000  |
| Tasmania . . . . .      | 95,000           | 30,000  | 120,000  | 245,000   | 80,000    | 50,000    | 330,000   | 460,000    |
| Western Australia . . . | 15,000           | 7,000   | 2,000    | 24,000    | 37,000    | 24,000    | 4,000     | 65,000     |
| Total . . . . .         | 960,000          | 222,000 | 432,000  | 1,614,000 | 4,602,000 | 1,074,000 | 8,134,000 | 13,810,000 |

The following table shows in detail the cultivation in 1888:—

|                    | Acres       |           |            |              |            |          |              |
|--------------------|-------------|-----------|------------|--------------|------------|----------|--------------|
|                    | N. S. Wales | Victoria  | Queensland | S. Australia | N. Zealand | Tasmania | W. Australia |
| Wheat . . . . .    | 305,000     | 1,220,000 | 10,000     | 1,605,000    | 360,000    | 40,000   | 30,000       |
| Maize . . . . .    | 165,000     | 5,000     | 85,000     | ...          | 5,000      | ...      | ...          |
| Oats . . . . .     | 7,000       | 200,000   | ...        | 5,000        | 370,000    | 35,000   | 2,000        |
| Barley . . . . .   | 3,000       | 80,000    | ...        | 15,000       | 45,000     | 5,000    | 5,000        |
| Hay . . . . .      | 210,000     | 410,000   | 20,000     | 310,000      | 50,000     | 50,000   | 24,000       |
| Grasses . . . . .  | 200,000     | 185,000   | 5,000      | 25,000       | 6,230,000  | 180,000  | ...          |
| Sundries . . . . . | 110,000     | 130,000   | 70,000     | 380,000      | 465,000    | 150,000  | 4,000        |
| Total . . . . .    | 1,000,000   | 2,230,000 | 190,000    | 2,340,000    | 7,525,000  | 460,000  | 65,000       |

The area and crops of grain were as follows:—

|                  | Acres   |           |           |           | Tons    |         |           |           |
|------------------|---------|-----------|-----------|-----------|---------|---------|-----------|-----------|
|                  | 1861    | 1871      | 1881      | 1888      | 1861    | 1871    | 1881      | 1888      |
| Wheat . . . . .  | 730,000 | 1,380,000 | 3,360,000 | 3,570,000 | 300,000 | 400,000 | 810,000   | 710,000   |
| Maize . . . . .  | 60,000  | 140,000   | 170,000   | 260,000   | 50,000  | 130,000 | 170,000   | 200,000   |
| Oats . . . . .   | 145,000 | 360,000   | 440,000   | 620,000   | 60,000  | 130,000 | 200,000   | 250,000   |
| Barley . . . . . | 30,000  | 60,000    | 105,000   | 160,000   | 15,000  | 30,000  | 50,000    | 80,000    |
| Total . . . . .  | 965,000 | 1,940,000 | 4,075,000 | 4,610,000 | 425,000 | 690,000 | 1,230,000 | 1,240,000 |

The yield of barley from 1861 to 1881 was not ascertained, but the crop averages half a ton per acre, the estimate given above. The following table shows the approximate area and crop of grain from 1830 compared with population, viz. :—

| Year           | Acres, Grain | Crop, Tons | Cwts. per Inhabitant |
|----------------|--------------|------------|----------------------|
| 1830 . . . . . | 50,000       | 20,000     | 4.0                  |
| 1840 . . . . . | 180,000      | 70,000     | 5.6                  |
| 1850 . . . . . | 300,000      | 120,000    | 6.7                  |
| 1861 . . . . . | 965,000      | 425,000    | 6.6                  |
| 1871 . . . . . | 1,940,000    | 690,000    | 7.0                  |
| 1881 . . . . . | 4,075,000    | 1,230,000  | 0.0                  |
| 1888 . . . . . | 4,610,000    | 1,240,000  | 6.6                  |

The acreage of other crops since 1861 is shown thus:—

|                    | Acres   |           |           |           |
|--------------------|---------|-----------|-----------|-----------|
|                    | 1861    | 1871      | 1881      | 1888      |
| Vineyards . . . .  | 6,500   | 16,300    | 14,600    | 26,800    |
| Sugar . . . . .    | ...     | 14,000    | 40,000    | 62,600    |
| Tobacco . . . . .  | 400     | 900       | 3,200     | 6,600     |
| Potatoes . . . . . | 57,000  | 81,000    | 99,000    | 112,000   |
| Hay . . . . .      | 220,000 | 315,000   | 835,000   | 1,074,000 |
| Grasses . . . . .  | 170,000 | 870,000   | 4,360,000 | 6,820,000 |
| Sundries . . . . . | 195,100 | 492,800   | 533,200   | 1,098,000 |
| Total . . . . .    | 649,000 | 1,790,000 | 5,885,000 | 9,200,000 |



The production in 1888 as regards the several Colonies was as follows :—

|                     | Tons            |          |            |                 |             |          |                   | Total     |
|---------------------|-----------------|----------|------------|-----------------|-------------|----------|-------------------|-----------|
|                     | New South Wales | Victoria | Queensland | South Australia | New Zealand | Tasmania | Western Australia |           |
| Wheat . . . . .     | 40,000          | 230,000  | ...        | 170,000         | 240,000     | 20,000   | 10,000            | 710,000   |
| Maize . . . . .     | 140,000         | ...      | 60,000     | ...             | ...         | ...      | ...               | 200,000   |
| Oats . . . . .      | ...             | 50,000   | ...        | ...             | 185,000     | 15,000   | ...               | 250,000   |
| Barley . . . . .    | ...             | 40,000   | ...        | 5,000           | 31,000      | 2,000    | 2,000             | 80,000    |
| All grain . . . . . | 180,000         | 320,000  | 60,000     | 175,000         | 456,000     | 37,000   | 12,000            | 1,240,000 |
| Potatoes . . . . .  | 41,000          | 155,000  | 21,000     | 20,000          | 135,000     | 53,500   | 1,500             | 427,000   |
| Hay . . . . .       | 140,000         | 275,000  | 15,000     | 205,009         | 34,000      | 36,000   | 15,000            | 720,000   |
| Sugar . . . . .     | 5,000           | ...      | 35,000     | ...             | ...         | ...      | ...               | 40,000    |
| Tobacco . . . . .   | 2,800           | 700      | 70         | ...             | ...         | ...      | ...               | 3,570     |

The weight of miscellaneous crops to the acre in 1888 was as follows :—

|                        | Crop       | Per Acre |
|------------------------|------------|----------|
| Wine, galls. . . . .   | 2,800,000  | 104      |
| Sugar, cwts. . . . .   | 800,000    | 13       |
| Tobacco, cwts. . . . . | 70,000     | 11       |
| Potatoes „ . . . . .   | 8,600,000  | 77       |
| Hay „ . . . . .        | 15,000,000 | 14       |

The value of live-stock at various dates was approximately :—

| Year           | £         | Year           | £          |
|----------------|-----------|----------------|------------|
| 1821 . . . . . | 1,500,000 | 1861 . . . . . | 21,000,000 |
| 1842 . . . . . | 7,600,000 | 1888 . . . . . | 67,000,000 |

The pastoral wealth of Australia is of paramount importance, and has doubled since 1871. The following table is official :—

| Year | Horses    | Cows      | Sheep      | Pigs      | Export of Wool, lbs. |
|------|-----------|-----------|------------|-----------|----------------------|
| 1800 | 200       | 1,040     | 6,100      | ...       | ...                  |
| 1810 | 1,130     | 12,440    | 25,900     | 9,540     | ...                  |
| 1821 | 4,560     | 102,900   | 209,100    | 33,900    | ...                  |
| 1842 | 70,600    | 1,015,000 | 6,310,000  | 66,000    | 14,000,000           |
| 1861 | 449,200   | 4,040,000 | 23,700,000 | 280,000   | 70,000,000           |
| 1871 | 782,000   | 4,710,000 | 49,800,000 | 740,000   | 190,000,000          |
| 1881 | 1,249,000 | 8,710,000 | 78,600,000 | 905,000   | 325,000,000          |
| 1888 | 1,504,000 | 9,280,000 | 96,600,000 | 1,140,000 | 553,000,000*         |

In 1888 the distribution of stock was as follows :—

|                             | Horses    | Cattle    | Sheep      | Pigs      | Approximate Value, £ |
|-----------------------------|-----------|-----------|------------|-----------|----------------------|
| New South Wales . . . . .   | 410,000   | 1,620,000 | 46,500,000 | 250,000   | 24,900,000           |
| Victoria . . . . .          | 320,000   | 1,370,000 | 10,820,000 | 245,000   | 12,000,000           |
| Queensland . . . . .        | 380,000   | 4,655,000 | 13,445,000 | 70,000    | 11,700,000           |
| South Australia . . . . .   | 170,000   | 430,000   | 7,150,000  | 170,000   | 4,800,000            |
| New Zealand . . . . .       | 204,000   | 960,000   | 15,120,000 | 340,000   | 11,200,000           |
| Tasmania . . . . .          | 30,000    | 140,000   | 1,430,000  | 40,000    | 1,200,000            |
| Western Australia . . . . . | 40,000    | 95,000    | 2,115,000  | 25,000    | 1,200,000            |
| Total . . . . .             | 1,504,000 | 9,280,000 | 96,580,000 | 1,140,000 | 67,000,000           |

Mr. Coghlan's official estimates of the value of agricultural and pastoral products is as follows for 1888 :—

|                           | Agricultural | Pastoral   | Total      | Per Inhabitant |
|---------------------------|--------------|------------|------------|----------------|
| N. S. Wales . . . . .     | 4,150,000    | 13,060,000 | 17,210,000 | 15.8           |
| Victoria . . . . .        | 7,330,000    | 6,280,000  | 13,610,000 | 12.5           |
| Queensland . . . . .      | 1,845,000    | 6,445,000  | 8,290,000  | 21.2           |
| South Australia . . . . . | 5,200,000    | 2,500,000  | 7,700,000  | 24.8           |
| New Zealand . . . . .     | 6,775,000    | 5,785,000  | 12,560,000 | 20.6           |
| Tasmania . . . . .        | 1,270,000    | 660,000    | 1,930,000  | 13.0           |
| W. Australia . . . . .    | 260,000      | 660,000    | 920,000    | 23.0           |
| Total . . . . .           | 26,830,000   | 35,390,000 | 62,220,000 | 17.1           |

The values of all rural products at various dates were approximately as follows :—

| Year           | Wool       | Sundries   | Total      |
|----------------|------------|------------|------------|
| 1840 . . . . . | 1,400,000  | 2,200,000  | 3,600,000  |
| 1850 . . . . . | 4,500,000  | 3,800,000  | 8,300,000  |
| 1860 . . . . . | 6,600,000  | 13,000,000 | 19,600,000 |
| 1870 . . . . . | 10,200,000 | 19,000,000 | 29,200,000 |
| 1880 . . . . . | 22,000,000 | 34,000,000 | 56,000,000 |
| 1888 . . . . . | 17,200,000 | 45,000,000 | 62,200,000 |

The values of agricultural products are not classified, but seem to have been approximately as in the subjoined table :—

|                                  | Agricultural | Pastoral                         |
|----------------------------------|--------------|----------------------------------|
| Grain . . . . .                  | 8,700,000    | Wool . . . . . 17,100,000        |
| Hay and straw . . . . .          | 2,400,000    | Mutton . . . . . 4,000,000       |
| Potatoes . . . . .               | 1,100,000    | Beef . . . . . 4,000,000         |
| Fruit and vegetables } . . . . . | 2,600,000    | Pork . . . . . 1,200,000         |
| Sugar . . . . .                  | 500,000      | Poultry . . . . . 1,000,000      |
| Wine . . . . .                   | 300,000      | Dairy . . . . . 4,090,000        |
| Tobacco . . . . .                | 100,000      | Foals . . . . . 2,000,000        |
| Clover, &c. . . . .              | 11,130,000   | Hides, tal- low, &c. } 2,000,000 |
| Total . . . . .                  | 26,830,000   | Total . . . . . 35,390,000       |

The total agricultural capital is estimated by Mr. Coghlan at 373 millions sterling. If we suppose it to be distributed in the same ratio as the value of products, the result would be as follows :—

\* This is the equivalent of unwashed wool, but the actual weight exported was less, a portion being washed.

|                             | Agricultural Capital |            |            |             | Ratio |
|-----------------------------|----------------------|------------|------------|-------------|-------|
|                             | Land                 | Cattle     | Sundries   | Total       |       |
| New South Wales . . . . .   | 68,000,000           | 24,900,000 | 10,300,000 | 103,200,000 | 27.5  |
| Victoria . . . . .          | 61,500,000           | 12,000,000 | 8,200,000  | 81,700,000  | 22.0  |
| Queensland . . . . .        | 33,100,000           | 11,700,000 | 5,000,000  | 49,800,000  | 13.4  |
| South Australia . . . . .   | 36,800,000           | 4,800,000  | 4,600,000  | 46,200,000  | 12.4  |
| New Zealand . . . . .       | 56,700,000           | 11,200,000 | 7,500,000  | 75,400,000  | 20.2  |
| Tasmania . . . . .          | 9,200,000            | 1,200,000  | 1,200,000  | 11,600,000  | 3.0   |
| Western Australia . . . . . | 3,800,000            | 1,200,000  | 500,000    | 5,500,000   | 1.5   |
| Total . . . . .             | 269,100,000          | 67,000,000 | 37,300,000 | 373,400,000 | 100.0 |

It would appear, however, that the agricultural capital is much greater than Mr. Coghlan's estimate. In another chapter of his book he shows the wealth of Australia (not including railways or public works) amounted in 1889 to 1136 millions sterling, of which 410 millions belonged to New South Wales, which included 181 millions for land.

In fact, the value of land seems to be 533 millions sterling, and the total agricultural capital as follows:—

|                        | Capital, Millions Sterling |             |       | Product, Millions, £ | Ratio to Capital |
|------------------------|----------------------------|-------------|-------|----------------------|------------------|
|                        | Land                       | Cattle, &c. | Total |                      |                  |
| N. S. Wales . . . . .  | 181                        | 35          | 216   | 17.2                 | 8.0              |
| Victoria . . . . .     | 107                        | 20          | 127   | 13.6                 | 9.3              |
| Queensland . . . . .   | 58                         | 17          | 75    | 8.3                  | 9.0              |
| S. Australia . . . . . | 64                         | 9           | 73    | 7.7                  | 10.6             |
| New Zealand . . . . .  | 100                        | 19          | 119   | 12.6                 | 10.6             |
| Tasmania . . . . .     | 16                         | 2           | 18    | 1.9                  | 10.5             |
| W. Australia . . . . . | 7                          | 2           | 9     | 0.9                  | 10.0             |
| Total . . . . .        | 533                        | 104         | 637   | 62.2                 | 9.8              |

#### CAPE COLONY

Tillage is a secondary industry, the latest returns for 1875 comparing with those for 1865 as follows:—

|                              | 1865      | 1875      |
|------------------------------|-----------|-----------|
| Acres under grain . . . . .  | 387,000   | 465,000   |
| Crop, bushels . . . . .      | 2,440,000 | 4,180,000 |
| Vineyards, acres . . . . .   | 16,000    | 18,000    |
| Yield, galls, wine . . . . . | 3,240,000 | 4,488,000 |

Farms cover an area of 89 million acres, or 67 per cent. of the total, viz.:—

|                         | Acres       |
|-------------------------|-------------|
| Tillage . . . . .       | 800,000     |
| Pasture . . . . .       | 78,000,000  |
| Timber . . . . .        | 10,800,000  |
| Area of farms . . . . . | 89,600,000  |
| Public lands . . . . .  | 45,400,000  |
| Total . . . . .         | 135,000,000 |

The value of all products in 1887 was approximately:—

|                       | Tons    | £         | Sundries               | £         |
|-----------------------|---------|-----------|------------------------|-----------|
| Wheat . . . . .       | 100,000 | 700,000   | Wine . . . . .         | 300,000   |
| Barley . . . . .      | 15,000  | 100,000   | Fruit, &c. . . . .     | 500,000   |
| Oats . . . . .        | 25,000  | 150,000   | Dairy and } . . . . .  | 1,000,000 |
| Maize, &c. . . . .    | 100,000 | 550,000   | poultry } . . . . .    |           |
| All grain . . . . .   | 240,000 | 1,500,000 | Meat . . . . .         | 2,000,000 |
| Straw . . . . .       | 200,000 | 100,000   | Wool . . . . .         | 1,700,000 |
| Grain crops . . . . . | ...     | 1,600,000 | Feathers, } . . . . .  | 1,100,000 |
|                       |         |           | hides, &c. } . . . . . |           |
|                       |         |           | Sundries . . . . .     | 6,600,000 |

Returns of live-stock were as follows:—

| Year | Horses  | Cattle    | Sheep      | Pigs    | Goats     | Ostriches |
|------|---------|-----------|------------|---------|-----------|-----------|
| 1840 | 57,000  | 307,000   | 2,340,000  | ...     | 394,000   | ...       |
| 1865 | 227,000 | 690,000   | 9,840,000  | 79,000  | ...       | ...       |
| 1875 | 241,000 | 1,330,000 | 11,280,000 | 130,000 | 2,790,000 | 22,200    |
| 1889 | 295,000 | 1,505,000 | 14,410,000 | 140,000 | 5,140,000 | 149,500   |

|                                 |             |
|---------------------------------|-------------|
| Agricultural products . . . . . | £ 2,400,000 |
| Animal products . . . . .       | 5,800,000   |

Total . . . . . 8,200,000

The value of the farms may be roughly estimated at 42 millions sterling; product, 19 per cent. on capital.

#### NATAL

This colony comprises 12,780,000 acres, viz.:—

| Held by                     | Acres     |
|-----------------------------|-----------|
| European settlers . . . . . | 8,000,000 |
| Kaffirs . . . . .           | 2,000,000 |
| British Crown . . . . .     | 2,780,000 |

Total . . . . . 12,780,000

The area under tillage (chiefly sugar) is as follows:—

| Farms of            | Acres   |
|---------------------|---------|
| Europeans . . . . . | 66,000  |
| Kaffirs . . . . .   | 175,000 |

Total . . . . . 241,000

The returns of live-stock show thus:—

|                  | Owned by  |         |         |
|------------------|-----------|---------|---------|
|                  | Europeans | Kaffirs | Total   |
| Horses . . . . . | 23,000    | 31,000  | 54,000  |
| Cows . . . . .   | 165,000   | 447,000 | 612,000 |
| Sheep . . . . .  | 448,000   | 36,000  | 484,000 |
| Goats . . . . .  | 56,000    | 251,000 | 307,000 |

#### ORANGE FREE STATE

Area, 26,600,000 acres—say, 450 per inhabitant. There are 6000 cattle-farms, occupying 23,600,000 acres—say, 4000 each. They have 130,000 horses, 460,000 cattle, 5,050,000 sheep, 670,000 goats, and 2200 ostriches. Tillage, 115,000 acres.

#### MAURITIUS

A small island, only 450,000 acres, sugar being the principal crop. The industry rose rapidly till 1877, and is now declining, viz.:—

| Year           | Acres under Sugar | Tons Exported |
|----------------|-------------------|---------------|
| 1814 . . . . . | 2,000             | 500           |
| 1836 . . . . . | 57,000            | 30,000        |
| 1877 . . . . . | 160,000           | 136,000       |
| 1887 . . . . . | ...               | 95,000        |

Timber is also produced, especially ebony.

## CEYLON

Official returns are as follows :—

|                     | Acreage   |              | Stock   |
|---------------------|-----------|--------------|---------|
| Rice . . . . .      | 740,000   | Horses . . . | 4,000   |
| Cocoa-nuts . . .    | 630,000   | Cattle . . . | 950,000 |
| Tea . . . . .       | 200,000   | Sheep . . .  | 46,000  |
| Coffee . . . . .    | 100,000   | Goats . . .  | 88,000  |
| Sundries . . . . .  | 444,000   |              |         |
| Area cultivated . . | 2,114,000 |              |         |

The cultivated area is about 13 per cent. of the total, which is 16,230,000 acres. Among the crops of minor extent are chinchona 3400, tobacco 16,000, cinnamon 36,000 acres. The coffee plantations have been ravaged by an insect called Hemileia. New products have therefore been called into requisition.

The exports of 1887 compare with those of 1873 thus :—

|                     | 1873    | 1887    | Value in 1887 |
|---------------------|---------|---------|---------------|
|                     | Tons    | Tons    | £             |
| Coffee . . . . .    | 49,500  | 9,000   | 900,000       |
| Chinchona . . . . . | ...     | 6,400   | 190,000       |
| Tea . . . . .       | ...     | 5,500   | 660,000       |
| Cinnamon . . . . .  | 10,500  | 18,400  | 80,000        |
| Oil, cwts . . . . . | 110,000 | 310,000 | 320,000       |

Many of the farms are owned by English settlers, who number 4000 in the island.

## INDIA

The area in acres and the population in 1881 were :—

|                       | Acres         | Population  | Acres per Inhabitant |
|-----------------------|---------------|-------------|----------------------|
| Bengal . . . . .      | 100,200,000   | 66,700,000  | 1.5                  |
| Bombay . . . . .      | 70,400,000    | 16,500,000  | 4.9                  |
| Madras . . . . .      | 90,850,000    | 31,300,000  | 2.9                  |
| Assam . . . . .       | 28,650,000    | 4,900,000   | 6.4                  |
| Punjab . . . . .      | 95,600,000    | 18,900,000  | 3.6                  |
| Oudh . . . . .        | 15,300,000    | 11,800,000  | 1.3                  |
| N. W. Provinces . .   | 57,100,000    | 32,300,000  | 1.6                  |
| Central Provinces . . | 74,200,000    | 9,800,000   | 5.5                  |
| Berar, &c. . . . .    | 12,400,000    | 3,300,000   | 4.4                  |
| Upper Burmah . . .    | 128,000,000   | 5,000,000   | 25.6                 |
| Lower Burmah . . .    | 57,500,000    | 3,700,000   | 18.0                 |
| British India . . .   | 730,200,000   | 204,200,000 | 3.4                  |
| Hydrabad . . . . .    | 52,500,000    | 9,800,000   | 5.4                  |
| Rajpoot . . . . .     | 83,200,000    | 10,300,000  | 8.1                  |
| Baroda . . . . .      | 5,500,000     | 2,200,000   | 2.5                  |
| Mysore . . . . .      | 15,900,000    | 4,200,000   | 3.8                  |
| Various . . . . .     | 168,900,000   | 28,700,000  | 6.0                  |
| Feudatories . . . .   | 326,000,000   | 55,200,000  | 5.9                  |
| All India . . . . .   | 1,056,200,000 | 259,400,000 | 3.9                  |

There are no late statistics available for Bengal. The cultivated area of the other provinces was as follows in 1888 :—

|                        | Acres      |            |             |           |            |             |
|------------------------|------------|------------|-------------|-----------|------------|-------------|
|                        | Rice       | Wheat      | Other Grain | Cotton    | Sundries   | Total       |
| Bombay . . . . .       | 2,170,000  | 2,410,000  | 17,130,000  | 2,870,000 | 1,990,000  | 26,570,000  |
| Madras . . . . .       | 6,290,000  | 20,000     | 13,970,000  | 1,460,000 | 2,140,000  | 23,880,000  |
| Assam . . . . .        | 1,240,000  | ...        | 50,000      | ...       | 380,000    | 1,670,000   |
| Punjab . . . . .       | 730,000    | 6,640,000  | 12,160,000  | 640,000   | 1,340,000  | 21,510,000  |
| Oudh . . . . .         | 2,220,000  | 1,550,000  | 6,140,000   | 80,000    | 520,000    | 10,510,000  |
| North-West Provinces . | 3,930,000  | 3,460,000  | 17,550,000  | 1,450,000 | 2,010,000  | 28,400,000  |
| Central Provinces . .  | 3,710,000  | 4,740,000  | 4,060,000   | 590,000   | 1,490,000  | 14,590,000  |
| Berar, &c. . . . .     | 100,000    | 1,070,000  | 2,920,000   | 1,940,000 | 640,000    | 6,670,000   |
| Lower Burmah . . . .   | 3,850,000  | ...        | 10,000      | 10,000    | 50,000     | 3,920,000   |
| Total . . . . .        | 24,240,000 | 19,890,000 | 73,990,000  | 9,040,000 | 10,560,000 | 137,720,000 |

The wheat area of Bengal is supposed to be about 7,000,000 acres, bringing up the total to nearly 27 millions. The crops which are included above as "Sundries" are :—

|                        | Acres     |           |         |         |         |         |
|------------------------|-----------|-----------|---------|---------|---------|---------|
|                        | Oil-Seed  | Sugar     | Coffee  | Tea     | Indigo  | Tobacco |
| Bombay . . . . .       | 1,810,000 | 80,000    | ...     | ...     | 5,000   | 90,000  |
| Madras . . . . .       | 1,510,000 | 50,000    | 60,000  | 5,000   | 500,000 | 85,000  |
| Assam . . . . .        | 150,000   | 20,000    | ...     | 210,000 | ...     | ...     |
| Punjab . . . . .       | 820,000   | 370,000   | ...     | 10,000  | 75,000  | 65,000  |
| Oudh . . . . .         | 260,000   | 230,000   | ...     | ...     | 20,000  | 10,000  |
| North-West Provinces . | 700,000   | 960,000   | ...     | 10,000  | 300,000 | 40,000  |
| Central Provinces . .  | 1,420,000 | 50,000    | ...     | ...     | ...     | 20,000  |
| Berar, &c. . . . .     | 610,000   | ...       | 290,000 | ...     | ...     | 20,000  |
| Lower Burmah . . . .   | 20,000    | 10,000    | ...     | ...     | ...     | 20,000  |
| Total . . . . .        | 7,300,000 | 1,770,000 | 350,000 | 235,000 | 900,000 | 350,000 |

If we suppose the working agricultural population to be 20 per cent. of the total, the average product of each man's labour in British India will be found as follows :—25 bushels grain, 24 bushels rice, 2½ lbs. cotton, 2½ lbs. tea, 34 lbs. jute, 2½ lbs. coffee, 5 oz. opium, 6 lbs. sugar, 50 lbs. oil-seed, which, with indigo, tobacco, and other products, bring up the average value to £8 sterling per head. Adding animal products, the total will be £10 per head.

The following statement for 1888 gives a comprehensive view :—

|                                | Acres       |                           |               |            |             |
|--------------------------------|-------------|---------------------------|---------------|------------|-------------|
|                                | Under Crops | Available for Cultivation | Not Available | Forest     | Total       |
| Bombay . . . . .               | 26,350,000  | 14,770,000                | 8,450,000     | 5,880,000  | 55,450,000  |
| Madras . . . . .               | 23,330,000  | 13,320,000                | 12,480,000    | 9,370,000  | 58,500,000  |
| Assam . . . . .                | 1,700,000   | 660,000                   | 9,340,000     | 1,900,000  | 13,600,000  |
| Punjab . . . . .               | 20,590,000  | 27,560,000                | 12,110,000    | 4,620,000  | 64,880,000  |
| Oudh . . . . .                 | 8,830,000   | 3,850,000                 | 2,250,000     | 570,000    | 15,500,000  |
| North-West Provinces . . . . . | 25,240,000  | 10,290,000                | 6,700,000     | 5,220,000  | 47,450,000  |
| Central Provinces . . . . .    | 14,140,000  | 8,910,000                 | 7,380,000     | 12,810,000 | 43,240,000  |
| Berar, &c. . . . .             | 6,780,000   | 2,110,000                 | 3,280,000     | 930,000    | 13,100,000  |
| Lower Burmah . . . . .         | 4,270,000   | 23,750,000                | 24,530,000    | 3,260,000  | 55,810,000  |
| Total . . . . .                | 131,230,000 | 105,220,000               | 86,520,000    | 44,560,000 | 367,530,000 |

The aggregate area of the above States is 502 million acres, from which it appears that 135 million acres have not yet been classified as suitable or not for cultivation. The above table is, moreover, irrespective of Bengal and Upper Burmah, the total area of British India, as already shown, being 730 million acres. The following table shows the area of lands irrigated, of lands cultivated without irrigation, of lands uncultivated, and the extent of each Province :—

|                                | Acres      |               |                  |              |             |
|--------------------------------|------------|---------------|------------------|--------------|-------------|
|                                | Irrigated  | Not Irrigated | Crops and Fallow | Uncultivated | Total       |
| Bombay . . . . .               | 2,420,000  | 31,980,000    | 34,400,000       | 36,000,000   | 70,400,000  |
| Madras . . . . .               | 6,230,000  | 22,070,000    | 28,300,000       | 62,550,000   | 90,850,000  |
| Assam . . . . .                | ...        | 2,350,000     | 2,350,000        | 26,300,000   | 28,650,000  |
| Punjab . . . . .               | 6,090,000  | 18,610,000    | 24,700,000       | 70,900,000   | 95,600,000  |
| Oudh . . . . .                 | 2,470,000  | 6,830,000     | 9,300,000        | 6,000,000    | 15,300,000  |
| North-West Provinces . . . . . | 6,210,000  | 21,290,000    | 27,500,000       | 29,600,000   | 57,100,000  |
| Central Provinces . . . . .    | 500,000    | 15,000,000    | 15,500,000       | 58,700,000   | 74,200,000  |
| Berar, &c. . . . .             | 1,000,000  | 7,050,000     | 8,050,000        | 4,350,000    | 12,400,000  |
| Lower Burmah . . . . .         | ...        | 4,700,000     | 4,700,000        | 52,800,000   | 57,500,000  |
| Total . . . . .                | 24,920,000 | 129,880,000   | 154,800,000      | 347,200,000  | 502,000,000 |

Including Bengal, but not Upper Burmah, the products of British India may be estimated as follows (1888) :—

|                           | Product, Tons | Value, £    | Export, Tons | Value, £   |
|---------------------------|---------------|-------------|--------------|------------|
| Wheat . . . . .           | 6,800,000     | 54,400,000  | 700,000      | 5,600,000  |
| Rice . . . . .            | 24,200,000    | 145,000,000 | 1,400,000    | 9,300,000  |
| Cotton . . . . .          | 410,000       | 21,000,000  | 270,000      | 14,400,000 |
| Tea . . . . .             | 45,000        | 5,800,000   | 40,000       | 5,300,000  |
| Jute . . . . .            | 630,000       | 8,000,000   | 480,000      | 6,100,000  |
| Coffee . . . . .          | 40,000        | 4,000,000   | 15,000       | 1,500,000  |
| Opium . . . . .           | 6,000         | 12,000,000  | 5,000        | 10,000,000 |
| Sugar . . . . .           | 100,000       | 1,100,000   | 60,000       | 600,000    |
| Oil-seeds . . . . .       | 900,000       | 10,500,000  | 800,000      | 9,400,000  |
| Various grain } . . . . . | 18,500,000    | 92,500,000  | ...          | ...        |
| Total . . . . .           | ...           | 354,300,000 | ...          | 62,200,000 |

The above values, being computed by the Custom-House in rupees at 24d., are nominal; from each item should be deducted 25 per cent. to get a fair value.

The exports of wheat and rice showed thus :—

| Wheat, Annual Average |         |                   | Rice, Annual Average |           |                   |
|-----------------------|---------|-------------------|----------------------|-----------|-------------------|
| Period                | Tons    | Official Value, £ | Period               | Tons      | Official Value, £ |
| 1873-76               | 72,000  | 600,000           | 1851-60              | 420,000   | 1,800,000         |
| 1877-81               | 190,000 | 1,600,000         | 1861-64              | 990,000   | 3,500,000         |
| 1882-85               | 900,000 | 7,550,000         | 1873-80              | 1,010,000 | 6,400,000         |
| 1886-88               | 950,000 | 7,400,000         | 1881-88              | 1,380,000 | 8,600,000         |

There are statistics for live-stock for the following provinces, but not for Bengal, Assam, or Central Provinces :—

|                          | Cows       | Buffaloes  | Horses  | Mules, &c. | Sheep and Goats |
|--------------------------|------------|------------|---------|------------|-----------------|
| Bombay . . . . .         | 6,480,000  | 1,770,000  | 140,000 | ...        | 3,220,000       |
| Madras . . . . .         | 9,080,000  | 2,450,000  | 40,000  | 105,000    | 9,580,000       |
| Punjab . . . . .         | 9,120,000  | 2,550,000  | 210,000 | 460,000    | 6,160,000       |
| Oudh . . . . .           | 5,520,000  | 1,070,000  | 125,000 | 60,000     | 1,700,000       |
| N. W. Prov . . . . .     | 13,120,000 | 3,120,000  | 325,000 | 270,000    | 4,540,000       |
| Berar, &c. . . . .       | 1,850,000  | 360,000    | 40,000  | 25,000     | 650,000         |
| Lower Burmah } . . . . . | 920,000    | 660,000    | 10,000  | ...        | 20,000          |
| Total . . . . .          | 46,090,000 | 11,980,000 | 890,000 | 920,000    | 25,870,000      |

Including the provinces for which we have no returns, it may be estimated that the total live-stock of India is as follows :—

|                     |            |                    |            |
|---------------------|------------|--------------------|------------|
| Cows . . . . .      | 57,600,000 | Mules, &c. . . . . | 1,150,000  |
| Buffaloes . . . . . | 15,000,000 | Sheep . . . . .    | 13,500,000 |
| Horses . . . . .    | 1,100,000  | Goats . . . . .    | 19,000,000 |

The value of all products may be roughly estimated as follows :—

|                                 |               |
|---------------------------------|---------------|
| Agricultural products . . . . . | £ 320,000,000 |
| Animal products . . . . .       | 80,000,000    |
| Total . . . . .                 | 400,000,000   |

## JAVA

This island is mostly in the hands of a company founded by the King of Holland in 1824; paid-up capital, £3,200,000. There are 18 million inhabitants, who are 'exploited' by the Dutch, yielding a net tribute of 3 millions sterling per annum. Governor Vanden Bosch planted 50 million coffee-trees in 1834, and the industry has thriven.

The goods annually sold by the Java Company at Amsterdam are:—

|                                | Value, £  |
|--------------------------------|-----------|
| Coffee, 100,000 tons . . . . . | 3,300,000 |
| Sugar, 220,000 „ . . . . .     | 4,000,000 |
| Spices, &c. . . . .            | 700,000   |

Total . . . . . 8,000,000

No statistics are published of the area under crops. Tillage is compulsory in the various villages, the Dutch fixing the price that they pay for each product.

The area under tillage in 1887 compared with 1881 as follows:—

|                    | Acres     |           |
|--------------------|-----------|-----------|
|                    | 1881      | 1887      |
| Rice . . . . .     | 4,100,000 | 5,100,000 |
| Maize . . . . .    | 800,000   | 1,600,000 |
| Sugar . . . . .    | 52,000    | 105,000   |
| Tobacco . . . . .  | 190,000   | 185,000   |
| Cotton . . . . .   | 25,000    | 42,000    |
| Beans . . . . .    | 280,000   | 390,000   |
| Sandries . . . . . | 953,000   | 1,078,000 |
| Total . . . . .    | 6,400,000 | 8,500,000 |

The improvement is mainly due to the new agrarian law, giving settlers a squatter's tenure for seventy-five years. Besides the lands held by the Dutch Company, there were in 1886 the following estates:—

|                     | No. | Acres     | Average, Acres |
|---------------------|-----|-----------|----------------|
| Europeans . . . . . | 121 | 1,980,000 | 16,500         |
| Chinese . . . . .   | 229 | 710,000   | 3,100          |
| Malays, &c. . . . . | 55  | 42,000    | 730            |
| Total . . . . .     | 405 | 2,732,000 | 6,800          |

The area under sugar was as follows:—

| Year           | Acres   |               |        |
|----------------|---------|---------------|--------|
|                | Company | Private Lands | Total  |
| 1879 . . . . . | 70,000  | 8,000         | 78,000 |
| 1887 . . . . . | 25,000  | 46,000        | 71,000 |

The production of chinchona was as follows:—

| Year           | Tons    |         |       |
|----------------|---------|---------|-------|
|                | Company | Private | Total |
| 1882 . . . . . | 126     | 48      | 174   |
| 1886 . . . . . | 263     | 672     | 935   |

The crops of 1886 also comprised 80,000 tons coffee, 300,000 tons sugar, 12,000 tons tobacco, 700 tons indigo, and 3400 tons tea.

## JAPAN

The area may be described as follows:—

|                      | Acres      |            |            |                    | Acres      |
|----------------------|------------|------------|------------|--------------------|------------|
|                      | Public     | Private    | Total      |                    |            |
| Open . . . . .       | 29,780,000 | 2,960,000  | 32,740,000 | Rice . . . . .     | 6,460,000  |
| Cultivated . . . . . | ...        | 11,500,000 | 11,500,000 | Grain, &c. . . . . | 4,110,000  |
| Forest . . . . .     | 16,900,000 | 18,300,000 | 35,200,000 | Pasture . . . . .  | 33,630,000 |
| Total . . . . .      | 46,680,000 | 32,760,000 | 79,440,000 | Total . . . . .    | 44,200,000 |

In 1887 the statistics showed as follows:—

|                     | Acres     | Tons      | Cwts. per Acre |
|---------------------|-----------|-----------|----------------|
| Rice . . . . .      | 6,460,000 | 5,000,000 | 16             |
| Wheat . . . . .     | 3,900,000 | 2,200,000 | 11             |
| Buckwheat . . . . . | 390,000   | 140,000   | 7              |
| Millet . . . . .    | 590,000   | 300,000   | 10             |
| Beans . . . . .     | 1,140,000 | 400,000   | 7              |
| Sorghum . . . . .   | 70,000    | 35,000    | 10             |
| Sugar . . . . .     | ...       | 35,000    | ...            |
| Tea . . . . .       | ...       | 25,000    | ...            |

## WEST INDIES, BRITISH

The islands and the colony of Guiana on the mainland show approximately as follows:—

## ACRES

|                           | Sugar   | Sundries  | Culti- vated | Unculti- vated | Area       |
|---------------------------|---------|-----------|--------------|----------------|------------|
| Jamaica . . . . .         | 35,000  | 565,000   | 600,000      | 2,100,000      | 2,700,000  |
| Trinidad . . . . .        | 50,000  | 680,000   | 730,000      | 370,000        | 1,100,000  |
| Small islands } . . . . . | 80,000  | 520,000   | 600,000      | 3,800,000      | 4,400,000  |
| Guiana . . . . .          | 80,000  | 80,000    | 160,000      | 69,840,000     | 70,000,000 |
| Total . . . . .           | 245,000 | 1,845,000 | 2,090,000    | 76,110,000     | 78,200,000 |

The sugar crop of the islands has fluctuated thus:—

| Year           | Tons    | Year           | Tons    |
|----------------|---------|----------------|---------|
| 1824 . . . . . | 400,000 | 1877 . . . . . | 160,000 |
| 1830 . . . . . | 220,000 | 1887 . . . . . | 220,000 |

Jamaica is capable of producing much more than it does, not quite one-fourth of the island being cultivated.

The rice crop averages 5 million tons, of which 400,000 are used for making Sake beer, 150,000 for confectionery, and the rest for food. A bushel of rice produces 10 gallons of Sake, the quantity produced being about 160 million gallons yearly. There are 266 great land-lords, called Daimios, who have rent-rolls from £15,000 a year upwards. They own most of Japan, and have 893,000 tenants. The value of the crops is approximately as follows: rice, £30,000,000; wheat, £17,200,000; other grain, £6,700,000; tea, £2,700,000; sugar and sundries, £1,400,000; making a total of 58 millions sterling for 13 million acres under crops.

The area under all crops and the production of sugar compare thus with population :—

|                    | Popula-<br>tion | Tillage   |                     | Sugar   |                        |
|--------------------|-----------------|-----------|---------------------|---------|------------------------|
|                    |                 | Acres     | Per In-<br>habitant | Tons    | Lbs. per<br>Inhabitant |
| Jamaica .          | 600,000         | 600,000   | 1.0                 | 40,000  | 150                    |
| Trinidad .         | 180,000         | 730,000   | 5.1                 | 70,000  | 800                    |
| Small<br>islands } | 510,000         | 600,000   | 1.2                 | 110,000 | 500                    |
| Guiana .           | 280,000         | 160,000   | 0.6                 | 140,000 | 1,100                  |
| Total .            | 1,570,000       | 2,090,000 | 1.3                 | 360,000 | 500                    |

SPANISH WEST INDIES

The possessions are now reduced to two islands, viz :—

|              | Acres      | Population | Acres per<br>Inhabitant | Sugar<br>Crop, Tons |
|--------------|------------|------------|-------------------------|---------------------|
| Cuba . . .   | 30,700,000 | 1,020,000  | 30                      | 580,000             |
| Porto Rico . | 2,400,000  | 640,000    | 4                       | 120,000             |
| Total .      | 33,100,000 | 1,660,000  | 20                      | 700,000             |

Cuba is naturally a productive island, one-half larger than Ireland, but ruined by misgovernment and taxation. A rebellion, which lasted ten years, was put down in 1878, after one-third of the sugar estates had been burnt, reducing the number from 1190 to 700. The Census of 1880 showed 192 coffee estates, 700 sugar plantations, 4500 vegas or tobacco-fields, 3200 potreros or cattle farms, and 17,000 small farms and plantations.

The export of sugar has been :—

| Year              | Tons    |
|-------------------|---------|
| 1833 . . . . .    | 90,000  |
| 1869-73 . . . . . | 660,000 |
| 1874-78 . . . . . | 580,000 |
| 1880-86 . . . . . | 540,000 |

The tobacco crop averages 20,000 tons, value 5 millions sterling, sugar being worth about 10 millions. The total value of products is over 20 millions.

Porto Rico, about the size of Corsica, suffers in a less degree than Cuba from exorbitant export duties.

The crops average :—

|                   | Tons    | Value, £  |
|-------------------|---------|-----------|
| Sugar . . . . .   | 120,000 | 1,500,000 |
| Coffee . . . . .  | 20,000  | 1,200,000 |
| Tobacco . . . . . | 10,000  | 500,000   |
| Total . . . . .   | ...     | 3,200,000 |

The area under crops is less than one-fourth of the island. Cattle-farms also cover a portion.

CANARY ISLANDS

Another Spanish colony, backward owing to misgovernment. The islands are :—

|                       | Acres     | Population | Acres per<br>Inhabitant |
|-----------------------|-----------|------------|-------------------------|
| Teneriffe . . . . .   | 680,000   | 94,000     | 7                       |
| Grand Canary . . .    | 580,000   | 69,000     | 8                       |
| Palma . . . . .       | 160,000   | 31,000     | 5                       |
| Other islands . . . . | 380,000   | 43,000     | 9                       |
| Total . . . . .       | 1,700,000 | 237,000    | 7                       |

Most of the soil is barren, official returns showing only 450,000 acres under cultivation. The value of the farms in 1860 was assessed at 13 millions sterling; that of the wine and grain crops, £400,000. The crops averaged 6

million gallons of wine, 800,000 bushels of grain, 40,000 tons of potatoes, and 6 million lbs. cochineal.

PHILIPPINE ISLANDS

Also Spanish, and badly governed. There are 10 large and 970 small islands, with an aggregate area of 85 million acres, of which 5 per cent. is cultivated.

Luzon has 2,670,000 acres, the other islands 1,780,000, under tillage, viz :—

|                        | Acres     | Crops            |
|------------------------|-----------|------------------|
| Rice . . . . .         | 3,140,000 | 60,000,000 bush. |
| Sugar . . . . .        | 640,000   | 450,000 tons     |
| Hemp . . . . .         | 260,000   | ...              |
| Tobacco, coffee, &c. . | 410,000   | ...              |
| Total . . . . .        | 4,450,000 | ...              |

About one-third of the sugar is exported, besides 10,000 tons of tobacco. Coffee was first planted in 1836, and the crop now reaches 60,000 tons. There are 160 sugar-estates with steam-mills. The canals made by the Jesuits have been suffered to fill up.

ALCOHOL

The degrees in wines and liquors are :—

|                    |      |                     |      |                    |      |
|--------------------|------|---------------------|------|--------------------|------|
| Beer . . . . .     | 4.0  | Gooseberry . . . .  | 11.8 | Ratafia . . . . .  | 21.0 |
| Porter . . . . .   | 4.5  | Champagne . . . . . | 12.2 | Madeira . . . . .  | 21.0 |
| Ale . . . . .      | 7.4  | Claret . . . . .    | 13.3 | Port . . . . .     | 23.2 |
| Cider . . . . .    | 8.6  | Burgundy . . . . .  | 13.6 | Curacao . . . . .  | 27.0 |
| Perry . . . . .    | 8.8  | Malaga . . . . .    | 17.3 | Aniseed . . . . .  | 33.0 |
| Elder . . . . .    | 9.3  | Lisbon . . . . .    | 18.5 | Maraschino . . . . | 34.0 |
| Moselle . . . . .  | 9.6  | Canary . . . . .    | 18.8 | Chartreuse . . . . | 43.0 |
| Tokay . . . . .    | 10.2 | Sherry . . . . .    | 19.0 | Gin . . . . .      | 51.6 |
| Rhine . . . . .    | 11.0 | Vermouth . . . . .  | 19.0 | Brandy . . . . .   | 53.4 |
| Orange . . . . .   | 11.2 | Cape . . . . .      | 19.2 | Rum . . . . .      | 53.7 |
| Bordeaux . . . . . | 11.5 | Malmsey . . . . .   | 19.7 | Irish whisky . . . | 53.9 |
| Hock . . . . .     | 11.6 | Marsala . . . . .   | 20.2 | Scotch whisky . .  | 54.3 |

Spirits are said to be "proof" when they contain 57 per cent. The maximum amount of alcohol, says Parkes, that a man takes daily without injury to his health is that contained in 2 oz. brandy,  $\frac{1}{2}$  pint of sherry,  $\frac{1}{2}$  pint claret, or 1 pint of beer.

ALCOHOLIC DRINKS

The consumption of all kinds of liquor is as follows :—

|                     | Millions of Gallons |                   |                                      | Gallons per Inhab. |                   |         |                          |
|---------------------|---------------------|-------------------|--------------------------------------|--------------------|-------------------|---------|--------------------------|
|                     | Wine                | Beer and<br>Cider | Spirits<br>All Reduced<br>to Alcohol | Wine               | Beer and<br>Cider | Spirits | Equivalent<br>in Alcohol |
| U. Kingdom . . . .  | 14                  | 1,020             | 34                                   | 71                 | 0.4               | 27.0    | 0.9                      |
| France . . . . .    | 750                 | 410               | 40                                   | 131                | 19.0              | 11.0    | 1.9                      |
| Germany . . . . .   | 120                 | 880               | 60                                   | 86                 | 2.5               | 18.0    | 1.3                      |
| Russia . . . . .    | 40                  | 80                | 91                                   | 52                 | 0.5               | 0.9     | 1.0                      |
| Austria . . . . .   | 200                 | 250               | 30                                   | 45                 | 5.2               | 6.5     | 1.6                      |
| Italy . . . . .     | 480                 | 30                | 13                                   | 56                 | 16.5              | 1.0     | 0.4                      |
| Spain . . . . .     | 260                 | 5                 | 5                                    | 29                 | 15.0              | 0.3     | 0.3                      |
| Portugal . . . . .  | 60                  | 1                 | 1                                    | 7                  | 12.7              | 0.2     | 0.2                      |
| Sweden . . . . .    | 2                   | 30                | 20                                   | 11                 | 0.4               | 6.2     | 4.2                      |
| Norway . . . . .    | 1                   | 10                | 7                                    | 4                  | 0.4               | 5.0     | 3.5                      |
| Denmark . . . . .   | 1                   | 25                | 8                                    | 5                  | 0.5               | 12.5    | 4.0                      |
| Holland . . . . .   | 3                   | 40                | 12                                   | 8                  | 0.7               | 8.8     | 2.6                      |
| Belgium . . . . .   | 4                   | 170               | 10                                   | 14                 | 0.7               | 28.5    | 1.6                      |
| Switzerland . . . . | 30                  | 10                | 5                                    | 6                  | 10.0              | 3.3     | 1.7                      |
| Roumania . . . . .  | 16                  | 10                | 4                                    | 5                  | 3.0               | 1.8     | 1.0                      |
| Servia . . . . .    | 10                  | 4                 | 2                                    | 3                  | 5.0               | 2.0     | 1.0                      |
| Europe . . . . .    | 1,991               | 2,975             | 342                                  | 523                | 6.0               | 9.0     | 1.1                      |
| United States . . . | 21                  | 630               | 76                                   | 73                 | 0.4               | 10.5    | 1.3                      |
| Canada . . . . .    | 3                   | 40                | 5                                    | 5                  | 0.6               | 8.0     | 1.0                      |
| Australia . . . . . | 2                   | 40                | 3                                    | 4                  | 0.6               | 12.0    | 1.0                      |
| Total . . . . .     | 2,017               | 3,685             | 426                                  | 605                | 5.0               | 8.8     | 1.1                      |

The value of liquor consumed may be summed up as follows:—

|                                   | Million £ |
|-----------------------------------|-----------|
| 2,007 million gallons wine (20d.) | 167       |
| 3,685 „ „ beer, &c. (16d.)        | 240       |
| 420 „ „ spirits (48d.)            | 85        |
| Total                             | 492       |

#### LIQUOR CONSUMPTION IN UNITED KINGDOM PER ANNUM

| Year      | Millions of Gallons |                |         |                       | Gallons per Inhabitant |                |         |                       |
|-----------|---------------------|----------------|---------|-----------------------|------------------------|----------------|---------|-----------------------|
|           | Wine                | Beer and Cider | Spirits | Equivalent in Alcohol | Wine                   | Beer and Cider | Spirits | Equivalent in Alcohol |
| 1700-20   | 3                   | 390            | 3       | 21                    | 0.3                    | 43             | 0.3     | 2.32                  |
| 1720-50   | 3                   | 530            | 6       | 30                    | 0.3                    | 53             | 0.6     | 3.00                  |
| 1760-80   | 4                   | 560            | 4       | 31                    | 0.3                    | 51             | 0.3     | 2.76                  |
| 1790-1800 | 6                   | 370            | 6       | 23                    | 0.4                    | 27             | 0.4     | 1.63                  |
| 1810-20   | 6                   | 490            | 10      | 31                    | 0.3                    | 26             | 0.5     | 1.61                  |
| 1830-50   | 6                   | 670            | 23      | 47                    | 0.2                    | 26             | 0.9     | 1.79                  |
| 1850-70   | 11                  | 810            | 28      | 57                    | 0.3                    | 27             | 1.0     | 1.91                  |
| 1871-80   | 16                  | 1,005          | 34      | 70                    | 0.5                    | 30             | 1.0     | 2.10                  |
| 1886-88   | 14                  | 1,020          | 34      | 71                    | 0.4                    | 27             | 0.9     | 1.88                  |

On this subject G. R. Porter (1843) gives good reasons that the consumption of alcohol affords no evidence as to intemperance. This is confirmed by the fact that, although convictions for drunkenness per 1000 inhabitants are much higher in Ireland than in England, the consumption of alcohol is one-third less. The consumption of liquor in 1885 was as follows:—

|                       | Gallons, Millions |          |         |                | Gallons per Inhabitant |          |         |                |
|-----------------------|-------------------|----------|---------|----------------|------------------------|----------|---------|----------------|
|                       | England           | Scotland | Ireland | United Kingdom | England                | Scotland | Ireland | United Kingdom |
| Beer                  | 880               | 48       | 80      | 1,008          | 32                     | 16       | 16      | 28             |
| Cider                 | 12                | ...      | ...     | 12             | 0.4                    | ...      | ...     | 0.3            |
| Spirits               | 23                | 7        | 5       | 35             | 0.8                    | 1.9      | 1.0     | 0.9            |
| Wine                  | 12                | 1        | 1       | 14             | 0.5                    | 0.5      | 0.2     | 0.4            |
| Equivalent in alcohol | 59                | 6        | 7       | 72             | 2.13                   | 1.60     | 1.40    | 2.00           |

See *Beer, Cider, Spirits, Wine*, under their proper titles.

#### UNITED STATES

The returns of the Excise Department show consumption as follows:—

| Year | Million Gallons |      |      |                       | Gallons per Inhabitant |      |      |                       |
|------|-----------------|------|------|-----------------------|------------------------|------|------|-----------------------|
|      | Spirits         | Wine | Beer | Equivalent in Alcohol | Spirits                | Wine | Beer | Equivalent in Alcohol |
| 1840 | 43              | 6    | 23   | 24                    | 2.5                    | 0.3  | 1.4  | 1.38                  |
| 1850 | 52              | 6    | 37   | 29                    | 2.2                    | 0.3  | 1.6  | 1.24                  |
| 1860 | 90              | 11   | 101  | 52                    | 2.9                    | 0.4  | 3.2  | 1.70                  |
| 1870 | 80              | 12   | 204  | 50                    | 2.1                    | 0.3  | 5.3  | 1.38                  |
| 1880 | 64              | 28   | 413  | 58                    | 1.2                    | 0.6  | 8.3  | 1.14                  |
| 1889 | 81              | 34   | 780  | 87                    | 1.3                    | 0.5  | 13.0 | 1.31                  |

The above does not include cider, the consumption of which may reach 20 million gallons yearly, or one-third of a gallon per head. This would make the total consumption of alcohol about 1.34 per inhabitant, against 1.88 in the United Kingdom.

#### FRANCE

The annual consumption of wine, beer, and spirits has been as follows:—

| Year    | Million Gallons |      |         |                       | Gallons per Inhabitant |      |         |                       |
|---------|-----------------|------|---------|-----------------------|------------------------|------|---------|-----------------------|
|         | Wine            | Beer | Spirits | Equivalent in Alcohol | Wine                   | Beer | Spirits | Equivalent in Alcohol |
| 1810-12 | 447             | 56   | 7       | 52                    | 16                     | 2    | 0.3     | 1.80                  |
| 1830-32 | 484             | 62   | 8       | 55                    | 16                     | 2    | 0.3     | 1.80                  |
| 1840-42 | 766             | 96   | 11      | 88                    | 23                     | 3    | 0.4     | 2.50                  |
| 1850-52 | 882             | 110  | 14      | 101                   | 25                     | 3    | 0.4     | 2.70                  |
| 1860-62 | 655             | 140  | 19      | 83                    | 18                     | 4    | 0.5     | 2.10                  |
| 1870-72 | 940             | 155  | 22      | 113                   | 25                     | 5    | 0.6     | 2.80                  |
| 1880-82 | 805             | 190  | 34      | 107                   | 21                     | 6    | 0.9     | 2.60                  |
| 1886-88 | 750             | 200  | 40      | 105                   | 19                     | 6    | 1.1     | 2.50                  |

The above does not include cider, of which 200 million gallons are consumed yearly. See *Wine, Beer, &c.*

The French Government publishes the following table of the production and consumption of alcohol:—

| Year | Gallons Produced | Value, £  | Pence per Gallon | Gallons Consumed | Gallons per Inhabitant |
|------|------------------|-----------|------------------|------------------|------------------------|
| 1850 | 20,700,000       | 2,150,000 | 25               | 12,800,000       | 0.32                   |
| 1860 | 19,100,000       | 2,870,000 | 36               | 18,700,000       | 0.50                   |
| 1870 | 27,300,000       | 2,840,000 | 25               | 19,400,000       | 0.51                   |
| 1880 | 34,800,000       | 4,480,000 | 31               | 28,800,000       | 0.80                   |
| 1885 | 40,900,000       | 3,580,000 | 21               | 31,700,000       | 0.85                   |

#### EXPENDITURE ON ALCOHOLIC LIQUORS

|                    | Millions Sterling |      |       |         |       | Amount per Inhabitant |
|--------------------|-------------------|------|-------|---------|-------|-----------------------|
|                    | Wine              | Beer | Cider | Spirits | Total |                       |
| United Kingdom     | 3                 | 68   | 1     | 7       | 79    | £ s. d.<br>2 2 0      |
| France             | 63                | 13   | 8     | 8       | 92    | 2 8 0                 |
| Germany            | 10                | 59   | ...   | 12      | 81    | 1 14 0                |
| Russia             | 4                 | 5    | ...   | 14      | 23    | 0 5 6                 |
| Austria            | 17                | 17   | ...   | 6       | 40    | 1 1 0                 |
| Italy              | 37                | 2    | ...   | 2       | 41    | 1 8 0                 |
| Spain and Portugal | 37                | ...  | ...   | 1       | 38    | 1 15 0                |
| Sweden and Norway  | 1                 | 3    | ...   | 6       | 10    | 1 9 0                 |
| Belgium            | 1                 | 11   | ...   | 2       | 14    | 2 7 0                 |
| Holland            | 1                 | 3    | ...   | 2       | 6     | 1 7 0                 |
| United States      | 3                 | 42   | 1     | 19      | 65    | 1 1 0                 |
| Total              | 177               | 223  | 10    | 79      | 489   | 1 5 0                 |

The foregoing values are "in bond," that is, in first hands, and exclusive of duties, which come under the head of taxation. See *Wine, Beer, Drunkenness*.

#### AMPHITHEATRES

The first, of stone, was built by Statilius for the Emperor Augustus, in the Campus Martius, Rome. The Colosseum, begun by Vespasian, was finished by Titus, A.D. 80, and held 100,000 spectators.

The dimensions of the principal amphitheatres were:—

|           |                |
|-----------|----------------|
| Colosseum | 615 x 510 feet |
| Verona    | 513 x 410 "    |
| Vienne    | 508 x 436 "    |
| Pozzuoli  | 480 x 382 "    |
| Arles     | 460 x 338 "    |
| Limoges   | 450 x 378 "    |
| Nismes    | 437 x 332 "    |
| Pompeii   | 430 x 335 "    |

The height ranged from 60 to 100 feet, except the Colosseum, which was 164 feet high.

## ANATOMY

**Blood.**—An adult has ordinarily 28 lbs. of blood, and at each pulsation the heart sends 10 lbs. through the veins and arteries. The pulsations are 120 per minute in infancy, 80 in manhood, 60 in old age, and rather more in women than in men.

The components of human blood are:—

|                     | Man   | Woman |
|---------------------|-------|-------|
| Water . . . . .     | 77.8  | 79.6  |
| Albumen . . . . .   | 6.2   | 6.4   |
| Colour . . . . .    | 14.1  | 12.2  |
| Saline, &c. . . . . | 1.9   | 1.8   |
|                     | 100.0 | 100.0 |

Human blood compares with that of the brute creation as follows:—

|                         | Man   | Ox    | Sheep | Dog   | Pig   | Chicken |
|-------------------------|-------|-------|-------|-------|-------|---------|
| Chlor. of sod. . . . .  | 58.5  | 46.7  | 57.1  | 50.5  | 41.3  | 50.3    |
| Soda . . . . .          | 4.2   | 21.9  | 13.3  | 3.9   | 7.6   | 14.3    |
| Potash . . . . .        | 12.0  | 7.0   | 5.3   | 17.2  | 22.2  | 4.4     |
| Lime . . . . .          | 1.7   | 0.8   | 1.0   | 0.4   | 1.2   | 1.0     |
| Magnesia . . . . .      | 1.0   | 0.4   | 0.3   | 2.5   | 1.2   | 0.8     |
| Oxide of iron . . . . . | 8.3   | 7.0   | 8.7   | 10.7  | 9.1   | 9.1     |
| Phosph. acid. . . . .   | 10.2  | 4.2   | 5.2   | 12.8  | 12.3  | 13.4    |
| Sulph. . . . .          | 1.7   | 1.2   | 1.7   | 1.4   | 1.7   | 4.1     |
| Carbon . . . . .        | 1.2   | 6.0   | 7.0   | 0.5   | 0.7   | ...     |
| Sundries . . . . .      | 1.2   | 4.8   | 0.4   | 0.1   | 2.7   | 2.6     |
| Total . . . . .         | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0   |

The temperature of human blood averages as follows (Fahrenheit):—

|                       |       |                       |       |
|-----------------------|-------|-----------------------|-------|
| Good health . . . . . | 98.6  | Strong fever, morning | 102.2 |
| Fever . . . . .       | 101.3 | " " afternoon         | 104.0 |

The following table shows the temperature of man compared with some of the brute creation:—

|                    |      |                   |       |
|--------------------|------|-------------------|-------|
| Snail . . . . .    | 76   | Cat . . . . .     | 102   |
| Oyster . . . . .   | 82   | Ox . . . . .      | 102   |
| Man . . . . .      | 98.6 | Monkey . . . . .  | 104.5 |
| Horse . . . . .    | 99.5 | Sheep . . . . .   | 104.5 |
| Porpoise . . . . . | 100  | Hog . . . . .     | 105   |
| Rat . . . . .      | 102  | Chicken . . . . . | 111   |

The quantity of iron in blood is shown thus:—

|               | Grammes per Ton | Ox. per Cwt. |                | Grammes per Ton | Ox. per Cwt. |
|---------------|-----------------|--------------|----------------|-----------------|--------------|
| Man . . . . . | 510             | 0.91         | Pig . . . . .  | 590             | 1.06         |
| Ox . . . . .  | 560             | 1.00         | Frog . . . . . | 420             | 0.75         |

According to the *Dic. Sci. Med.*, the dimensions of the globules of blood, in parts of a millimetre, are:—

|                 |      |                    |      |
|-----------------|------|--------------------|------|
| Goat . . . . .  | 0043 | Ape . . . . .      | 0071 |
| Sheep . . . . . | 0048 | Duck . . . . .     | 0074 |
| Horse . . . . . | 0055 | Man . . . . .      | 0077 |
| Ox . . . . .    | 0058 | Fish . . . . .     | 0084 |
| Pig . . . . .   | 0063 | Elephant . . . . . | 0095 |
| Hare . . . . .  | 0070 | Tortoise . . . . . | 0117 |
| Goose . . . . . | 0070 | Frog . . . . .     | 0133 |
| Dog . . . . .   | 0070 | Snake . . . . .    | 0188 |

A human adult has half an ounce of sugar in his blood, which is proportionately more than a sheep and less than a cow.

**Brain.**—The latest classification of races, according to Bastian and other experts, shows weight of brain as follows:—

|                   | Oz.  |                     | Oz.  |
|-------------------|------|---------------------|------|
| Scotch . . . . .  | 50.0 | Pawnees . . . . .   | 47.1 |
| Germans . . . . . | 49.6 | Italians . . . . .  | 46.9 |
| English . . . . . | 49.5 | Hindoo . . . . .    | 45.1 |
| French . . . . .  | 47.9 | Gypsy . . . . .     | 44.8 |
| Zulus . . . . .   | 47.5 | Bushmen . . . . .   | 44.6 |
| Chinese . . . . . | 47.2 | Esquimaux . . . . . | 43.9 |

\* For a complete alphabetical list, see *Animals*.

Compared with size of body, the brain of the Esquimaux is as heavy as the Scotchman's.

The measurement of that part of the skull which holds the brain is stated in cubic inches thus:—

|                       |     |                             |    |
|-----------------------|-----|-----------------------------|----|
| Anglo-Saxon . . . . . | 105 | Ancient Egyptian . . . . .  | 93 |
| German . . . . .      | 105 | Hottentot . . . . .         | 58 |
| Negro . . . . .       | 96  | Australian native . . . . . | 58 |

In all races the male brain is about 10 per cent. heavier than the female. The highest class of apes has only 16 oz. of brain.

After the age of 50 the brain loses an ounce every 10 years. Cuvier's weighed 64, Byron's 79, and Cromwell's 90 ounces, but the last was diseased. Post-mortem examinations in France give an average of 55 to 60 ounces for the brains of the worst class of criminals.

**Hair.**—The number of hairs on an adult's head usually ranges from 129,000 to 150,000.

## Nervous System

|                      | Infants | Youths | Adults | Aged Persons | Idiots |
|----------------------|---------|--------|--------|--------------|--------|
| Water . . . . .      | 82.8    | 74.3   | 72.5   | 73.9         | 70.9   |
| Albumen . . . . .    | 7.0     | 10.2   | 9.4    | 8.6          | 8.4    |
| Fat . . . . .        | 3.5     | 5.3    | 6.1    | 4.3          | 5.0    |
| Salts, &c. . . . .   | 5.9     | 8.6    | 10.2   | 12.2         | 14.8   |
| Phosphorus . . . . . | 0.8     | 1.6    | 1.8    | 1.0          | 0.9    |
| Total . . . . .      | 100.0   | 100.0  | 100.0  | 100.0        | 100.0  |

**Respiratory System.**—The quantity of carbonic acid exhaled in twenty-four hours is as follows:—

| Person          | Age | Oz. Exhaled | Person        | Age | Oz. Exhaled |
|-----------------|-----|-------------|---------------|-----|-------------|
| Girl . . . . .  | 10  | 9           | Boy . . . . . | 16  | 16          |
| Boy . . . . .   | 10  | 10          | Man . . . . . | 28  | 17          |
| Woman . . . . . | 19  | 12          |               |     |             |

The quantity varies according to exertion, viz.:—

|                                 | Oz. per Hour |                     | Oz. per Hour |
|---------------------------------|--------------|---------------------|--------------|
| Sleeping . . . . .              | 0.6          | Riding . . . . .    | 4.0          |
| Walking 2 miles per hr. . . . . | 2.1          | Swimming . . . . .  | 4.4          |
| " 3 " " " . . . . .             | 3.0          | Treadmill . . . . . | 5.5          |

**Sight.**—Experiments for the British Association, in 1889, gave the following result:—

|             | Judgment of Eye in<br>Dividing a Line<br>into Halves |         | Judgment of Eye in<br>Estimating an Angle<br>of 90 Degrees |         |
|-------------|------------------------------------------------------|---------|------------------------------------------------------------|---------|
|             | Males                                                | Females | Males                                                      | Females |
| Correct . . | 35.6                                                 | 45.5    | 63.0                                                       | 33.7    |
| Incorrect . | 64.4                                                 | 54.5    | 37.0                                                       | 66.3    |
| Total       | 100.0                                                | 100.0   | 100.0                                                      | 100.0   |

The colour of the eyes was as follows:—

|                  | Males | Females |
|------------------|-------|---------|
| Light . . . . .  | 44.6  | 34.2    |
| Medium . . . . . | 43.1  | 45.1    |
| Dark . . . . .   | 12.3  | 20.7    |
| Total . . . . .  | 100.0 | 100.0   |

**Sleep.**—The *Dic. Sci. Med.* mentions many cases of forty days and upwards.

**Sweat.**—It has been analysed by Funke and Schottin thus:—

|                        | Funke   | Schottin |
|------------------------|---------|----------|
| Water . . . . .        | 98.84   | 97.74    |
| Salt . . . . .         | 44      | 70       |
| Other solids . . . . . | 72      | 1.56     |
| Total . . . . .        | 100.000 | 100.000  |



Krause says an adult perspires 800 grammes, that is, 28 oz. in twenty-four hours. Funke states the quantity of sweat thrown off by an adult as follows:—

| Temperature, Shade (Fahr.) | Condition                 | Oz. per Hour | Percentage of Solid Matter |
|----------------------------|---------------------------|--------------|----------------------------|
| 64                         | Walking in a room . .     | 1.2          | 2.56                       |
| 68                         | Walking in a room . .     | 1.7          | 1.70                       |
| 66                         | Walking quickly in a room | 2.6          | 1.17                       |
| 55                         | Walking out of doors . .  | 4.7          | 0.79                       |
| 80                         | Walking in the sun . .    | 11.3         | 0.84                       |
| 77                         | Running in the sun . .    | 13.7         | 0.82                       |
| 88                         | Running in the sun . .    | 18.0         | 0.86                       |

*Urine.*—Harley says that the urine of males and females, age 25, weight 154 lbs., will be found to average thus, in grammes:—

|                        | Men  | Women |
|------------------------|------|-------|
| Organic matter . . .   | 36.6 | 31.5  |
| Inorganic matter . . . | 16.4 | 13.5  |

The temperature is the same as that of the blood. The composition varies with race, viz.:—

|                   | Grammes              |
|-------------------|----------------------|
| French . . . . .  | 39.5 of solid matter |
| English . . . . . | 53.0 " "             |
| German . . . . .  | 67.8 " "             |

A man in good health, weight 140 lbs., secretes 49 oz. in twenty-four hours; a woman 35 oz. Children emit 50 per cent. more for their weight than adults. Food has a direct influence. Lehmann says that 100 oz. of animal food, such as eggs, give 97 oz. of urine, and 100 oz. of vegetable food only 74 of urine.

*Weight.*—Banting gives the following scale of normal weights for height:—

| Inches | Lbs. | Inches | Lbs. | Inches | Lbs. | Inches | Lbs. |
|--------|------|--------|------|--------|------|--------|------|
| 61 ... | 120  | 64 ... | 136  | 67 ... | 148  | 70 ... | 169  |
| 62 ... | 126  | 65 ... | 142  | 68 ... | 155  | 71 ... | 174  |
| 63 ... | 133  | 66 ... | 145  | 69 ... | 162  | 72 ... | 178  |

Detailed tables on this subject will be found under *Anthropometry*.

## ANIMALS

The temperature of the animal creation, in Fahrenheit, is as follows:—

|                    |                      |                    |
|--------------------|----------------------|--------------------|
| Ape . . . . . 104  | Guinea-pig . . . 100 | Porpoise . . . 100 |
| Bat . . . . . 100  | Hare . . . . . 100   | Rabbit . . . 100   |
| Cat . . . . . 102  | Hen . . . . . 108    | Rat . . . . . 102  |
| Chicken . . . 111  | Hog . . . . . 105    | Serpent . . . 88   |
| Crow . . . . . 109 | Horse . . . . . 99   | Shark . . . . 77   |
| Dog . . . . . 102  | Jackal . . . 101     | Sheep . . . 104    |
| Donkey . . . 98    | Jackdaw . . . 107    | Snail . . . . . 76 |
| Duck . . . . . 111 | Man . . . . . 99     | Sparrow . . . 108  |
| Elephant . . 100   | Monkey . . . 104     | Squirrel . . . 102 |
| Elk . . . . . 103  | Ox . . . . . 102     | Tiger . . . . . 99 |
| Fox . . . . . 102  | Oyster . . . . 82    | Turkey . . . 109   |
| Glow-worm . . 74   | Panther . . . 102    | Woodcock . . 108   |
| Goat . . . . . 104 | Parrot . . . 106     | Wolf . . . . . 105 |
| Goose . . . . 107  | Petrel . . . . 104   | ...                |
| Guinea-fowl . 111  | Pigeon . . . 109     | ...                |

A draught horse usually weighs 1100 lbs.

The period of gestation among animals is as follows:—

| Days        | Days        | Days        | Days         |
|-------------|-------------|-------------|--------------|
| Rabbit . 30 | Pig . 120   | Bear . 180  | Mare . 342   |
| Cat . 55    | Lion . 150  | Monkey 210  | Camel . 365  |
| Dog . 63    | Sheep . 150 | Cow . 282   | Ass . 385    |
| Wolf . 90   | Goat . 153  | Buffalo 308 | Elephant 730 |

The longest span of life belongs to whales, say 500 years; eagles, say 200; alligators about 300, and elephants

from 100 upwards. The age of toads is said often to exceed any of the foregoing.

|                  | Weight (Lbs.) | Years of Life |                  | Weight (Lbs.) | Years of Life |
|------------------|---------------|---------------|------------------|---------------|---------------|
| Rabbit . . . . . | 5             | 5             | Cow . . . . .    | 750           | 25            |
| Dog . . . . .    | 40            | 15            | Ox . . . . .     | 900           | 25            |
| Sheep . . . . .  | 70            | 12            | Horse . . . . .  | 1,000         | 27            |
| Pig . . . . .    | 160           | 10            | Camel . . . . .  | 1,200         | 40            |
| Lion . . . . .   | 500           | 40            | Elephant . . . . | 6,000         | 100           |

The limits of animal life are not precisely fixed. Hooker found animal life in thermal springs of 208 Fahr., that is, 4 degrees below boiling-point; and again at minus 70° centigrade, equal to 92 degrees below zero Fahrenheit.

*Ape.*—The cranium compares with that of man in dimensions as follows (man 100):—

|                   |                 |                     |
|-------------------|-----------------|---------------------|
| Male gorilla . 35 | Male orang . 29 | Male chimpanze . 28 |
| Female gorilla 31 | Female orang 28 | Female chimpanze 27 |

*Camel.*—A camel has twice the carrying power of an ox; with a load of 400 lbs. he can travel twelve or fourteen days without water, going forty miles a day. They are fit to work at five years old, but their strength begins to decline at twenty-five, and they live till forty. The Tartars have herds of 1000 or more. The patriarch Job had 3000. The Timbuctoo or Meharri breed is used only for couriers, going 800 miles in eight days, with a meal of dates or grain at nightfall. Napoleon conveyed 1500 infantry on camels across the desert from Cairo to St. Jean d'Acre. The caravans from Berber to Suakim use camels carrying 600 lbs., which travel three miles an hour, and earn one penny (English) per mile. These camels are sold from £5 to £20 each; very fine ones fetch up to £40 sterling.

*Cat.*—The number of cats in the United Kingdom is fully seven millions, although a remarkable decrease has been noticed in seaports, owing to exportation. They came into England before the Conquest, for the tariff of indemnity, in the 10th century, valued them at twopence, being equal to two hens or two gallons of beer. Southey mentions that the first settlers in Brazil paid £300 for a cat, and for kittens, their weight in gold-dust. An offer of £500 for a Persian cat at the Sydenham Cat Show in 1869 was refused.

### Dogs

|                       | Number Licensed | Per 1000 Inhabitants |
|-----------------------|-----------------|----------------------|
| Great Britain . . . . | 1,128,000       | 38                   |
| Ireland . . . . .     | 368,000         | 73                   |
| France . . . . .      | 2,864,000       | 75                   |
| Germany . . . . .     | 1,432,000       | 31                   |
| Sweden . . . . .      | 513,000         | 11                   |

The largest known is a St. Bernard dog, Plinlimmon, exhibited at Birmingham 1886: weight, 214 lbs.; height, 35 inches at shoulder.

Sheep-dogs are not taxed in the United Kingdom, and the total number of dogs in the kingdom is at least 2,000,000, say 55 per 1000 inhabitants, worth £800,000. It is found that 100 male dogs go mad as compared with 14 female. A dog accidentally locked up at Metz passed thirty-nine days without food, and recovered.

The number of hunting dogs in the United Kingdom is as follows:—

|                     | England | Ireland | Scotland | United Kingdom |
|---------------------|---------|---------|----------|----------------|
| Stag-hounds . . . . | 604     | 246     | ...      | 850            |
| Fox-hounds . . . .  | 12,865  | 1,522   | 660      | 15,048         |
| Harriers . . . . .  | 3,258   | 1,516   | ...      | 4,774          |
| Beagles . . . . .   | 448     | ...     | 74       | 522            |
| Total . . . . .     | 17,176  | 3,284   | 734      | 21,194         |

The weight of brain in drachms is as follows:—

|                  |                    |                  |
|------------------|--------------------|------------------|
| Sheep-dog . 29.5 | Retriever . . 25.7 | Greyhound . 23.4 |
| Fox-hound . 29.2 | Collie . . . 25.4  | Terrier . . 20.0 |
| Setter . . 26.1  | Bulldog . . 24.0   | Spaniel . . 18.1 |
| Mastiff . . 26.1 | Newfoundland 24.0  | Lapdog . . 18.0  |

As compared with the above, the wolf has 42, the jackal 15, the fox 13, and some classes of apes 120 drachms.

**Elephant.**—The ivory found on an ordinary elephant is 120 lbs., worth £60, and it is necessary to kill 12,000 yearly to supply 650 tons of ivory to the English market, of which Sheffield consumes one-third. A tusk weighing 162 lbs. was shown at London in 1851, but Gordon Cumming since got one of 173 lbs. Tame elephants have risen in price in India, from £45 in 1835, ranging at present between £150 and £800.

The demand for ivory threatens to exterminate elephants in Africa. Stanley calculates the consumption of ivory at 75,000 lbs. a year in Europe, 13,000 in India, and 7000 in United States; that is, 95,000 lbs. a year.

**Kangaroo.**—In 1888 the total number in Australia was 1,170,000, having diminished notably in the last ten years. A kangaroo consumes as much grass as six sheep; for this reason the farmers destroy them.

**Llamas.**—There are four millions in Peru, mostly employed as beasts of burden. The skin weighs 6 lbs., gives 18 feet of leather, and is worth 20s.

**Reindeer.**—Official returns are:—

|               | Herds | Head of Deer | Average |
|---------------|-------|--------------|---------|
| Finland . . . | 2,822 | 44,400       | 15      |
| Norway . . .  | 2,400 | 101,800      | 43      |
| Sweden . . .  | 3,200 | 220,800      | 65      |
| Total . . .   | 8,422 | 367,000      | 44      |

They can travel with a sleigh 130 miles a day, and are worth usually 30s. a head.

**Squirrels.**—There are 25 millions killed annually in Russia for their skins. See *Hunting*.

**Turtle.**—A good-sized one gives 80 lbs. of tortoise-shell.

## ANTHROPOMETRY

The average height of male adults, according to Topinard, is as follows:—

|            | Inches |            | Inches |             | Inches |
|------------|--------|------------|--------|-------------|--------|
| Laplanders | 60.7   | Caucasians | 65.0   | Danes       | 66.2   |
| Bushmen    | 62.0   | Hindoo     | 65.0   | Irish       | 67.0   |
| Malays     | 63.1   | Esquimaux  | 65.0   | English     | 67.4   |
| Peruvians  | 63.1   | Berbers    | 65.0   | Scotch      | 67.4   |
| Burmese    | 63.4   | Russians   | 65.4   | Swedes      | 67.4   |
| Fins       | 63.8   | Kirghese   | 65.4   | Kaffirs     | 67.8   |
| Araucans   | 63.8   | Fuegians   | 65.4   | Iroquois    | 68.2   |
| Chinese    | 64.2   | Germans    | 66.2   | Polynesians | 69.5   |
| Magyars    | 64.2   | Arabs      | 66.2   | Patagonians | 70.3   |
| Jews       | 64.6   | Charruas   | 66.2   | Average     | 65.6   |
| French     | 65.0   | Belgians   | 66.2   |             |        |

## HEIGHT AND WEIGHT OF ENGLISH, BELGIANS, AND AMERICANS

| Age | A.—Height in Inches |               |         |        | B.—Weight in Lbs. |               |         |        |
|-----|---------------------|---------------|---------|--------|-------------------|---------------|---------|--------|
|     | English Male        | American Male | Belgian |        | English Male      | American Male | Belgian |        |
|     |                     |               | Male    | Female |                   |               | Male    | Female |
| 10  | 51.8                | 51.7          | 50.1    | 49.2   | 67                | 66            | 56      | 51     |
| 15  | 62.2                | 62.3          | 59.6    | 58.6   | 103               | 105           | 91      | 88     |
| 20  | 67.5                | 67.4          | 65.8    | 62.0   | 143               | 147           | 131     | 117    |
| 24  | 67.7                | 67.9          | 66.2    | 62.1   | 148               | 147           | 146     | 123    |
| 30  | 67.9                | 68.1          | 66.4    | 62.2   | 156               | 150           | 146     | 122    |

Height is without shoes, but weight includes clothing.

Dr. Gould's measurement of men in the United States army (1863) gave the following table of average:—

| Age         | Natives of    |        |         |         |          |        |         |             | Average |
|-------------|---------------|--------|---------|---------|----------|--------|---------|-------------|---------|
|             | United States | Canada | England | Ireland | Scotland | France | Germany | Scandinavia |         |
| 18-20 . . . | 67.0          | 66.2   | 66.0    | 66.1    | 66.3     | 65.7   | 65.9    | 66.7        | 65.5    |
| 20-22 . . . | 67.9          | 67.0   | 66.5    | 66.7    | 67.0     | 66.2   | 66.6    | 67.3        | 66.1    |
| 22-24 . . . | 68.2          | 67.4   | 66.8    | 67.0    | 67.2     | 66.7   | 66.9    | 67.5        | 66.2    |
| 24-26 . . . | 68.2          | 67.5   | 66.9    | 67.1    | 67.4     | 66.6   | 66.8    | 67.8        | 66.3    |
| 26-28 . . . | 68.3          | 67.5   | 67.0    | 67.2    | 67.3     | 66.7   | 66.8    | 67.6        | 66.4    |
| 28-30 . . . | 68.4          | 67.5   | 67.0    | 67.2    | 67.5     | 66.7   | 66.8    | 67.4        | 66.5    |
| Over 30 . . | 68.4          | 67.5   | 66.9    | 67.1    | 67.6     | 66.7   | 66.8    | 67.4        | 66.3    |
| Average . . | 67.8          | 67.1   | 66.7    | 67.0    | 67.3     | 66.5   | 66.7    | 67.3        | 66.1    |

The above measurement comprised great numbers of men; Irish alone 83,000.

## AVERAGE HEIGHT OF MEN IN EUROPEAN ARMIES (1860)

|              | <i>Inches</i> | <i>Inches</i> | <i>Inches</i> |             |      |
|--------------|---------------|---------------|---------------|-------------|------|
| Italian . .  | 65.0          | Austrian . .  | 66.5          | Irish . .   | 68.0 |
| Spaniard . . | 65.5          | Belgian . .   | 66.9          | Scotch . .  | 68.5 |
| French . .   | 66.0          | Russian . .   | 67.0          | Swede . .   | 68.9 |
| Hungarian .  | 66.1          | English . .   | 67.5          | Norwegian . | 69.0 |

## HEIGHT OF CHILDREN IN VARIOUS COUNTRIES (INCHES)

| Age | Man-<br>chester |       | Brussels         |       | Boston            |       | Turin             |       | Bor-<br>deaux  |       | Average |
|-----|-----------------|-------|------------------|-------|-------------------|-------|-------------------|-------|----------------|-------|---------|
|     | Cowell,<br>1860 |       | Quelete,<br>1870 |       | Bowditch,<br>1877 |       | Pagliani,<br>1876 |       | Leyet,<br>1882 |       |         |
|     | Boys            | Girls | Boys             | Girls | Boys              | Girls | Boys              | Girls | Boys           | Girls |         |
| 5   | ...             | ...   | 39.0             | 38.2  | 41.8              | 41.4  | 38.2              | 38.2  | 41.4           | ...   | 40.1    |
| 6   | ...             | ...   | 41.4             | 40.6  | 43.9              | 43.5  | 41.0              | 40.2  | 42.6           | ...   | 42.2    |
| 7   | ...             | ...   | 43.3             | 42.9  | 45.7              | 45.7  | 44.5              | 42.9  | 45.0           | ...   | 44.6    |
| 8   | ...             | ...   | 45.7             | 44.8  | 47.4              | 47.4  | 46.5              | 45.7  | 47.4           | ...   | 46.7    |
| 9   | 48.5            | 48.1  | 47.8             | 46.9  | 49.6              | 49.2  | 48.9              | 47.7  | 48.9           | 49.4  | 48.7    |
| 10  | 50.5            | 49.5  | 50.0             | 49.2  | 51.7              | 51.3  | 49.7              | 50.1  | 50.9           | 50.9  | 50.2    |
| 11  | 51.3            | 51.7  | 52.5             | 51.3  | 53.2              | 53.6  | 51.3              | 52.1  | 52.1           | 52.9  | 52.3    |
| 12  | 53.2            | 53.6  | 54.4             | 53.2  | 55.2              | 56.0  | 53.6              | 54.0  | 54.8           | 55.2  | 54.4    |
| 13  | 54.8            | 55.6  | 56.0             | 55.2  | 57.6              | 58.8  | 55.2              | 56.4  | 56.4           | 58.0  | 56.8    |
| 14  | 56.7            | 57.9  | 58.0             | 57.2  | 59.9              | 60.3  | 57.2              | 59.2  | 58.0           | 60.4  | 58.0    |
| 15  | 59.1            | 58.7  | 59.5             | 58.7  | 62.2              | 61.0  | 59.9              | 60.3  | ...            | ...   | 60.2    |
| 16  | 62.2            | 59.5  | 61.1             | 59.9  | 65.0              | 61.4  | 62.2              | 60.6  | ...            | ...   | 62.6    |
| 17  | 63.8            | 60.7  | 62.6             | 61.1  | 66.2              | 61.8  | 63.0              | 61.0  | ...            | ...   | 63.9    |

## LENGTH AND WEIGHT OF NEW-BORN INFANTS (DUNCAN)

| Mother's Age | Length, Inches |       |         | Weight, Lbs. |       |         |
|--------------|----------------|-------|---------|--------------|-------|---------|
|              | Boys           | Girls | General | Boys         | Girls | General |
| Under 20 .   | 19.9           | 19.7  | 19.8    | 7.1          | 6.8   | 7.0     |
| 20 to 30 .   | 20.1           | 19.9  | 20.0    | 7.3          | 7.0   | 7.2     |
| 30 to 40 .   | 20.2           | 20.0  | 20.1    | 7.4          | 7.2   | 7.3     |
| 40 to 45 .   | 20.3           | 20.1  | 20.2    | 7.3          | 7.3   | 7.3     |
| Over 45 .    | 19.7           | 19.8  | 19.8    | 6.6          | 7.0   | 6.8     |

An infant weighing 7 lbs. at birth will weigh 7½ lbs. on the tenth day, and 11 lbs. on the 30th day.

## HEIGHT AND WEIGHT OF BELGIAN INFANTS AND ADULTS (QUETELET)

| Age          | Height, Ins. |         |         | Weight, Lbs. |         |         |
|--------------|--------------|---------|---------|--------------|---------|---------|
|              | Males        | Females | General | Males        | Females | General |
| Under 1 year | 27.6         | 27.2    | 27.4    | 19.8         | 18.0    | 18.9    |
| 1-2          | 31.1         | 30.7    | 30.9    | 24.2         | 24.2    | 24.2    |
| 2-3          | 33.9         | 33.5    | 33.7    | 27.5         | 27.3    | 27.4    |
| 3-4          | 36.7         | 36.3    | 36.5    | 30.8         | 30.6    | 30.7    |
| 4-5          | 38.6         | 38.2    | 38.4    | 35.0         | 33.6    | 34.3    |
| 5-6          | 41.4         | 40.6    | 41.0    | 39.2         | 37.0    | 38.1    |
| 6-8          | 45.8         | 45.0    | 45.4    | 47.5         | 41.8    | 44.7    |
| 8-10         | 50.2         | 49.4    | 49.8    | 55.4         | 50.8    | 53.1    |
| 10-12        | 54.4         | 53.2    | 53.8    | 63.8         | 63.8    | 63.8    |
| 12-14        | 58.0         | 57.2    | 57.6    | 81.6         | 79.8    | 80.7    |
| 14-16        | 61.2         | 60.0    | 60.6    | 99.9         | 95.7    | 97.8    |
| 16-18        | 64.4         | 61.6    | 63.0    | 118.6        | 109.6   | 114.1   |
| 18-20        | 66.0         | 62.0    | 64.0    | 130.9        | 117.0   | 124.0   |
| 20-22        | 66.0         | 62.0    | 64.0    | 138.4        | 119.6   | 129.0   |
| 22-25        | 66.4         | 62.4    | 64.4    | 145.6        | 119.6   | 132.6   |
| 25-30        | 66.8         | 62.4    | 64.6    | 145.4        | 121.6   | 133.5   |

## DISTINCTION OF CLASSES (ENGLAND)

| Age | Height, Ins. |         |               |           | Weight, Lbs. |         |               |           |
|-----|--------------|---------|---------------|-----------|--------------|---------|---------------|-----------|
|     | Affluent     | Artisan | Farm Labourer | Male Pop. | Affluent     | Artisan | Farm Labourer | Male Pop. |
| 10  | 52.9         | 50.7    | 50.9          | 51.8      | 69           | 64      | 67            | 67        |
| 15  | 62.9         | 61.4    | 61.8          | 62.2      | 107          | 96      | 101           | 103       |
| 20  | 68.3         | 66.5    | 66.9          | 67.5      | 146          | 136     | 144           | 143       |
| 24  | 68.4         | 66.8    | 67.5          | 67.7      | 148          | 143     | 152           | 148       |
| 30  | 68.5         | 66.8    | 67.6          | 67.9      | 160          | 149     | 158           | 156       |
| 40  | 68.7         | 67.1    | 67.6          | 68.0      | 170          | 154     | 161           | 164       |
| 50  | 68.1         | 66.6    | 67.8          | 67.9      | 172          | 149     | 166           | 164       |
| 60  | 68.1         | 66.5    | 68.0          | 67.7      | 170          | 138     | 171           | 162       |

| Age             | Height, Ins. |          |               |           | Weight, Lbs. |          |               |           |
|-----------------|--------------|----------|---------------|-----------|--------------|----------|---------------|-----------|
|                 | Artisan      | Criminal | Farm Labourer | Male Pop. | Artisan      | Criminal | Farm Labourer | Male Pop. |
| 20-25           | 66.5         | 65.2     | 67.2          | 67.6      | 139          | 137      | 150           | 146       |
| 25-35           | 66.8         | 65.7     | 67.5          | 67.8      | 147          | 140      | 157           | 152       |
| 35-45           | 67.0         | 65.7     | 67.5          | 68.0      | 154          | 141      | 161           | 164       |
| 45-55           | 66.6         | 65.8     | 67.8          | 67.9      | 149          | 143      | 166           | 164       |
| General average | 66.6         | 65.6     | 67.5          | 67.7      | 147          | 140      | 158           | 158       |

Rural population is usually taller and heavier than that of towns. In Scotland agricultural males are 4 inches and 36 lbs. over the average of Glasgow and Edinburgh. The fishing population of Yorkshire exceeds the Sheffield artisans by 3 inches and 24 lbs. On the other hand, London is  $1\frac{1}{2}$  inch and 8 lbs. over the population of Hertfordshire; and Quetelet observed the same in Belgium, which he ascribed to better food in the towns.

## GROWTH OF MALE CONVICTS IN ENGLISH JAILS (DANSON)

| Age | Height, Inches |      | Weight, Lbs. |      |
|-----|----------------|------|--------------|------|
|     | 1858           | 1878 | 1858         | 1878 |
| 18  | 64.3           | 64.1 | 122          | 125  |
| 20  | 65.2           | 65.1 | 133          | 137  |
| 22  | 66.2           | 65.7 | 139          | 142  |
| 24  | 65.9           | 65.4 | 142          | 141  |
| 26  | 66.2           | 65.6 | 142          | 143  |
| 28  | 66.7           | 65.7 | 143          | 144  |
| 30  | 66.4           | 65.5 | 142          | 144  |

## GROWTH OF BOYS AND MEN (ENGLAND)

The following table is from the Anthropometric Report, British Association, 1883, the result of measurement of 10,000 males:—

| Age   | Height, Ins. | Weight, Lbs. | Chest, Ins. | Strength of Arm, Lbs. | Average Ann. Increase |              |             |                |
|-------|--------------|--------------|-------------|-----------------------|-----------------------|--------------|-------------|----------------|
|       |              |              |             |                       | Height, Ins.          | Weight, Lbs. | Chest, Ins. | Strength, Lbs. |
| 11    | 55           | 79           | 27          | 38                    | 1.5                   | 4.8          | 0.2         | ...            |
| 12    | 57           | 85           | 27          | 39                    | 2.1                   | 6.2          | 0.2         | 1.8            |
| 13    | 59           | 92           | 28          | 46                    | 1.8                   | 6.7          | 0.7         | 6.3            |
| 14    | 61           | 102          | 29          | 53                    | 2.2                   | 10.6         | 1.0         | 7.1            |
| 15    | 64           | 114          | 30          | 60                    | 2.3                   | 12.2         | 1.2         | 7.6            |
| 16    | 66           | 129          | 32          | 69                    | 2.6                   | 15.2         | 2.0         | 8.9            |
| 17    | 68           | 142          | 34          | 80                    | 1.6                   | 12.2         | 1.5         | 11.0           |
| 18    | 68           | 146          | 34          | 86                    | 0.4                   | 4.8          | 0.5         | 6.0            |
| 19    | 68           | 148          | 35          | 90                    | 0.3                   | 2.0          | 0.2         | 2.0            |
| 20    | 69           | 152          | 35          | 94                    | 0.5                   | 3.9          | 0.6         | 3.9            |
| 21    | 69           | 153          | 35          | 88                    | ...                   | 0.4          | 0.1         | ...            |
| 22    | 69           | 153          | 35          | 93                    | 0.1                   | ...          | ...         | 4.5            |
| 23-30 | 69           | 155          | 36          | 97                    | 0.1                   | 1.8          | 0.5         | 4.7            |

## GROWTH OF MALES IN TOWNS AND RURAL DISTRICTS (ENGLAND)

| Age   | Height, Ins. |       | Weight, Lbs. |       | Rural Excess |      |
|-------|--------------|-------|--------------|-------|--------------|------|
|       | Town         | Rural | Town         | Rural | Ins.         | Lbs. |
| 10-13 | 56           | 57    | 73           | 76    | 1            | 3    |
| 13-16 | 63           | 64    | 101          | 106   | 1            | 5    |
| 16-19 | 67           | 67    | 131          | 134   | ...          | 3    |
| 19-22 | 68           | 69    | 143          | 147   | 1            | 4    |
| 22-25 | 67           | 69    | 139          | 153   | 2            | 14   |

## GROWTH OF TELEGRAPH GIRLS (ENGLAND)

The following results were obtained by the Committee from 3700 girls:—

| Age | Height, Ins. | Weight, Lbs. | Chest, Ins. | Lifting Power, Lbs. | Average Annual Increase |              |             |               |
|-----|--------------|--------------|-------------|---------------------|-------------------------|--------------|-------------|---------------|
|     |              |              |             |                     | Height, Ins.            | Weight, Lbs. | Chest, Ins. | Lifting, Lbs. |
| 13  | 56           | 79           | 25          | 182                 | ...                     | ...          | ...         | ...           |
| 14  | 58           | 85           | 26          | 192                 | 2                       | 6            | 1           | 10            |
| 15  | 60           | 90           | 27          | 218                 | 2                       | 5            | 1           | 26            |
| 16  | 62           | 108          | 28          | 278                 | 2                       | 18           | 1           | 60            |
| 17  | 64           | 116          | 30          | 308                 | 2                       | 8            | 2           | 30            |
| 18  | 65           | 127          | 30          | 316                 | 1                       | 11           | 0           | 8             |
| 19  | 66           | 130          | 30          | 329                 | 1                       | 3            | 0           | 13            |

## ITALIAN BOYS AND GIRLS (PAGLIONI)

| Age | Weight, Lbs. |       | Height, Ins. |       | Drawing Power, Lbs. |       |
|-----|--------------|-------|--------------|-------|---------------------|-------|
|     | Boys         | Girls | Boys         | Girls | Boys                | Girls |
| 10  | 54           | 60    | 50           | 52    | 146                 | 90    |
| 11  | 57           | 62    | 51           | 53    | 151                 | 85    |
| 12  | 63           | 70    | 53           | 56    | 174                 | 115   |
| 13  | 70           | 82    | 55           | 58    | 209                 | 129   |
| 14  | 73           | 95    | 56           | 61    | 231                 | 151   |
| 15  | 87           | 100   | 59           | 61    | 261                 | 152   |
| 16  | 91           | 101   | 60           | 62    | 266                 | 152   |
| 17  | 95           | 107   | 60           | 62    | 299                 | 154   |
| 18  | 98           | 105   | 61           | 62    | 312                 | 155   |
| 19  | 103          | ...   | 62           | ...   | 330                 | ...   |

## MEN AND WOMEN OF UNITED STATES

The average weight of 20,000 men and women at Boston in 1864, and of 22,000 weighed at Cincinnati in 1882, was as follows:—

|                | Men      | Women    |
|----------------|----------|----------|
| Boston . . .   | 142 lbs. | 125 lbs. |
| Cincinnati . . | 154 ..   | 131 ..   |

There was no account taken of age. The people of the Western States are evidently much heavier than those of New England, properly known as Yankees.

It is, moreover, to be observed that the above averages for Boston closely coincide with those of Belgium (p. 62), where Quetelet gives 146 lbs. for men, and 122 for women, aged 30; but the British Association found an average in England of 155 lbs. for men over 23 years.

## ENGLISH MEN AND WOMEN (ROBERTS)

The comparison of weight, strength, &c., with stature, shows:—

| Height, Ins. | Weight, Lbs. |       | Chest, Ins. |       | Drawing-Bow, Lbs. |       |
|--------------|--------------|-------|-------------|-------|-------------------|-------|
|              | Men          | Women | Men         | Women | Men               | Women |
| 58           | 133          | 114   | 31          | 26    | 68                | 41    |
| 60           | 138          | 118   | 32          | 27    | 71                | 43    |
| 62           | 143          | 122   | 33          | 28    | 73                | 44    |
| 64           | 147          | 125   | 35          | 29    | 76                | 45    |
| 66           | 152          | 129   | 36          | 30    | 78                | 47    |
| 68           | 156          | 133   | 37          | 31    | 80                | 48    |
| 70           | 161          | 137   | 38          | 32    | 83                | 50    |
| 72           | 166          | 141   | 39          | 33    | 85                | 51    |

## BRITISH AND IRISH MALES, STATURE AND WEIGHT

The Anthropometric Committee in 1883 measured 8600 men, of ages from 23 to 50 years, and found as follows:—

| Height   |         |       |        |            | Weight    |         |       |        |            |
|----------|---------|-------|--------|------------|-----------|---------|-------|--------|------------|
| Inches   | English | Irish | Scotch | U. Kingdom | Pounds    | English | Irish | Scotch | U. Kingdom |
| Under 60 | 0.9     | 0.3   | 0.2    | 0.7        | Under 100 | 0.5     | 2.0   | 0.1    | 0.4        |
| 60-62    | 3.2     | 1.1   | 0.9    | 2.9        | 100-120   | 8.5     | 3.3   | 2.4    | 7.0        |
| 62-64    | 13.7    | 6.4   | 5.0    | 12.4       | 120-140   | 34.8    | 40.1  | 19.5   | 32.2       |
| 64-66    | 26.1    | 26.3  | 19.1   | 25.8       | 140-160   | 35.2    | 35.2  | 43.8   | 37.2       |
| 66-68    | 29.1    | 39.0  | 32.2   | 29.8       | 160-180   | 14.4    | 15.4  | 24.2   | 16.3       |
| 68-70    | 19.8    | 18.8  | 25.5   | 19.9       | 180-200   | 4.4     | 3.6   | 7.5    | 4.8        |
| Over 70  | 7.2     | 8.1   | 17.1   | 8.5        | Over 200  | 2.2     | 0.4   | 2.5    | 2.1        |
| Total    | 100.0   | 100.0 | 100.0  | 100.0      | Total     | 100.0   | 100.0 | 100.0  | 100.0      |

The following summary shows that the Irish are a much lighter race than the English, Welsh, or Scotch, and also that they weigh less per inch of stature:—

|             | Average Height, Ins. | Average Weight, Lbs. | Average, Lbs. per Inch |
|-------------|----------------------|----------------------|------------------------|
| English . . | 67.4                 | 155                  | 2.30                   |
| Welsh . .   | 66.7                 | 158                  | 2.38                   |
| Irish . .   | 67.9                 | 154                  | 2.27                   |
| Scotch . .  | 68.7                 | 165                  | 2.41                   |
| U. Kingdom  | 67.7                 | 158                  | 2.33                   |

## HEIGHT ACCORDING TO CLASSES

| Boys 11 to 12 Years       | Ins. | Adults 25 to 30 Years  | Ins. |
|---------------------------|------|------------------------|------|
| Eton and Harrow . .       | 55.0 | Professional class . . | 69.1 |
| Middle schools . .        | 53.8 | Commercial class . .   | 68.0 |
| Agricultural peasants . . | 53.0 | Farmers . . . . .      | 67.5 |
| Artisans' sons . .        | 52.6 | Artisans . . . . .     | 66.6 |
| Factory boys . .          | 51.6 | Criminals . . . . .    | 66.0 |
| Military orphans . .      | 51.2 | Tailors . . . . .      | 65.9 |
| Industrial schools . .    | 50.0 | Insane . . . . .       | 65.7 |

The height and weight of factory children of ten to twelve years in England, have increased in the last half century:—

| Year               | Height, Inches |       | Weight, Lbs. |       |
|--------------------|----------------|-------|--------------|-------|
|                    | Boys           | Girls | Boys         | Girls |
| 1833 . . . . .     | 50.5           | 50.4  | 59           | 57    |
| 1873 . . . . .     | 50.7           | 50.8  | 64           | 63    |
| Increase . . . . . | 0.2            | 0.4   | 5            | 6     |

|                                              | Ins. | Lbs. |
|----------------------------------------------|------|------|
| Fellows of the Royal Society average . . . . | 69.5 | 161  |
| Members of Athletic Associations . . . .     | 68.4 | 144  |
| Policemen and Fire-brigade . . . . .         | 70.1 | 185  |
| Burglars and other convicts . . . . .        | 65.6 | 140  |

The low physical type of criminals and insane is remarkable.

## HEIGHT OF MALE ADULTS IN VARIOUS COUNTRIES

| Inches           | Jews    | Saxons |       | Italians  | Belgians | Swedes    | Dutch     | United Kingdom |       |        |
|------------------|---------|--------|-------|-----------|----------|-----------|-----------|----------------|-------|--------|
|                  | Bavaria | Town   | Rural | Conscript | Militia  | Conscript | Conscript | English        | Irish | Scotch |
| Under 62 . . . . | 6.4     | 15.0   | 14.6  | 14.0      | 13.6     | 1.8       | 5.2       | 4.1            | 1.4   | 1.1    |
| 62-64 . . . .    | 20.9    | 17.8   | 17.6  | 20.3      | 12.1     | 11.3      | 10.5      | 13.7           | 6.4   | 5.0    |
| 64-66 . . . .    | 34.3    | 29.2   | 28.4  | 26.2      | 26.7     | 14.0      | 27.0      | 26.1           | 26.3  | 19.1   |
| 66-68 . . . .    | 22.8    | 22.9   | 23.9  | 21.2      | 26.8     | 37.1      | 26.1      | 29.1           | 39.1  | 32.2   |
| Over 68 . . . .  | 15.6    | 15.1   | 16.5  | 18.3      | 20.8     | 35.8      | 31.2      | 27.0           | 26.9  | 42.6   |
| Total . . . .    | 100.0   | 100.0  | 100.0 | 100.0     | 100.0    | 100.0     | 100.0     | 100.0          | 100.0 | 100.0  |

The Scotch are by far the tallest in the above table, but are surpassed by the Iroquois Indians, measured by Gould, of whom 54 per cent. exceeded 68 inches.

## HEIGHT AND CHEST MEASUREMENT OF BRITISH ARMY (1882)

| Inches   | Height   |        |       | Inches   | Chest                  |
|----------|----------|--------|-------|----------|------------------------|
|          | Eng-lish | Scotch | Irish |          | English, Scotch, Irish |
| Under 66 | 47.3     | 45.0   | 55.3  | Under 36 | 33.5                   |
| 66-70    | 41.1     | 42.6   | 36.1  | 36-38    | 41.8                   |
| Over 70  | 11.6     | 12.4   | 8.6   | Over 38  | 24.7                   |
|          | 100.0    | 100.0  | 100.0 |          | 100.0                  |

| Inches   | Height of French Conscripts |         |         |
|----------|-----------------------------|---------|---------|
|          | 1837-47                     | 1848-57 | 1858-68 |
| Under 62 | 14.0                        | 13.6    | 11.5    |
| 62-64    | 24.1                        | 25.3    | 26.6    |
| 64-66    | 33.2                        | 32.6    | 32.2    |
| 66-68    | 21.9                        | 21.8    | 22.7    |
| Over 68  | 6.8                         | 6.7     | 7.0     |
| Total    | 100.0                       | 100.0   | 100.0   |

| Inches   | Height of Dutch Conscripts |         |         |
|----------|----------------------------|---------|---------|
|          | 1866-71                    | 1872-77 | 1878-83 |
| Under 62 | 9.3                        | 7.6     | 5.7     |
| 62-64    | 13.9                       | 12.9    | 11.6    |
| 64-68    | 52.0                       | 53.5    | 53.9    |
| Over 68  | 24.8                       | 26.0    | 28.8    |
| Total    | 100.0                      | 100.0   | 100.0   |

The improvement of stature in Holland is ascribed to better food, resulting from the abolition of the Grist-tax, and to sanitation of cities. It is further observed that in swampy provinces 8½ per cent. of the young men drawn for military service are rejected for being under 62 inches, and in the rest of the kingdom only 5 per cent.

## HEIGHT OF SWEDISH CONSCRIPTS

| Period  | Average<br>Ins. | Period  | Average<br>Ins. |
|---------|-----------------|---------|-----------------|
| 1841-50 | 66.0            | 1861-70 | 66.6            |
| 1851-60 | 66.2            | 1871-75 | 66.7            |

The improvement in Sweden is likewise ascribed to better food.

## COMPLEXION OF PERSONS (UNITED KINGDOM)

| Hair  | England   |           |        | Scotland  |           |        | Ireland   |           |        |
|-------|-----------|-----------|--------|-----------|-----------|--------|-----------|-----------|--------|
|       | Gen. Pop. | Criminals | Insane | Gen. Pop. | Criminals | Insane | Gen. Pop. | Criminals | Insane |
| Light | 43        | 42        | 44     | 47        | 45        | 49     | 52        | 47        | 52     |
| Red   | 6         | 5         | 4      | 7         | 5         | 3      | 6         | 4         | 7      |
| Dark  | 51        | 53        | 52     | 46        | 50        | 48     | 42        | 49        | 41     |
| Total | 100       | 100       | 100    | 100       | 100       | 100    | 100       | 100       | 100    |
| Eyes  |           |           |        |           |           |        |           |           |        |
|       | Gen. Pop. | Criminals | Insane | Gen. Pop. | Criminals | Insane | Gen. Pop. | Criminals | Insane |
| Light | 66        | 60        | 65     | 76        | 67        | 80     | 72        | 67        | 83     |
| Dark  | 34        | 40        | 35     | 24        | 33        | 20     | 28        | 33        | 17     |
| Total | 100       | 100       | 100    | 100       | 100       | 100    | 100       | 100       | 100    |

## DIFFERENCE OF SEXES (EUROPE)

|        | Male | Female |          | Male | Female |
|--------|------|--------|----------|------|--------|
| Height | 100  | 94     | Skull    | 100  | 88     |
| Size   | 100  | 93     | Brain    | 100  | 91     |
| Weight | 100  | 84     | Strength | 100  | 67     |

## ARMS

*Artillery.*—The first piece of cannon was invented by Friar Schwartz in 1330, and the Moors used artillery at Cordoba in 1343. The English had four pieces at Crecy in 1346; the Venetian fleet used artillery against the Genoese in 1377. Mortars for bombs were cast in England in 1543, having been invented at Naples in 1435. Petards were first used by the Huguenots in 1579. The most famous pieces of cannon have been:—

| Date | Name          | Place     | Tons | Feet | Bore, Ins. |
|------|---------------|-----------|------|------|------------|
| 1430 | Dulle Griete  | Holland   | 14   | ...  | ...        |
| 1450 | Mons Meg      | Edinburgh | 6    | 13   | 20         |
| 1464 | Mahomet       | Turkey    | 20   | ...  | ...        |
| 1540 | Carlos Quinto | Dover     | ...  | 24   | ...        |
| 1548 | Malik Mydan   | India     | 40   | ...  | 23         |
| 1550 | Simon         | Cologne   | ...  | 19   | 18         |
| 1586 | Pooshka       | Moscow    | 39   | ...  | ...        |
| 1856 | Horsfall      | Liverpool | 22   | 16   | ...        |
| 1874 | Infant        | Woolwich  | 80   | 27   | ...        |
| 1880 | Armstrong     | Newcastle | 100  | ...  | 12         |
| 1889 | Krupp         | Essen     | 130  | 44   | 16         |

The cannon of the Middle Ages was as follows:—

| Name          | Shot,<br>Lbs. | Powder,<br>Lbs. | Gun,<br>Cwts. | Length,<br>Feet |
|---------------|---------------|-----------------|---------------|-----------------|
| Cannon        | 64            | 32              | 72            | 12              |
| Serpentine    | 52            | 26              | 62            | 12              |
| Culverin      | 19            | 15              | 40            | 12              |
| Demi-culverin | 10            | 8               | 20            | 10              |
| Falcon        | 2             | 2               | 6             | 7               |

The cannon used at Trafalgar (1805) were:—

| Pounder | Inch | Gun, Cwts. | Powder, Lbs. |
|---------|------|------------|--------------|
| 3       | 3.9  | 7          | 1.0          |
| 6       | 3.7  | 22         | 1.3          |
| 12      | 4.6  | 34         | 4.0          |
| 18      | 5.3  | 42         | 6.0          |
| 24      | 5.8  | 50         | 8.0          |
| 32      | 6.4  | 52         | 10.0         |

None of the above carried over 2000 yards.

The artillery now in use (1889) may be classified thus:—

| Inches<br>Bore | Gun,<br>Tons | Shot,<br>Lbs. | Powder,<br>Lbs. | Initial<br>Velocity,<br>Feet per<br>Second | Muzzle<br>Energy,<br>Foot-<br>Tons | Penetra-<br>tion,<br>Ins. at<br>Muzzle |
|----------------|--------------|---------------|-----------------|--------------------------------------------|------------------------------------|----------------------------------------|
| 7              | 4½           | 112           | 22              | 1,325                                      | 1,400                              | 7                                      |
| 8              | 9            | 175           | 35              | 1,384                                      | 2,300                              | 9                                      |
| 9              | 12           | 253           | 50              | 1,440                                      | 3,600                              | 11                                     |
| 10             | 18           | 406           | 70              | 1,379                                      | 5,400                              | 13                                     |
| 11             | 25           | 543           | 85              | 1,360                                      | 7,000                              | 14                                     |
| 12             | 35           | 706           | 140             | 1,390                                      | 9,500                              | 16                                     |
| 16             | 80           | 1,700         | 450             | 1,590                                      | 29,000                             | 25                                     |
| 16             | 100          | 2,000         | 550             | 1,700                                      | 40,000                             | 27                                     |
| 16             | 111          | 1,800         | 960             | 2,104                                      | ...                                | 36                                     |
| 16             | 119          | 2,028         | 846             | 2,000                                      | ...                                | ...                                    |
| 16             | 130          | 2,600         | 700             | ...                                        | ...                                | ...                                    |

The progress of artillery science since 1837 has been as follows:—

1859. Armstrong's breech-loading rifle-gun, charge only 5 lbs., sent a shot 5 miles.  
1861. Richard Gatling, of North Carolina, patented his gun, firing 200 shots a minute; it now fires 400.

1862. Armstrong's smooth-bore, charge 40 lbs., sent a 300-lbs. shot through a 5-inch wrought-iron plate.
1866. Woolwich 9-inch rifle, charge 43 lbs., sent a 250-lbs. Palliser shot through an 8-inch plate.
1872. First Woolwich Infant, 35 tons, shot 700 lbs., powder 120 lbs.. It sent a Palliser shot through 18½ inches iron and 12 of teak.
1874. Second Woolwich Infant, 80 tons, shot 1650 lbs., powder 300 lbs.
1876. Third Woolwich Infant, 81 tons, shot 1250 lbs., went through 50 feet of sand.
1876. Armstrong 100-ton guns, broke 22-inch Creusot steel plates.
1879. Shot from 9-inch gun, 75 lbs. powder, unable to pierce a 12-inch plate of iron and steel, alternate layers.
1880. Result of Krupp's experiments at Meppen :—

| Gun           | Inch | Shot, Lbs. | Penetration | Foot-Tons |
|---------------|------|------------|-------------|-----------|
| Krupp . . .   | 9½   | 348        | 18.1        | 8,630     |
| British . . . | 11½  | 812        | 17.9        | 12,260    |

Krupp's shot penetrated 18-inch plates; the British did not.

1889. Krupp's cast steel 130-ton gun has a range of 12 miles, and fires two shots per minute; each shot costs £300 sterling, and weighs 2600 lbs., going through 19 inches of armour; charge of powder, 700 lbs.

Down to 1876, Mr. Krupp had delivered 15,000 cannons from his factory to different nations. Great Britain sometimes manufactures two million shot and shell in a year, weighing 20,000 tons of iron. The cost of heavy guns is as follows (1882), per ton :—

|                 |     |                 |      |
|-----------------|-----|-----------------|------|
| Cast iron . . . | £21 | Krupp . . .     | £170 |
| Armstrong . . . | 100 | Whitworth . . . | 175  |

During the siege of Sebastopol, 1855, the Allies threw 30,000 tons of shot and shell into that place.

The cannon in various countries may be summed up thus (those in fortifications, &c., being approximately) :—

|                     | Army   | Navy   | Fort, &c. | Total  |
|---------------------|--------|--------|-----------|--------|
| Great Britain . . . | 70.    | 3,087  | 2,000     | 5,789  |
| France . . .        | 2,060  | 2,834  | 2,800     | 7,694  |
| Germany . . .       | 1,486  | 570    | 3,324     | 5,380  |
| Russia . . .        | 1,540  | 836    | 2,048     | 4,424  |
| Austria . . .       | 850    | 320    | 1,000     | 2,170  |
| Italy . . .         | 700    | 480    | 500       | 1,680  |
| Spain . . .         | 416    | 525    | 300       | 1,241  |
| Portugal . . .      | 132    | 178    | 110       | 420    |
| Holland . . .       | 220    | 560    | 120       | 900    |
| Belgium . . .       | 204    | ...    | 120       | 324    |
| Denmark . . .       | 120    | 245    | 170       | 535    |
| Sweden and Norway   | 300    | 672    | 100       | 1,072  |
| Greece . . .        | 120    | 70     | 110       | 300    |
| Roumania . . .      | 312    | 36     | 94        | 442    |
| Turkey . . .        | 1,188  | 200    | 2,374     | 3,762  |
| Europe . . .        | 10,350 | 10,613 | 15,170    | 36,133 |
| United States . . . | 100    | 1,055  | 3,000     | 4,155  |
| Brazil . . .        | 50     | 166    | 200       | 416    |
| Japan . . .         | 120    | 149    | 100       | 369    |
| The World . . .     | 10,620 | 11,983 | 18,470    | 41,073 |

## RIFLES

|               | Maker       | Weight, Lbs. | Calibre | Rounds |
|---------------|-------------|--------------|---------|--------|
| England . . . | Lee-Mitford | 9.4          | .303    | 8      |
| France . . .  | Lebel       | 9.2          | .315    | 8      |
| Germany . . . | Mausers     | 9.5          | .310    | 5      |
| Austria . . . | Mannlicher  | 10.2         | .315    | 5      |
| Italy . . .   | Vetterli    | 10.6         | .409    | 5      |
| United States | Lee         | ...          | .433    | 5      |
| Belgium . . . | Mausers     | 9.5          | .310    | 5      |
| Turkey . . .  | Mausers     | ...          | .433    | 8      |
| China . . .   | Lee         | ...          | .433    | 5      |

The competition for the Elcho Shield in twenty-four years shows the following score :—

|                | Average | Highest |
|----------------|---------|---------|
| England . . .  | 1,345   | 1,642   |
| Ireland . . .  | 1,540   | 1,652   |
| Scotland . . . | 1,280   | 1,510   |

## ARMY

|                     | Peace Footing (1889) |           |           |                |           | Artillery Guns | War Footing |
|---------------------|----------------------|-----------|-----------|----------------|-----------|----------------|-------------|
|                     | Cavalry              | Infantry  | Artillery | Engineers, &c. | Total     |                |             |
| Great Britain . . . | 17,000               | 140,000   | 34,000    | 19,000         | 210,000   | 702            | 606,000     |
| France . . .        | 77,000               | 327,000   | 77,000    | 74,000         | 555,000   | 2,060          | 1,315,000   |
| Germany . . .       | 67,000               | 341,000   | 62,000    | 22,000         | 492,000   | 1,486          | 1,492,000   |
| Russia . . .        | 109,000              | 579,000   | 62,000    | 50,000         | 800,000   | 1,540          | 1,720,000   |
| Austria . . .       | 48,000               | 193,000   | 30,000    | 52,000         | 323,000   | 850            | 1,150,000   |
| Italy . . .         | 26,000               | 107,000   | 33,000    | 89,000         | 255,000   | 700            | 940,000     |
| Spain . . .         | 14,000               | 116,000   | 11,000    | 4,000          | 145,000   | 416            | 400,000     |
| Portugal . . .      | 4,000                | 17,000    | 3,000     | 2,000          | 26,000    | 132            | 150,000     |
| Belgium . . .       | 6,000                | 31,000    | 6,000     | 5,000          | 48,000    | 200            | 148,000     |
| Holland . . .       | 2,000                | 21,000    | 5,000     | 1,000          | 29,000    | 220            | 55,000      |
| Denmark . . .       | 2,000                | 12,000    | 2,000     | 1,000          | 17,000    | 120            | 60,000      |
| Sweden and Norway   | 6,000                | 43,000    | 6,000     | 2,000          | 57,000    | 300            | 230,000     |
| Switzerland . . .   | 3,000                | 96,000    | 18,000    | 9,000          | 126,000   | 42             | 207,000     |
| Greece . . .        | 3,000                | 16,000    | 4,000     | 3,000          | 26,000    | 120            | 105,000     |
| Roumania . . .      | 4,000                | 23,000    | 6,000     | 3,000          | 36,000    | 312            | 118,000     |
| Servia . . .        | 1,000                | 14,000    | 2,000     | 1,000          | 18,000    | 144            | 100,000     |
| Bulgaria . . .      | 2,000                | 23,000    | 2,000     | 2,000          | 29,000    | 96             | 100,000     |
| Turkey . . .        | 20,000               | 98,000    | 30,000    | 12,000         | 160,000   | 1,190          | 470,000     |
| Europe . . .        | 411,000              | 2,197,000 | 393,000   | 381,000        | 3,352,000 | 10,630         | 9,366,000   |
| United States . . . | 8,000                | 15,000    | 2,000     | 1,000          | 26,000    | 100            | ...         |
| South America . . . | 17,000               | 59,000    | 6,000     | 7,000          | 89,000    | 200            | ...         |
| Japan . . .         | 3,000                | 47,000    | 5,000     | 5,000          | 60,000    | 160            | ...         |
| India . . .         | 23,000               | 114,000   | 4,000     | 4,000          | 145,000   | ...            | ...         |
| Persia . . .        | 6,000                | 17,000    | 1,000     | 1,000          | 25,000    | ...            | ...         |
| Total . . .         | 468,000              | 2,449,000 | 411,000   | 369,000        | 3,697,000 | 11,110         | ...         |

In the war footing of European armies as given above only the first line of reserves is included. If all reserves were included the above numbers might be safely doubled.

According to Napoleon Bonaparte, the proportions of an army should be 70 per cent. infantry, 17 per cent.

cavalry, and 13 per cent. between artillery, engineers, and train. The proportions of European armies in the above statement are 66 per cent. infantry, 12 per cent. cavalry, and 22 per cent. between artillery, engineers, and train.

The standing armies of twelve principal countries of Europe have been as follows:—

|               | Army      |           |           | War Footing | Soldiers per 10,000 Inhabitants in 1888 |     |
|---------------|-----------|-----------|-----------|-------------|-----------------------------------------|-----|
|               | 1810      | 1851      | 1888-89   | 1888-89     | Peace                                   | War |
| Great Britain | 307,000   | 129,000   | 210,000   | 606,000     | 56                                      | 160 |
| France        | 570,000   | 365,000   | 555,000   | 1,315,000   | 138                                     | 370 |
| Germany       | 160,000   | 346,000   | 492,000   | 1,492,000   | 102                                     | 310 |
| Russia        | 558,000   | 644,000   | 800,000   | 1,720,000   | 100                                     | 210 |
| Austria       | 347,000   | 282,000   | 323,000   | 1,150,000   | 80                                      | 280 |
| Italy         | 75,000    | 142,000   | 255,000   | 940,000     | 85                                      | 310 |
| Spain         | 54,000    | 87,000    | 145,000   | 400,000     | 76                                      | 230 |
| Portugal      | 10,000    | 28,000    | 26,000    | 150,000     | 60                                      | 350 |
| Belgium       | ...       | 40,000    | 48,000    | 148,000     | 85                                      | 240 |
| Holland       | 22,000    | 50,000    | 29,000    | 55,000      | 70                                      | 140 |
| Denmark       | 75,000    | 25,000    | 17,000    | 60,000      | 90                                      | 300 |
| Sweden        | 43,000    | 57,000    | 57,000    | 230,000     | 90                                      | 330 |
| Europe        | 2,221,000 | 2,195,000 | 2,957,000 | 8,266,000   | 91                                      | 270 |

The minimum height in the principal armies is as follows:

|          | <i>Ins.</i> |                | <i>Ins.</i> |
|----------|-------------|----------------|-------------|
| British  | 63.0        | Belgian        | 61.9        |
| French   | 60.7        | Swedish        | 63.3        |
| German   | 61.9        | American       | 63.0        |
| Austrian | 61.2        | Prussian Guard | 67.0        |
| Italian  | 61.5        | Uhlans         | 65.9        |
| Spanish  | 61.5        | Infantry       | 61.9        |

For average height, see p. 62.

The proportion of men drafted to the ranks out of 1000 recruits or conscripts was:—

| Nation        | Rejected for |           | Good for Service | Date    |
|---------------|--------------|-----------|------------------|---------|
|               | Under Height | Infirmity |                  |         |
| British       | ...          | ...       | 670              | 1844-52 |
| French        | 61           | 327       | 612              | 1860-68 |
| Prussian      | 95           | 380       | 525              | 1831-63 |
| Bavarian      | 16           | 233       | 751              | 1822-53 |
| Saxon         | 220          | 380       | 400              | 1826-54 |
| Wurtemburger  | 120          | 410       | 470              | 1834-56 |
| Austrian      | 113          | 343       | 544              | 1857-64 |
| Russian       | ...          | ...       | 780              | 1860-61 |
| Swede         | 101          | 180       | 719              | 1847-48 |
| Dane          | 150          | 320       | 530              | 1852-56 |
| Spaniard      | 101          | 75        | 824              | 1857-66 |
| Belgian       | 121          | 107       | 772              | 1841-60 |
| Hollander     | 160          | 71        | 769              | 1851-61 |
| United States | ...          | ...       | 720              | 1863-65 |

The following table shows the death-rate and ratio invalided:—

| Army          | Per 10,000 Soldiers Yearly |           | Date    |
|---------------|----------------------------|-----------|---------|
|               | Died                       | Invalided |         |
| British       | 95                         | 340       | 1860-68 |
| French        | 101                        | 70        | 1862-69 |
| Prussian      | 64                         | 140       | 1860-63 |
| Belgian       | 129                        | 90        | 1868-69 |
| Austrian      | 116                        | 210       | 1869    |
| Portuguese    | 127                        | 170       | 1861-67 |
| Russian       | 165                        | ...       | 1858-68 |
| United States | 140                        | 250       | 1859    |
| Do. Blacks    | 180                        | ...       | 1859    |

The dietary of the various armies is as follows:—

| Army     | Daily Rations, Oz. |      |      |                  |          | Weekly Rations, Oz. |        | Extras Weekly |
|----------|--------------------|------|------|------------------|----------|---------------------|--------|---------------|
|          | Bread              | Meat | Rice | Dried Vegetables | Potatoes | Salt                | Coffee |               |
| British  | 16                 | 12   | 2    | 8                | 16       | 2                   | 4      | 9 oz. sugar   |
| French   | 22                 | 9    | 4    | 11               | 11       | 6                   | 3      | ...           |
| Russian  | 16                 | 16   | ...  | 35               | ...      | 6                   | ...    | 2 galls. beer |
| Austrian | 32                 | 8    | 1    | 11               | 9        | ...                 | ...    | 8 oz. grease  |
| Italian  | 27                 | 11   | 4    | ...              | ...      | 4                   | 4      | 1 gall. wine  |
| Spanish  | 18                 | 8    | 6    | ...              | 16       | ...                 | 3      | 3 lbs. fish   |
| Belgian  | 27                 | 9    | ...  | ...              | 35       | 8                   | 3      | 5 oz. butter  |
| Turkish  | 32                 | 9    | 3    | 1                | ...      | ...                 | ...    | 3 oz. grease  |
| American | 22                 | 20   | 2    | ...              | 16       | 5                   | 10     | 22 oz. beans  |
| German   | 28                 | 8    | 3    | ...              | ...      | ...                 | 4      | 7 oz. sugar   |

The years of service under the colours and in the reserve are:—

|         | Colours | First Reserve | Second Reserve | Age at Enrolment |
|---------|---------|---------------|----------------|------------------|
| France  | 5       | 4             | 11             | 20               |
| Germany | 3       | 4             | 15             | 20               |
| Austria | 3       | 7             | 12             | 20               |
| Italy   | 3       | 5             | 12             | 21               |

The equipment of infantry and cavalry weighs as follows:—

|         | Infantry | Cavalry  |
|---------|----------|----------|
| British | 60 lbs.  | 125 lbs. |
| German  | 60 "     | 122 "    |
| French  | 72 "     | 155 "    |
| Russian | 68 "     | ...      |

The rate of marching per hour is as follows:—

|         | English Miles |       |              |
|---------|---------------|-------|--------------|
|         | Ordinary      | Quick | Double Quick |
| British | 3.0           | 3.3   | 5.0          |
| German  | ...           | 3.0   | 5.0          |
| French  | 2.7           | 3.3   | 5.0          |

## BRITISH ARMY

The strength of the regular standing army at various periods has been thus :—

| Year         | Men    | Per 10,000 Inhabitants | Year         | Men     | Per 10,000 Inhabitants | Year         | Expenditure, £ |
|--------------|--------|------------------------|--------------|---------|------------------------|--------------|----------------|
| 1661 . . . . | 5,200  | 9                      | 1810 . . . . | 306,700 | 171                    | 1780 . . . . | 7,800,000      |
| 1688 . . . . | 28,000 | 51                     | 1830 . . . . | 108,700 | 46                     | 1810 . . . . | 26,700,000     |
| 1730 . . . . | 17,000 | 30                     | 1850 . . . . | 138,800 | 52                     | 1830 . . . . | 8,600,000      |
| 1764 . . . . | 40,000 | 53                     | 1860 . . . . | 229,500 | 79                     | 1860 . . . . | 18,000,000     |
| 1792 . . . . | 57,300 | 60                     | 1889 . . . . | 212,000 | 58                     | 1888 . . . . | 18,400,000     |

The forces of the United Kingdom, regular or irregular, were :—

|                          | 1850    | 1870    | 1888    |
|--------------------------|---------|---------|---------|
| Army . . . . .           | 139,000 | 193,000 | 210,000 |
| Reserves and militia . . | 20,000  | 122,000 | 174,000 |
| Volunteers . . . . .     | ...     | 193,000 | 222,000 |
| Total . . . . .          | 159,000 | 508,000 | 606,000 |

If Yeomanry and Royal Irish Constabulary be added, the total for 1888 will reach 630,000 men. The several Arms in 1888 were :—

|                        | Army    | Reserves and Militia | Volunteers | Indian Army | Total   |
|------------------------|---------|----------------------|------------|-------------|---------|
| Infantry . . . . .     | 140,000 | 122,000              | 174,000    | 114,000     | 550,000 |
| Cavalry . . . . .      | 17,000  | 18,000               | 1,000      | 23,000      | 59,000  |
| Artillery . . . . .    | 34,000  | 22,000               | 38,000     | 4,000       | 98,000  |
| Engineers, &c. . . . . | 19,000  | 12,000               | 9,000      | 4,000       | 44,000  |
| Total . . . . .        | 210,000 | 174,000              | 222,000    | 145,000     | 751,000 |

The total land force of the British Empire is as follows :—

|                              |         |
|------------------------------|---------|
| British regular army . . . . | 212,000 |
| Reserve and militia . . . .  | 205,000 |
| Volunteers . . . . .         | 222,000 |
| Yeomanry . . . . .           | 14,000  |
| Irish constabulary . . . .   | 13,000  |
| Anglo-Indian army . . . .    | 145,000 |
| Indian police . . . . .      | 190,000 |
| Colonial forces . . . . .    | 15,000  |

Total . . . . . 1,016,000

The regular army has 9,400 officers, and 16,100 petty officers.

The following table shows the garrison of the United Kingdom since 1800, exclusive of the auxiliary forces :—

| Year           | Horse  | Foot   | Artillery, &c. | Total   |
|----------------|--------|--------|----------------|---------|
| 1800 . . . . . | 14,000 | 49,000 | 8,000          | 71,000  |
| 1810 . . . . . | 20,000 | 74,000 | 19,000         | 113,000 |
| 1820 . . . . . | 10,000 | 47,000 | 4,000          | 61,000  |
| 1830 . . . . . | 8,000  | 35,000 | 5,000          | 48,000  |
| 1840 . . . . . | 7,000  | 39,000 | 4,000          | 50,000  |
| 1850 . . . . . | 8,000  | 50,000 | 9,000          | 67,000  |
| 1860 . . . . . | 11,000 | 62,000 | 17,000         | 90,000  |
| 1870 . . . . . | 11,000 | 56,000 | 17,000         | 84,000  |
| 1880 . . . . . | 13,000 | 72,000 | 22,000         | 107,000 |
| 1889 . . . . . | 13,000 | 70,000 | 22,000         | 105,000 |

The equipment and distribution of the regular army were as follows :—

| 1889                   |                  |        | 1888     |         |           |                |         |
|------------------------|------------------|--------|----------|---------|-----------|----------------|---------|
|                        | Officers and Men | Horses | Infantry | Cavalry | Artillery | Engineers, &c. | Total   |
| England . . . . .      | 74,000           | 9,600  | 43,000   | 9,000   | 15,000    | 16,000         | 83,000  |
| Scotland . . . . .     | 4,000            | 340    | 3,000    | 1,000   | ...       | 1,000          | 5,000   |
| Ireland . . . . .      | 28,000           | 3,300  | 21,000   | 3,000   | 3,000     | 3,000          | 30,000  |
| United Kingdom . . . . | 106,000          | 13,240 | 67,000   | 13,000  | 18,000    | 20,000         | 118,000 |
| India . . . . .        | 73,000           | 11,100 | 53,000   | 6,000   | 13,000    | ...            | 72,000  |
| Egypt . . . . .        | 3,400            | 300    | 5,000    | ...     | 1,000     | ...            | 6,000   |
| Colonies . . . . .     | 29,400           | 710    | 15,000   | ...     | 4,000     | 6,000          | 25,000  |
| Total . . . . .        | 211,800          | 25,350 | 140,000  | 19,000  | 36,000    | 26,000         | 221,000 |

The Indian establishment \* is as follows :—

|                     | European Army | Indian Army | Total Force |             | European Army |
|---------------------|---------------|-------------|-------------|-------------|---------------|
| Horse . . . . .     | 6,000         | 23,000      | 29,000      | Bengal . .  | 45,000        |
| Foot . . . . .      | 54,000        | 114,000     | 168,000     | Bombay . .  | 13,000        |
| Artillery . . . . . | 13,000        | 8,000       | 21,000      | Madras, &c. | 15,000        |
| Total . . . . .     | 73,000        | 145,000     | 218,000     |             | 73,000        |

\* The feudatory States of India have also armies of their own, viz. :—

|                       | Men     | Guns  |
|-----------------------|---------|-------|
| Hindoo States . . . . | 275,000 | 3,372 |
| Mahometan . . . . .   | 75,000  | 865   |
| Total . . . . .       | 350,000 | 4,237 |

The Volunteer force, created in 1860, showed as follows :—

| Year           | Roll    | Efficient |
|----------------|---------|-----------|
| 1860 . . . . . | 160,300 | 106,400   |
| 1865 . . . . . | 226,700 | 133,800   |
| 1870 . . . . . | 245,000 | 170,700   |
| 1875 . . . . . | 238,300 | 168,700   |
| 1880 . . . . . | 243,500 | 196,900   |
| 1888 . . . . . | 258,000 | 222,000   |

The composition of the regular army is as follows :—

| Nationality (1883)   | Age (1883)          | Religion (1889)       |
|----------------------|---------------------|-----------------------|
| English . . . . . 70 | Under 18 . . . 2    | Church of England 67  |
| Irish . . . . . 20   | 18-30 . . . . 74    | Roman Catholics . 19  |
| Scotch . . . . . 8   | 30-40 . . . . 20    | Presbyterians . . . 8 |
| Colonial . . . . . 2 | Over 40 . . . . 4   | Dissenters . . . . 6  |
| Total . . . . . 100  | Total . . . . . 100 | Total . . . . . 100   |



In 1881 there were 93 per cent. of the men able to read and write, against 68 per cent. in 1860.

The health of the army has been greatly improved since Dr. Farr's barrack reform begun in 1860, on a basis of 600 cubic feet of air per man in Europe, and 1000 in India, with an allowance of 1600 cubic feet for each horse. In many barracks of Great Britain, down to 1861, the average accommodation only allowed 300 to 400 cubic feet per man. The new barracks at Chelsea are considered a model, the cost being £245 per man, including cost of site.

The death-rate of the garrisons under the old and new systems (exclusive of deaths in war) showed thus:—

|                         | Per 1000 Men Yearly |         |
|-------------------------|---------------------|---------|
|                         | 1830-40             | 1876-80 |
| Great Britain . . . . . | 16                  | 7       |
| India . . . . .         | 68                  | 10      |
| Jamaica . . . . .       | 143                 | 22      |
| Ceylon . . . . .        | 57                  | 22      |
| Canada . . . . .        | 21                  | 18      |
| Sierra Leone . . . . .  | 483                 | ...     |

The following table shows, moreover, what an improvement has taken place in the health of the army, both at home and abroad, since 1861:—

|                          | Per 1000 Men        |         |        |         |
|--------------------------|---------------------|---------|--------|---------|
|                          | Hospital Admissions |         | Deaths |         |
|                          | 1861                | 1871-80 | 1861   | 1871-80 |
| India . . . . .          | 1,768               | 1,454   | 37     | 19      |
| China . . . . .          | 1,492               | 1,196   | 28     | 14      |
| Ceylon . . . . .         | 1,440               | 971     | 20     | 15      |
| Bermuda . . . . .        | 461                 | 632     | 14     | 9       |
| West Indies . . . . .    | 1,002               | 913     | 14     | 11      |
| Mauritius . . . . .      | 608                 | 1,834   | 12     | 17      |
| Malta . . . . .          | 772                 | 857     | 11     | 10      |
| Canada . . . . .         | 644                 | 667     | 8      | 7       |
| Gibraltar . . . . .      | 927                 | 675     | 9      | 7       |
| United Kingdom . . . . . | 1,025               | 817     | 9      | 8       |

Death-rate in the United Kingdom ranges from  $5\frac{1}{2}$  per 1000 in cavalry to  $7\frac{1}{2}$  in the engineers, the general average being under 7 per 1000. The saving of life consequent on the barrack reforms is equal to 4200 men yearly in India, and 2500 in the rest of the army.

The following table shows the nominal and actual levies, the numbers rejected by the army doctors, and those drafted to the colours.

| Years             | Nominal Levy | Actual Levy | Rejected for |              |        | Drafted to Colours | Percentage Rejected |
|-------------------|--------------|-------------|--------------|--------------|--------|--------------------|---------------------|
|                   |              |             | Under Height | Other Causes | Total  |                    |                     |
| 1813 . . . . .    | 1,140,000    | ...         | ...          | ...          | ...    | ...                | ...                 |
| 1816-20 . . . . . | 297,000      | ...         | ...          | ...          | ...    | 40,000             | ...                 |
| 1821-30 . . . . . | 283,000      | ...         | ...          | ...          | ...    | 60,000             | ...                 |
| 1831-40 . . . . . | 300,000      | ...         | ...          | ...          | ...    | 80,000             | ...                 |
| 1841-50 . . . . . | 305,000      | 143,000     | 12,000       | 51,000       | 63,000 | 80,000             | 37.7                |
| 1851-60 . . . . . | 306,000      | 179,000     | 14,000       | 57,000       | 71,000 | 108,000            | 34.4                |
| 1861-70 . . . . . | 316,000      | 164,000     | 10,000       | 54,000       | 64,000 | 100,000            | 35.1                |
| 1867 . . . . .    | 316,000      | ...         | 7,000        | 91,000       | 98,000 | 218,000            | 31.0                |

The minimum height at various periods was fixed thus:—

| Year           | Ins. | Year           | Ins. | Year           | Ins. |
|----------------|------|----------------|------|----------------|------|
| 1691 . . . . . | 66.1 | 1813 . . . . . | 60.0 | 1832 . . . . . | 61.5 |
| 1776 . . . . . | 65.0 | 1818 . . . . . | 61.8 | 1868 . . . . . | 61.0 |
| 1792 . . . . . | 64.0 | 1830 . . . . . | 60.7 | 1872 . . . . . | 60.7 |

For the average height of conscripts at various dates, see 65, Anthropometry.

In active service the death-rate among officers is heavier than among the rank and file.

The Duke of Wellington's army roll from 1811 to 1814 showed:—

|                           | Officers       | Men            |
|---------------------------|----------------|----------------|
| Killed . . . . .          | 14.5 per cent. | 10.2 per cent. |
| Wounded . . . . .         | 81.0 "         | 49.0 "         |
| Died of disease . . . . . | 13.0 "         | 38.0 "         |

#### FRENCH ARMY

The strength has been at various periods as follows:—

| Date           | Men     | Horses  | Expenditure, £ |
|----------------|---------|---------|----------------|
| 1783 . . . . . | 127,000 | 30,000  | ...            |
| 1812 . . . . . | 743,000 | 180,000 | ...            |
| 1836 . . . . . | 280,000 | 54,000  | 8,700,000      |
| 1848 . . . . . | 445,000 | 90,000  | 16,800,000     |
| 1869 . . . . . | 426,000 | 90,000  | 18,400,000     |
| 1880 . . . . . | 498,000 | 124,000 | 33,000,000     |
| 1888 . . . . . | 525,000 | 122,000 | 22,200,000     |

The army list for 1890 shows as follows:—

|                        | France  | Algeria | Tunis, &c. | Total   |
|------------------------|---------|---------|------------|---------|
| Horse . . . . .        | 67,000  | 8,000   | 2,000      | 77,000  |
| Foot . . . . .         | 291,000 | 29,000  | 7,000      | 327,000 |
| Artillery . . . . .    | 73,000  | 3,000   | 1,000      | 77,000  |
| Gendarmes . . . . .    | 22,000  | 1,000   | ...        | 23,000  |
| Engineers, &c. . . . . | 40,000  | 9,000   | 2,000      | 51,000  |
| Total . . . . .        | 493,000 | 50,000  | 12,000     | 555,000 |
| Horses . . . . .       | 119,000 | 15,000  | 4,000      | 138,000 |

Deducting sick and absent, the effective force in January 1890 was 511,000 between officers and men, the officers numbering 26,600, reserve 860,000, militia 1,022,000, total 2,337,000. The artillery consists of 2060 field-guns and 99 fortress batteries. Napoleon's army in 1805 consisted of 380,000 infantry, 76,000 cavalry, and 35,000 artillery.

The army roll shows that from June 1791 to November 1813 the number enrolled was 4,556,000 men, but the Minister of War in 1814 was of opinion that only 2,022,000 had actually passed under the colours.

The number of volunteers who joined the colours was as follows:—

|                |        |                |        |
|----------------|--------|----------------|--------|
| 1845 . . . . . | 6,800  | 1860 . . . . . | 12,900 |
| 1850 . . . . . | 8,700  | 1865 . . . . . | 10,100 |
| 1855 . . . . . | 21,900 | 1869 . . . . . | 6,100  |

The average age of officers in 1866 was 37 years 8 months, and of men 26 years 3 months.

The annual death-rate for ten years ending 1884 averaged 10 per thousand. In 1885 it was only 7.6, which is about the same as in the United Kingdom, the arms varying thus :—

Engineers . . . 5.1 | Artillery . . . 6.7 | Train . . . 8.5  
Cavalry . . . 6.6 | Infantry . . . 7.5 | Zouaves . . . 9.7

There were in 1885 under the colours 452,000 men, whose aggregate of days in hospital was 6,300,000; this was equal to nearly 4 per cent. (3.8) of the men being constantly in hospital. The number of courts-martial in 1886 was as follows :—

|                    | Tried | Condemned |
|--------------------|-------|-----------|
| Officers . . . . . | 16    | 10        |
| Men . . . . .      | 5,549 | 4,750     |
| Total . . . . .    | 5,565 | 4,760     |

The numbers condemned in 1886 compared with 1882 thus :—

|                        | 1882  | 1886  |
|------------------------|-------|-------|
| Shot . . . . .         | 57    | 69    |
| Galley . . . . .       | 136   | 114   |
| Imprisonment . . . . . | 3,828 | 4,313 |
| Reprimand . . . . .    | 289   | 264   |
| Total . . . . .        | 4,310 | 4,760 |

#### GERMAN ARMY

The strength at various periods has been as follows :—

| Year           | Strength | Year           | Strength |
|----------------|----------|----------------|----------|
| 1810 . . . . . | 160,000  | 1865 . . . . . | 441,000  |
| 1831 . . . . . | 331,000  | 1871 . . . . . | 937,000  |
| 1851 . . . . . | 346,000  | 1890 . . . . . | 492,000  |

The army of Prussia at various dates was :—

|                |         |                |         |
|----------------|---------|----------------|---------|
| 1740 . . . . . | 76,000  | 1830 . . . . . | 162,000 |
| 1744 . . . . . | 95,000  | 1865 . . . . . | 239,000 |
| 1801 . . . . . | 220,000 | 1871 . . . . . | 750,000 |
| 1808 . . . . . | 42,000  | 1886 . . . . . | 377,000 |

The army in 1890 stands thus :—

|                        | 1890     |         |         | 1886    |         |              |         |
|------------------------|----------|---------|---------|---------|---------|--------------|---------|
|                        | Officers | Men     | Total   | Prussia | Bavaria | Other States | Total   |
| Horse . . . . .        | 2,360    | 65,000  | 67,360  | 51,000  | 7,000   | 7,000        | 65,000  |
| Foot . . . . .         | 11,200   | 329,000 | 340,200 | 267,000 | 40,000  | 38,000       | 345,000 |
| Artillery . . . . .    | 2,720    | 59,000  | 61,720  | 43,000  | 6,000   | 6,000        | 55,000  |
| Engineers, &c. . . . . | 3,220    | 19,500  | 22,720  | 16,000  | 3,000   | 3,000        | 22,000  |
| Total . . . . .        | 19,500   | 472,500 | 492,000 | 377,000 | 56,000  | 54,000       | 487,000 |
| Horses . . . . .       | ...      | ...     | ...     | 66,000  | 9,000   | 9,000        | 84,000  |

The strength of the principal garrisons in 1883 was as follows :—

|                 |                  |                  |
|-----------------|------------------|------------------|
| Berlin . 17,800 | Mayence . 7,700  | Konigsberg 6,400 |
| Metz . 14,400   | Cologne . 7,700  | Potsdam . 6,600  |
| Strasburg 9,000 | Coblentz . 6,400 | Magdeburg 6,100  |

The expenditure for the German army in 1889 amounted to £18,840,000, equal to £38 per man, of which £5,500,000 was for pay, £4,300,000 for food, and £1,200,000 for clothing.

#### RUSSIAN ARMY

The strength at various periods was as follows :—

| Year           | Force   | Year           | Force   | Year           | Force   |
|----------------|---------|----------------|---------|----------------|---------|
| 1712 . . . . . | 108,000 | 1800 . . . . . | 433,000 | 1855 . . . . . | 888,000 |
| 1725 . . . . . | 196,000 | 1812 . . . . . | 540,000 | 1869 . . . . . | 834,000 |
| 1750 . . . . . | 163,000 | 1827 . . . . . | 870,000 | 1874 . . . . . | 794,000 |
| 1765 . . . . . | 313,000 | 1846 . . . . . | 730,000 | 1888 . . . . . | 770,000 |

Official returns in 1801 showed that the army then consisted of 234,000 infantry, 180,000 cavalry and Cos-

In 1801 it consisted of 40,000 horse and 180,000 foot.

Before the dismemberment of the German Confederation in 1865, the army also included an Austrian contingent, which is not included above. For example, the confederate army in 1865 comprised :—

|                        | Men     | Horses  |
|------------------------|---------|---------|
| Prussia . . . . .      | 239,000 | 54,000  |
| Austria . . . . .      | 222,000 | 31,000  |
| Bavaria . . . . .      | 67,000  | 8,000   |
| Small States . . . . . | 135,000 | 17,000  |
| Total . . . . .        | 663,000 | 111,000 |

The forces in campaign against France at the outbreak of the war in August 1870, and their maximum in February 1871, are shown thus :—

|                         | August 1870 | February 1871 |
|-------------------------|-------------|---------------|
| Prussians . . . . .     | 564,000     | 719,000       |
| Bavarians . . . . .     | 98,000      | 105,000       |
| Saxons . . . . .        | 43,000      | 44,000        |
| Wurtembergers . . . . . | 27,000      | 29,000        |
| Various . . . . .       | 49,000      | 40,000        |
| Total . . . . .         | 781,000     | 937,000       |

The recruits annually enrolled, and the proportion unable to read and write, were as follows :—

| Period            | Recruits | Illiterate, per Cent. | Recruits for 1887     |
|-------------------|----------|-----------------------|-----------------------|
| 1876-80 . . . . . | 141,000  | 19                    | Prussia . . . 104,000 |
| 1881-87 . . . . . | 154,000  | 12                    | Bavaria . . . 20,500  |
| 1876 . . . . .    | 140,000  | 24                    | Other States . 44,500 |
| 1887 . . . . .    | 169,000  | 7                     | Total . . . 169,000   |

sacks, and 19,000 artillery, in all 433,000 men, but the actual fighting strength was believed hardly to reach 250,000. During the war with Turkey in 1827 the nominal strength was 650,000 infantry, 170,000 cavalry, and 50,000 artillery, in all 870,000, but the real force was probably under 500,000.

According to an official statement in 1890 the army is summed up thus :—

|                        | Peace   |       | War       |       |
|------------------------|---------|-------|-----------|-------|
|                        | Men     | Guns  | Men       | Guns  |
| Infantry . . . . .     | 386,000 | ...   | 810,000   | ...   |
| Cavalry . . . . .      | 57,000  | ...   | 156,000   | ...   |
| Artillery . . . . .    | 62,000  | 1,540 | 75,000    | 4,030 |
| Engineers, &c. . . . . | 50,000  | ...   | 71,000    | ...   |
| Cossacks . . . . .     | 52,000  | ...   | 138,000   | 240   |
| Reserves . . . . .     | 193,000 | ...   | 470,000   | 1,020 |
| Total . . . . .        | 800,000 | 1,540 | 1,720,000 | 5,290 |

The peace footing has 170,000 horses. The above does not include the Siberian force of 131,000 men and 300 guns.

The *Statesman's Year-Book* gives the following estimated war footing for the whole Empire:—

|                  | Com-<br>batants | Non-Com-<br>batants | Horses  | Guns  |
|------------------|-----------------|---------------------|---------|-------|
| European Russia  | 1,770,000       | 85,000              | 340,000 | 3,380 |
| Caucasia . . .   | 250,000         | 15,000              | 68,000  | 300   |
| Siberia, &c. . . | 130,000         | 8,000               | 36,000  | 196   |
| Total . . .      | 2,150,000       | 108,000             | 444,000 | 3,876 |

#### AUSTRO-HUNGARIAN ARMY

The strength at various dates showed thus:—

| Year       | Army    | Year       | Army    | Year       | Army    |
|------------|---------|------------|---------|------------|---------|
| 1740 . . . | 30,000  | 1809 . . . | 280,000 | 1866 . . . | 647,000 |
| 1805 . . . | 220,000 | 1830 . . . | 286,000 | 1889 . . . | 323,000 |

The establishment for 1889 stood thus:—

|                  | Peace<br>Footing | War Footing |          |           |
|------------------|------------------|-------------|----------|-----------|
|                  |                  | Army        | Reserves | Total     |
| Horse . . . .    | 48,000           | 64,000      | 29,000   | 93,000    |
| Foot . . . .     | 193,000          | 563,000     | 737,000  | 1,300,000 |
| Artillery . . .  | 30,000           | 91,000      | ...      | 91,000    |
| Engineers, &c. . | 52,000           | 110,000     | 37,000   | 147,000   |
| Total . . .      | 323,000          | 828,000     | 803,000  | 1,631,000 |

The reserves consist of 350,000 Landwehr and 453,000 Landsturm. The artillery has 850 guns in time of peace, and 2008 on a war footing. There are 49,000 horses in peace, and 217,000 on war footing. Of the standing army in time of peace, Austria contributes 60, Hungary 40 per cent.

The strength of the several arms compares thus:—

|                 | 1830    | 1889    | Ratio |       |
|-----------------|---------|---------|-------|-------|
|                 |         |         | 1830  | 1889  |
| Infantry . . .  | 196,000 | 193,000 | 68.5  | 59.8  |
| Cavalry . . .   | 45,000  | 48,000  | 15.8  | 14.8  |
| Artillery . . . | 31,000  | 30,000  | 10.8  | 9.3   |
| Engineers . . . | 14,000  | 52,000  | 4.9   | 16.1  |
| Total . . .     | 286,000 | 323,000 | 100.0 | 100.0 |

The proportion of conscripts rejected by the army doctors was much greater in ten years ending 1872 than before, viz:—

|                        | Rejected per 1000 |         |
|------------------------|-------------------|---------|
|                        | 1857-64           | 1863-72 |
| Under height . . .     | 113               | 197     |
| Physical infirmity . . | 343               | 553     |
| Total . . .            | 456               | 750     |

In the latter period the proportion of Austrians rejected as too short was relatively one-fourth greater than that of Hungarians.

#### ITALIAN ARMY

The strength at various dates of the military forces of the States now forming the kingdom of Italy was:—

| Year       | Army    | Year       | Army    |
|------------|---------|------------|---------|
| 1810 . . . | 75,000  | 1869 . . . | 190,000 |
| 1830 . . . | 85,000  | 1878 . . . | 215,000 |
| 1851 . . . | 142,000 | 1889 . . . | 255,000 |

The establishment in 1889 was composed as follows:—

|                       | Army       |              | Reserves |              | War Footing |
|-----------------------|------------|--------------|----------|--------------|-------------|
|                       | Under Arms | On Fur-lough | Mobile   | Terri-torial | Total       |
| Horse . . .           | 26,000     | 10,000       | ...      | 31,000       | 67,000      |
| Foot . . .            | 107,000    | 203,000      | 210,000  | 567,000      | 1,087,000   |
| Artillery . .         | 33,000     | 60,000       | 25,000   | 49,000       | 167,000     |
| Rifles . . .          | 13,000     | 29,000       | 22,000   | 36,000       | 100,000     |
| Carbineers .          | 24,000     | 4,000        | ...      | 9,000        | 37,000      |
| Engineers, }<br>&c. } | 52,000     | 81,000       | 42,000   | 63,000       | 238,000     |
| Total . . .           | 255,000    | 387,000      | 299,000  | 755,000      | 1,696,000   |

There is still another line of reserves, 1,069,000 men, which would bring up the total to 2,765,000.

The ratio of conscripts rejected by the army doctors shows thus:—

|                |              |                 |              |
|----------------|--------------|-----------------|--------------|
| From Rome . .  | 18 per cent. | From Piedmont   | 31 per cent. |
| " Naples . . . | 23 "         | " Venetia . . . | 34 "         |
| " Sicily . . . | 30 "         | " Lombardy . .  | 44 "         |

According to the *Annales de Demog.*, the above results were obtained from one million conscripts.

#### SPANISH ARMY

The strength at various dates was as follows:—

| Year       | Army   | Year       | Army    |
|------------|--------|------------|---------|
| 1810 . . . | 54,000 | 1851 . . . | 87,000  |
| 1831 . . . | 46,000 | 1889 . . . | 145,000 |

The actual establishment is as follows:—

|                 | Peace   | War     |
|-----------------|---------|---------|
| Horse . . . .   | 14,000  | 21,000  |
| Foot . . . .    | 116,000 | 343,000 |
| Artillery . . . | 11,000  | 30,000  |
| Engineers . . . | 4,000   | 7,000   |
| Total . . .     | 145,000 | 401,000 |

There are 104,000 men in Spain, 30,000 in Cuba and Porto Rico, and 11,000 in the Philippine Islands.

#### PORTUGUESE ARMY

The strength at various dates was as follows:—

| Year       | Army   | Year       | Army   |
|------------|--------|------------|--------|
| 1810 . . . | 10,000 | 1851 . . . | 28,000 |
| 1830 . . . | 26,000 | 1888 . . . | 26,000 |

Including reserves, the peace and war footings show thus:—

|              | Peace  | War     |
|--------------|--------|---------|
| Men . . . .  | 33,000 | 150,000 |
| Horses . . . | 4,000  | 13,000  |
| Guns . . . . | 132    | 264     |

The garrison of Portugal is 17,000; of the colonies, 9000 men.

#### SWEDISH ARMY

Before the annexation of Norway, the Swedish army in 1805 counted 11,000 horse, 24,000 foot, and 4000 artillery, in all 39,000 men. The combined strength of Sweden and Norway in 1830, on peace footing, was 42,000, and in 1851 it amounted to 57,000.

The present establishment is as follows:—

|               | Peace  |         |        | War     |         |         |
|---------------|--------|---------|--------|---------|---------|---------|
|               | Sweden | Nor-way | Total  | Sweden  | Nor-way | Total   |
| Horse . . .   | 5,000  | 1,300   | 6,300  | 9,000   | 3,000   | 12,000  |
| Foot . . .    | 27,500 | 15,000  | 42,500 | 157,500 | 34,000  | 191,500 |
| Artillery . . | 4,500  | 1,800   | 6,300  | 13,000  | 2,000   | 15,000  |
| Engineers . . | 1,300  | 700     | 2,000  | 10,500  | 1,000   | 11,500  |
| Total . . .   | 38,300 | 18,800  | 57,100 | 190,000 | 40,000  | 230,000 |

## DANISH ARMY

In 1805 it comprised the forces of Denmark and Norway, viz. :—

|                 | Denmark | Norway | Total  |
|-----------------|---------|--------|--------|
| Infantry . . .  | 30,000  | 34,000 | 64,000 |
| Cavalry . . .   | 7,100   | 3,200  | 10,300 |
| Artillery . . . | 3,100   | ...    | 3,100  |
| Total . . .     | 40,200  | 37,200 | 77,400 |

In 1830 the force was only 39,000, Norway having been united to Sweden, and even this must have included irregulars; the regular army in 1850 amounted only to 25,000 men. In 1889, the forces were approximately as follows :—

|                  | Peace  | Reserves | War Footing |
|------------------|--------|----------|-------------|
| Horse . . .      | 2,000  | 2,000    | 4,000       |
| Foot . . .       | 12,000 | 33,600   | 45,600      |
| Artillery, &c. . | 2,600  | 6,400    | 9,000       |
| Total . . .      | 16,600 | 42,000   | 58,600      |

The artillery has 120 field-guns in time of peace.

## DUTCH ARMY

The establishment in 1888 was approximately as follows :—

|                  | Peace  | Reserves | War Footing |
|------------------|--------|----------|-------------|
| Horse . . .      | 2,000  | 1,000    | 3,000       |
| Foot . . .       | 21,000 | 16,000   | 37,000      |
| Artillery . . .  | 5,000  | 9,000    | 14,000      |
| Engineers, &c. . | 1,000  | ...      | 1,000       |
| Total . . .      | 29,000 | 26,000   | 55,000      |

There is also a militia, numbering 100,000 men; also a colonial army in Java, comprising 34,000 men, of whom 15,000 are Dutch and 19,000 natives.

## BELGIAN ARMY

The establishment is as follows :—

|                  | Peace  |              | Peace  | War     |
|------------------|--------|--------------|--------|---------|
| Horse . . .      | 6,000  | Men . . .    | 47,500 | 148,000 |
| Foot . . .       | 31,000 | Horses . . . | 9,000  | 14,000  |
| Artillery, &c. . | 10,500 | Guns . . .   | 200    | 240     |
| Total . . .      | 47,500 |              | ...    | ...     |

In time of war the Civic Guard (42,000) could be added, making a total of 190,000 men.

The death-rate has been as follows per 1000 men yearly :—

| Year       | Rate | Year       | Rate | Year       | Rate |
|------------|------|------------|------|------------|------|
| 1835 . . . | 80   | 1860 . . . | 20   | 1880 . . . | 20   |
| 1850 . . . | 40   | 1870 . . . | 40   | 1888 . . . | 13   |

The military hospital returns were :—

| Year | Entries | Deaths | Deaths per 1000 Admitted | Days per Bed |
|------|---------|--------|--------------------------|--------------|
| 1870 | 21,380  | 310    | 15.0                     | 21           |
| 1880 | 16,290  | 190    | 12.4                     | 21           |
| 1886 | 17,660  | 184    | 10.5                     | 22           |

The levy averages 20,100 men, of whom 13,300 are passed to the colours; those rejected average 34 per cent. of the number drawn, 3½ per cent. being rejected as short of the required height.

## SWISS ARMY

In 1889 the force was as follows :—

|                  | Line    | Landwehr | Landsturm | War Footing |
|------------------|---------|----------|-----------|-------------|
| Horse . . .      | 3,000   | 3,000    | ...       | 6,000       |
| Foot . . .       | 96,000  | 65,000   | 260,000   | 421,000     |
| Artillery . . .  | 18,000  | 10,000   | 3,000     | 31,000      |
| Engineers, &c. . | 9,000   | 3,000    | ...       | 12,000      |
| Total . . .      | 126,000 | 81,000   | 263,000   | 470,000     |

The artillery has 42 guns in peace, and 300 on a war footing.

## GREEK ARMY

The strength in 1889 was as follows :—

|                  |        |              |        |
|------------------|--------|--------------|--------|
| Horse . . .      | 3,000  | Men . . .    | 26,000 |
| Foot . . .       | 16,000 | Horses . . . | 3,700  |
| Artillery, &c. . | 7,000  | Guns . . .   | 120    |
| Total . . .      | 26,000 |              |        |

By calling out the militia, the war footing could be raised to 105,000 men.

## ROUMANIAN ARMY

In 1889 the establishment was approximately as follows :—

|                  | Army   | Militia | War Footing |
|------------------|--------|---------|-------------|
| Horse . . .      | 4,000  | 4,000   | 8,000       |
| Foot . . .       | 23,000 | 75,000  | 98,000      |
| Artillery . . .  | 6,000  | 3,000   | 9,000       |
| Engineers, &c. . | 3,000  | ...     | 3,000       |
| Total . . .      | 36,000 | 82,000  | 118,000     |

## SERVIAN ARMY

The strength in 1889 was as follows, approximately :—

|                  |        |              |        |
|------------------|--------|--------------|--------|
| Horse . . .      | 1,000  | Men . . .    | 18,000 |
| Foot . . .       | 14,000 | Horses . . . | 2,000  |
| Artillery, &c. . | 3,000  | Guns . . .   | 144    |
| Total . . .      | 18,000 |              |        |

By calling out the reserves a war footing of 100,000 could be attained.

## BULGARIAN ARMY

In 1888 the strength was approximately thus :—

|                  |        |              |        |
|------------------|--------|--------------|--------|
| Horse . . .      | 2,000  | Men . . .    | 29,000 |
| Foot . . .       | 23,000 | Horses . . . | 2,000  |
| Artillery, &c. . | 4,000  | Guns . . .   | 96     |
| Total . . .      | 29,000 |              |        |

The war footing is estimated at 100,000.

## TURKISH ARMY

The strength at various dates was as follows :—

| Year       | Army    | Year       | Army    |
|------------|---------|------------|---------|
| 1810 . . . | 297,000 | 1869 . . . | 220,000 |
| 1855 . . . | 165,000 | 1889 . . . | 160,000 |

The present establishment is as follows :—

|                  |         |              |         |
|------------------|---------|--------------|---------|
| Horse . . .      | 20,000  | Men . . .    | 160,000 |
| Foot . . .       | 98,000  | Horses . . . | 25,000  |
| Artillery, &c. . | 42,000  | Guns . . .   | 1,190   |
| Total . . .      | 160,000 |              |         |

The reserves and Bashi-Bazonks are variously estimated. On paper, Turkey has a war footing of 800,000 men, but the total is generally supposed not to exceed 470,000.

#### UNITED STATES

The number of soldiers at various periods was:—  
1775–83, War of Independence, enrolled 231,800 men.  
1812, war with England, 68,000 men, of whom 32,400 regulars, the rest volunteers and militia.

1861–63, Federal Government enrolled 2,688,000 men; Confederate, 300,000.

In 1880 the army counted 2200 officers and 26,000 men, viz.:—Horse, 8000; foot, 15,000; artillery, &c., 3000. Two regiments of horse and two of foot are composed of negro soldiers, with white officers.

#### ARMIES OF SOUTH AMERICA

The following table shows approximately the disciplined forces of Spanish America:—

|                         | Horse  | Foot   | Artillery, &c. | Total  |
|-------------------------|--------|--------|----------------|--------|
| Mexico . . . .          | 5,500  | 19,500 | 2,500          | 27,500 |
| Central America . . . . | 1,200  | 5,000  | 800            | 7,000  |
| Columbia . . . .        | 1,000  | 4,000  | 1,000          | 6,000  |
| Venezuela . . . .       | 1,000  | 2,500  | 500            | 4,000  |
| Ecuador . . . .         | 500    | 2,000  | 500            | 3,000  |
| Peru . . . .            | 600    | 4,800  | 500            | 5,900  |
| Chile . . . .           | 1,000  | 4,000  | 500            | 5,500  |
| Bolivia . . . .         | 500    | 2,000  | 500            | 3,000  |
| Paraguay . . . .        | 100    | 400    | 100            | 600    |
| Uruguay . . . .         | 1,000  | 2,000  | 500            | 3,500  |
| Argentina . . . .       | 2,500  | 3,500  | 1,000          | 7,000  |
| Brazil . . . .          | 2,500  | 9,500  | 4,000          | 16,000 |
| Total . . . .           | 17,400 | 59,200 | 12,400         | 89,000 |

In time of war the numbers are doubled, or even quadrupled, by adding raw levies of peasants.

#### JAPANESE ARMY

The actual strength, according to the *Statesman's Year-Book*, is as follows:—

|                      |        |                |        |
|----------------------|--------|----------------|--------|
| Horse . . . .        | 3,000  | Men . . . .    | 60,500 |
| Foot . . . .         | 47,000 | Horses . . . . | 7,200  |
| Artillery, &c. . . . | 10,500 | Guns . . . .   | 160    |
| Total . . . .        | 60,500 | ...            | ...    |

There are also two lines of reserves, together 247,000 men, making up a total war footing of 307,500 men.

#### PERSIAN ARMY

It may be stated approximately as follows:—

|                      | Peace  | Reserves | War Footing |
|----------------------|--------|----------|-------------|
| Horse . . . .        | 6,000  | 19,200   | 25,200      |
| Foot . . . .         | 17,000 | 58,300   | 75,300      |
| Artillery, &c. . . . | 2,000  | 3,000    | 5,000       |
| Total . . . .        | 25,000 | 80,500   | 105,500     |

The real strength of the Empire on war footing is believed not to exceed 50,000 men.

#### ARMIES OF ANTIQUITY

| Date      | General                    | Number    | Observation        |
|-----------|----------------------------|-----------|--------------------|
| B.C. 480  | Xerxes                     | 1,800,000 | Invading Greece    |
| B.C. 332  | Darius                     | 750,000   | War with Alexander |
| A.D. 720  | Abderahman                 | 300,000   | Battle of Tours    |
| A.D. 1095 | { Godfrey de }<br>Bouillon | 300,000   | First Crusade      |

#### ARMY TRANSPORT

| Date         | Army of       | Number  | From     | To          | Miles | Days |
|--------------|---------------|---------|----------|-------------|-------|------|
| 193 . . . .  | Sept. Severus | 35,000  | Pannonia | Rome        | 800   | 40   |
| 1235 . . . . | Gelaleddin    | ...     | Tiflis   | Kerman      | 1,000 | 17   |
| 1805 . . . . | Napoleon      | 150,000 | Boulogne | Germany     | 450   | 25   |
| 1863 . . . . | Federals      | 25,000  | Kentucky | Vicksburg   | 1,000 | 4    |
| 1865 . . . . | Federals      | 16,000  | Eastport | New Orleans | 1,330 | 13   |
| 1866 . . . . | Austrians     | 123,000 | Venice   | Danube      | 500   | 10   |
| 1877 . . . . | Americans     | 400     | Atlanta  | Idaho       | 4,302 | 15   |

#### ASTRONOMY

According to Dr. Gould, there are 6100 stars in the Northern, and 7200 in the Southern Hemisphere distinctly visible to the naked eye. Mr. Proctor estimated the number of stars as follows:—

|                                |            |
|--------------------------------|------------|
| Down to 10th magnitude . . . . | 1,000,000  |
| " 11th " . . . .               | 3,000,000  |
| " 12th " . . . .               | 9,000,000  |
| " 13th " . . . .               | 27,000,000 |

According to the Paris Observatory, the number down to 14th magnitude is about 50 millions. Dr. Gould fixed the position of 85,000 stars in the Southern Hemisphere in his *Uranometria Argentina*.

It seems that the first catalogue of the stars was that by Tycho Brahe, which included 777 fixed stars, and was published about 1590. A second, embracing 2884 stars, was made in 1725 by the Astronomer Royal at Greenwich, Flamsteed. His successor, Bradley, noted the position of 60,000, and the two Herschels, father and son, made catalogues respectively of the northern and southern hemispheres. The second Herschel also made a catalogue of 4000 double stars.

The following table shows the number of observatories and the size of the principal telescopes in the world:—

| Observatories           |     | Telescopes                   |                 |
|-------------------------|-----|------------------------------|-----------------|
|                         |     |                              | Inches Aperture |
| United Kingdom . . . .  | 14  | Lord Rosse . . . .           | 72              |
| France . . . .          | 6   | Lassell . . . .              | 48              |
| Germany . . . .         | 29  | Herschell . . . .            | 48              |
| Russia . . . .          | 12  | Polkova . . . .              | 30              |
| Italy . . . .           | 9   | San José, California . . . . | 28              |
| Austria . . . .         | 8   | Vienna . . . .               | 27              |
| Switzerland . . . .     | 4   | Washington . . . .           | 26              |
| Other countries . . . . | 12  | Newcastle . . . .            | 25              |
| Europe . . . .          | 94  | Pultowa . . . .              | 16              |
| United States . . . .   | 19  | Cambridge, U.S. . . .        | 15              |
| Canada . . . .          | 1   | Paris . . . .                | 13              |
| Spanish America . . . . | 7   | Greenwich . . . .            | 12              |
| Asia . . . .            | 2   | Cincinnati . . . .           | 12              |
| Africa . . . .          | 2   | Munich . . . .               | 11              |
| Australia . . . .       | 3   | Rome . . . .                 | 10              |
| The World . . . .       | 128 | Berlin . . . .               | 10              |

Leyden Observatory was founded 1632, Copenhagen 1637, Greenwich 1675, Paris 1677.

## PLANETS

|                   | Miles Diameter | Millions of Miles      |                           |                              | Ratios of Size, Weight, &c. |        |         |              |
|-------------------|----------------|------------------------|---------------------------|------------------------------|-----------------------------|--------|---------|--------------|
|                   |                | Mean Distance from Sun | Least Distance from Earth | Greatest Distance from Earth | Size                        | Weight | Density | Days in Year |
| Earth . . . . .   | 7,901          | 91                     | ...                       | ...                          | 100                         | 100    | 100     | 365          |
| Mercury . . . . . | 2,962          | 35                     | 47                        | 136                          | 5                           | 7      | 124     | 88           |
| Venus . . . . .   | 7,510          | 66                     | 23                        | 160                          | 80                          | 79     | 90      | 225          |
| Mars . . . . .    | 4,920          | 139                    | 62                        | 245                          | 14                          | 12     | 96      | 687          |
| Jupiter . . . . . | 85,390         | 476                    | 409                       | 592                          | 138,700                     | 39,000 | 20      | 4,333        |
| Saturn . . . . .  | 71,904         | 872                    | 831                       | 1,014                        | 74,600                      | 9,000  | 12      | 10,759       |
| Uranus . . . . .  | 33,024         | 1,753                  | 1,746                     | 1,929                        | 7,200                       | 1,300  | 18      | 30,687       |
| Neptune . . . . . | 36,620         | 2,746                  | 2,629                     | 2,863                        | 9,400                       | 1,700  | 17      | 60,127       |

## COMETS

| Name               | Years of Revolution | Millions of Miles from Sun |                | Next Return |
|--------------------|---------------------|----------------------------|----------------|-------------|
|                    |                     | Greatest Distance          | Least Distance |             |
| Halley . . . . .   | 77                  | 3,200                      | 56             | 1910        |
| Mechain . . . . .  | 14                  | ...                        | ...            | 1899        |
| Faye . . . . .     | 8                   | 603                        | 192            | 1896        |
| D'Arrest . . . . . | 7                   | ...                        | ...            | 1890        |
| Biela . . . . .    | 7                   | 585                        | 82             | 1893        |
| Brorsen . . . . .  | 6                   | 537                        | 64             | 1890        |
| Winnecke . . . . . | 6                   | ...                        | ...            | 1891        |
| De Vico . . . . .  | 6                   | 475                        | 110            | 1895        |
| Encke . . . . .    | 3                   | 387                        | 32             | 1890        |

## STARS ACCORDING TO MAGNITUDE

| Magnitude      | No.        | Years for Light to Reach the Earth |
|----------------|------------|------------------------------------|
| 1st . . . . .  | 18         | 3                                  |
| 2nd . . . . .  | 55         | 6                                  |
| 3rd . . . . .  | 170        | 9                                  |
| 4th . . . . .  | 500        | 12                                 |
| 6th . . . . .  | 6,000      | 36                                 |
| 12th . . . . . | 10,000,000 | ...                                |

All down to the 36th magnitude inclusive, that is, over 8000 in number, are clearly visible to the naked eye. A 9-foot telescope reveals those of the 12th magnitude, an 18-foot one those of the 13th, whose light takes 2700 years reach to us. Down to the 13th inclusive comprises 27,000,000.

## ATHLETICS

| Distance | Bicycle           |       |         |         |      | Tricycle       |       |         |         |      |
|----------|-------------------|-------|---------|---------|------|----------------|-------|---------|---------|------|
|          | Rider             | Hours | Minutes | Seconds | Date | Rider          | Hours | Minutes | Seconds | Date |
| 1 mile   | W. C. Jones .     | 0     | 2       | 20      | 1890 | G. Gatehouse . | 0     | 2       | 42      | 1887 |
| 5 "      | S. G. Whittaker . | 0     | 13      | 46      | 1888 | G. Gatehouse . | 0     | 14      | 28      | ..   |
| 10 "     | H. G. Crocker .   | 0     | 27      | 8       | "    | J. B. King . . | 0     | 29      | 10      | 1888 |
| 20 "     | S. G. Whittaker . | 0     | 56      | 32      | "    | G. Gatehouse . | 0     | 59      | 10      | 1887 |
| 30 "     | E. Oxborough .    | 1     | 28      | 29      | "    | F. W. Allard . | 1     | 34      | 25      | ..   |
| 50 "     | W. F. Knapp .     | 2     | 29      | 41      | "    | F. W. Allard . | 2     | 43      | 54      | ..   |
| 100 "    | F. R. Fry . .     | 5     | 50      | 5       | 1883 | A. L. Bower .  | 6     | 9       | 26      | ..   |

G. P. Mills rode from Land's End to John o' Groats, 86½ miles, in 5 days 2 hours; another person, from Tunbridge to Liverpool, 234 miles, in 18½ hours. In 1879, G. Waller rode, at the Agricultural Hall, Islington, 1405 miles in 6 days of 18 hours; in 1880, at the same

place, H. Higham, 230 miles in 17 hours, without dismounting. In June 1888, in a six-days' race at Islington, between horse and bicycle, the horse won by 2 miles. In 1882 there were 9800 bicycle riders in London, and 96,000 in England and Wales.

## CRICKET

The highest individual score on record is 485, by A. E. Stoddart, in 1886, in a match of Hampstead v. Stoics. The largest gross score is 920, by the Orleans Club, 3rd August 1882.

The highest records of throwing the cricket-ball are:—

| Date | Throw      | Yards | Place     |
|------|------------|-------|-----------|
| 1873 | W. H. Game | 127   | Oxford    |
| 1888 | — Crane    | 128   | Melbourne |

Mr. Crane, the champion thrower, is an American.

## JUMPS

| Date | Jump          | Athlete       | Feet | Inches |
|------|---------------|---------------|------|--------|
| 1881 | Long standing | E. A. Johnson | 11   | 1      |
| 1883 | Long running  | P. Davin      | 23   | 2      |
| 1878 | High standing | E. A. Johnson | 5    | 3      |
| 1887 | High running  | W. Byrd Page  | 6    | 4      |
| 1886 | Pole jump     | Tom Ray       | 11   | 6      |

## RUNNING AND WALKING

| Date | Miles | Athlete         | Hours | Minutes | Seconds | Place      |
|------|-------|-----------------|-------|---------|---------|------------|
| 1886 | 1     | W. S. George    | 0     | 4       | 13      | London     |
| 1863 | 2     | W. Lang         | 0     | 9       | 11      | Manchester |
| 1863 | 5     | G. White        | 0     | 24      | 40      | ...        |
| 1885 | 10    | W. Cummings     | 0     | 51      | 7       | London     |
| 1880 | 20    | J. E. Warburton | 1     | 56      | 38      | ...        |
| 1881 | 30    | G. Mason        | 3     | 15      | 9       | ...        |
| 1881 | 40    | G. Bailey       | 4     | 34      | 27      | ...        |
| 1887 | 50    | G. Cartwright   | 5     | 55      | 5       | ...        |
| 1882 | 100   | C. Rowell       | 13    | 26      | 30      | New York   |

The greatest distance walked in one hour was 8 miles 172 yards by W. Griffin in 1881, and in four hours was 27½ miles by W. Franks in 1882. The greatest distance run in one hour was 11 miles 970 yards by Louis Bennett in 1863.

The following pedestrian feats in six days are recorded:—

| Date          | Miles | Athlete    | Place    |
|---------------|-------|------------|----------|
| 1880. . . . . | 550   | Brown      | London   |
| 1888. . . . . | 621   | Albert     | "        |
| 1888. . . . . | 623   | Littlewood | New York |
| 1882. . . . . | 660   | Hazel      | "        |

Mr. Hazel was an Englishman, and won £4000. In 1874, at Bristol, Miss Richards gained £50 for her aged parents by walking 1000 miles in 1000 consecutive hours. Mr. Weston has walked 5000 miles in 100 days.

## SKATING

| Date | Miles | Athlete       | Hours | Minutes | Seconds | Place     |
|------|-------|---------------|-------|---------|---------|-----------|
| 1889 | 1     | A. Paschin    | 0     | 2       | 57      | Vienna    |
| 1889 | 1     | O'Donoghue    | 0     | 2       | 57      | "         |
| 1890 | 2     | Norseng       | 0     | 6       | 25      | Amsterdam |
| 1884 | 3     | A. Paulsen    | 0     | 10      | 34      | New York  |
| 1890 | 5     | Norseng       | 0     | 16      | 48      | Amsterdam |
| 1884 | 10    | A. Paulsen    | 0     | 36      | 37      | New York  |
| 1884 | 20    | "             | 1     | 14      | 7       | "         |
| 1882 | 30    | S. Montgomery | 2     | 31      | 12      | "         |
| 1882 | 40    | "             | 3     | 21      | 22      | "         |
| 1882 | 50    | "             | 4     | 13      | 36      | "         |

## SWIMMING

Captain Webb swam from Dover to Calais, August 24, 1875, in 21 hours 45 minutes, but was beaten by William Beckwith in a swimming match for 90 miles in 60 hours. Lord Byron swam across the Dardanelles.

| Swimmer           | Distance             | Miles | Time    |
|-------------------|----------------------|-------|---------|
| Miss Beckwith . . | London to Greenwich  | ...   | ...     |
| Miss Parker . . . | London to Blackwall  | 7     | 95 min. |
| Miss Dicks . . .  | Shoreham to Brighton | 6     | ...     |
| Miss Saigeman . . | "                    | 6     | ...     |
| Fr. Cavil . . . . | Putney to Blackwall  | 16    | 4 hrs.  |
| " . . . .         | Calais to Dover      | 23    | 13 hrs. |

Miss Beckwith was only 14 years of age when she swam from London to Greenwich (1875).

| Date          | Distance  | Swimmer    | Hrs. | Min. | Sec. |
|---------------|-----------|------------|------|------|------|
| 1884. . . . . | 1 mile    | J. Collier | 0    | 28   | 20   |
| 1881. . . . . | 500 yards | J. Finney  | 0    | 7    | 7    |

## BOAT RACES

The quickest runs from Putney to Mortlake were:—

| Year         | Winner    | Minutes | Seconds |
|--------------|-----------|---------|---------|
| 1869 . . . . | Oxford    | 20      | 4       |
| 1873 . . . . | Cambridge | 19      | 35      |

In 45 years Oxford won 23, Cambridge 21, and one was a dead heat.

## B.

## BALLOON

The most remarkable ascents on record are:—

| Date | Aeronaut      | Place of Ascent | Height, Yards | Distance, Miles |
|------|---------------|-----------------|---------------|-----------------|
| 1783 | Montgolfier . | Lyons . . .     | 2,000         | ...             |
| 1804 | Gay-Lussac .  | Paris . . .     | 7,700         | ...             |
| 1836 | Holland . . . | London . .      | ...           | 500             |
| 1859 | Wise . . . .  | New York .      | ...           | 1,150           |
| 1862 | Glaisher . .  | Wolverton .     | 12,000        | ...             |

During the siege of Paris, September 1870 to February 1871, there were 64 balloons sent up, containing 91 passengers, 354 pigeons, and 3 million letters (weighing 9 tons). Mr. Glaisher states that in 3500 balloon ascents only fifteen deaths have occurred, that is, about four per thousand.

Mr. Godard, who died in November 1890, made over 2000 ascents. Charles Green, who died in 1870, had made 600; and Mr. Coxwell, who is still living, over 700, having attained with Mr. Glaisher a height of seven miles.

The results of Professor Glaisher's observations during nine ascents in 1863-64 were as follows:—

| Elevation, Feet | Decrease of Temperature, Fahr. |       | Humidity        |            |
|-----------------|--------------------------------|-------|-----------------|------------|
|                 | Cloudy Sky                     | Clear | Cloudy Sky (74) | Clear (59) |
| 1,000           | 4                              | 6     | 76              | 61         |
| 2,000           | 8                              | 11    | 76              | 70         |
| 5,000           | 18                             | 21    | 74              | 69         |
| 10,000          | 31                             | 34    | 48              | 46         |
| 15,000          | 42                             | 44    | 59              | 44         |
| 20,000          | 49                             | 52    | 39              | 33         |
| 25,000          | 52                             | 56    | 40              | 16         |
| 30,000          | ...                            | 62    | ...             | ...        |

## BANKS

The banking power of the world has increased in a surprising degree in the last fifty years, viz. :—

|                   | 1840       | 1870       | 1888-90    |
|-------------------|------------|------------|------------|
|                   | Millions £ | Millions £ | Millions £ |
| United Kingdom    | 132        | 720        | 910        |
| United States . . | 90         | 440        | 1,030      |
| France . . . . .  | 16         | 64         | 268        |
| Germany . . . .   | 12         | 49         | 231        |
| Australia . . . . | 5          | 38         | 134        |
| Canada . . . . .  | 3          | 12         | 40         |
| River Plate . . . | 2          | 9          | 37         |
| Other countries . | 48         | 270        | 547        |
| Total . . . . .   | 308        | 1,602      | 3,197      |

The issues of State banks in England, France, Austria, Germany, Russia, and United States, compared with specie reserve at the subjoined dates as follows:—

|                  | Issue, Millions £ |      |      | Specie Reserve, Millions £ |      |      |
|------------------|-------------------|------|------|----------------------------|------|------|
|                  | 1870              | 1880 | 1890 | 1870                       | 1880 | 1890 |
| Bank of England  | 24                | 27   | 25   | 21                         | 28   | 21   |
| Bank of France   | 58                | 92   | 120  | 50                         | 79   | 103  |
| Bank of Austria  | 30                | 33   | 42   | 11                         | 17   | 22   |
| German banks .   | 43                | 50   | 49   | 20                         | 31   | 42   |
| Bank of Russia . | 100               | 140  | 123  | 24                         | 28   | 33   |
| U. States banks  | 96                | 73   | 27   | 28                         | 68   | 229  |
| " Treasury       | 63                | 72   | 181  |                            |      |      |
| Total . . . . .  | 414               | 487  | 567  | 154                        | 251  | 450  |

In twenty years the specie reserve was trebled, while the paper issue only rose 33 per cent. The ratio of specie

to paper money in general was 38 per cent. in 1870, and 79 per cent. in 1890.

It appears that the amount of capital employed in banking has almost doubled since 1870, and multiplied nearly tenfold since 1840. Banking power consists of capital, right of issue, and deposits in all banks, viz. :—

|                         | Millions, £ Sterling |          |       | £ per Inhabitant |
|-------------------------|----------------------|----------|-------|------------------|
|                         | Capital, &c.         | Deposits | Total |                  |
| United Kingdom . . . .  | 284                  | 626      | 910   | 24.0             |
| France . . . . .        | 140                  | 128      | 268   | 7.0              |
| Germany . . . . .       | 85                   | 146      | 231   | 5.0              |
| Russia . . . . .        | 42                   | 64       | 106   | 1.2              |
| Austria . . . . .       | 45                   | 102      | 147   | 3.8              |
| Italy . . . . .         | 25                   | 83       | 108   | 3.6              |
| Spain . . . . .         | 31                   | 16       | 47    | 2.8              |
| Portugal . . . . .      | 6                    | 4        | 10    | 2.2              |
| Sweden . . . . .        | 9                    | 15       | 24    | 5.3              |
| Norway . . . . .        | 5                    | 1        | 6     | 3.0              |
| Denmark . . . . .       | 2                    | 21       | 23    | 11.6             |
| Belgium . . . . .       | 11                   | 19       | 30    | 5.0              |
| Holland . . . . .       | 14                   | 6        | 20    | 4.5              |
| Switzerland . . . . .   | 5                    | 12       | 17    | 6.0              |
| Europe . . . . .        | 704                  | 1,243    | 1,947 | 5.5              |
| United States . . . . . | 270                  | 760      | 1,030 | 16.1             |
| Australia . . . . .     | 26                   | 108      | 134   | 37.0             |
| Canada . . . . .        | 13                   | 27       | 40    | 8.0              |
| Cape Colony . . . . .   | 2                    | 7        | 9     | 6.0              |
| Argentina . . . . .     | 12                   | 17       | 29    | 8.0              |
| Uruguay . . . . .       | 3                    | 5        | 8     | 12.0             |
| Total . . . . .         | 1,030                | 2,167    | 3,197 | 7.5              |

The issue and specie reserves of the banks of all nations in 1889 were as follows :—

|                         | £ Sterling  |                | Specie Ratio |
|-------------------------|-------------|----------------|--------------|
|                         | Issue       | Specie in Safe |              |
| United Kingdom          | 39,000,000  | 28,000,000     | Per cent.    |
| France . . . . .        | 121,400,000 | 101,000,000    | 70           |
| Germany . . . . .       | 64,000,000  | 59,000,000     | 84           |
| Russia . . . . .        | 123,000,000 | 33,000,000     | 91           |
| Austria . . . . .       | 43,500,000  | 21,500,000     | 26           |
| Italy . . . . .         | 43,000,000  | 14,000,000     | 50           |
| Spain . . . . .         | 29,500,000  | 9,500,000      | 33           |
| Sweden . . . . .        | 6,300,000   | 2,700,000      | 32           |
| Norway . . . . .        | 2,400,000   | 2,500,000      | 44           |
| Denmark . . . . .       | 4,400,000   | 3,100,000      | 104          |
| Belgium . . . . .       | 15,200,000  | 4,400,000      | 70           |
| Holland . . . . .       | 17,200,000  | 10,600,000     | 29           |
| Switzerland . . . . .   | 6,200,000   | 3,900,000      | 60           |
| Greece . . . . .        | 3,000,000   | 1,000,000      | 63           |
| Europe . . . . .        | 518,100,000 | 294,200,000    | 33           |
| United States . . . . . | 26,700,000  | 34,300,000     | 47           |
| Canada . . . . .        | 6,300,000   | 1,400,000      | 128          |
| Australia . . . . .     | 5,400,000   | 19,300,000     | 22           |
| Cape Colony . . . . .   | 700,000     | 1,600,000      | 357          |
| Argentina . . . . .     | 44,000,000  | 4,500,000      | 230          |
| Uruguay . . . . .       | 3,100,000   | 600,000        | 10           |
| India . . . . .         | 12,000,000  | 12,000,000     | 20           |
| Total . . . . .         | 616,300,000 | 367,900,000    | 100          |

The above does not include Government issues (for which see *Money*). The specie reserve in Argentina and Uruguay is full of doubt.

The statements of the twelve great banks of Europe in December 1889 was as follows :—

| Bank of               | Issue, £    | Specie, £   | Deposits, £ | Discount, £ | Capital, £ |
|-----------------------|-------------|-------------|-------------|-------------|------------|
| England . . . . .     | 24,400,000  | 17,800,000  | 28,600,000  | 36,900,000  | 14,500,000 |
| France . . . . .      | 121,400,000 | 100,900,000 | 27,800,000  | 51,600,000  | 7,300,000  |
| Germany . . . . .     | 50,000,000  | 38,900,000  | 17,600,000  | 33,100,000  | 6,000,000  |
| Austria . . . . .     | 43,500,000  | 21,500,000  | 10,700,000  | 17,900,000  | 9,000,000  |
| Russia . . . . .      | 123,500,000 | 33,100,000  | 5,400,000   | 11,500,000  | 4,000,000  |
| Italy . . . . .       | 23,400,000  | 9,300,000   | 6,500,000   | 7,700,000   | 8,100,000  |
| Spain . . . . .       | 29,500,000  | 10,500,000  | 16,100,000  | 42,200,000  | 6,000,000  |
| Netherlands . . . . . | 17,200,000  | 10,600,000  | 1,200,000   | 9,500,000   | 2,000,000  |
| Belgium . . . . .     | 14,800,000  | 4,000,000   | 2,200,000   | 12,100,000  | 3,000,000  |
| Denmark . . . . .     | 4,400,000   | 3,100,000   | ...         | 2,000,000   | 1,000,000  |
| Sweden . . . . .      | 2,500,000   | 1,100,000   | 800,000     | 3,400,000   | 2,200,000  |
| Norway . . . . .      | 2,400,000   | 2,500,000   | 500,000     | 1,200,000   | 700,000    |
| Total . . . . .       | 457,000,000 | 253,300,000 | 117,400,000 | 229,100,000 | 63,700,000 |

The figures for Spain and Netherlands are those of March 1890, the deposits for Austria of 1887, and the Scandinavian banks 1888.

The rates of interest\* since 1851 have been as follows :—

|                       | 1851-60 | 1861-70 | 1871-80 | 1881-85 | Average, 35 Years | 1889 |
|-----------------------|---------|---------|---------|---------|-------------------|------|
| Great Britain . . . . | 4.17    | 4.23    | 3.28    | 3.30    | 3.81              | 3.55 |
| France . . . . .      | 4.30    | 3.55    | 3.94    | 3.34    | 3.84              | 3.18 |
| Germany . . . . .     | 4.05    | 4.56    | 4.30    | 4.20    | 4.28              | 3.70 |
| Austria . . . . .     | 5.26    | 4.77    | 4.79    | 4.71    | 4.91              | 4.12 |
| Italy . . . . .       | 5.35    | 5.69    | 4.85    | 4.74    | 5.22              | ...  |
| Holland . . . . .     | 3.60    | 3.98    | 3.40    | 3.56    | 3.64              | 2.50 |
| Belgium . . . . .     | 3.62    | 3.59    | 3.60    | 3.66    | 3.62              | 3.62 |
| Europe . . . . .      | 4.27    | 4.30    | 3.71    | 3.93    | 4.12              | 3.44 |

\* In the Middle Ages 10 per cent. was the ordinary rate. Philip Augustus promulgated a law in France in 1222 limiting the maximum to 10 per cent.

The discounts of the principal banks (according to Spallart, down to 1880), were :—

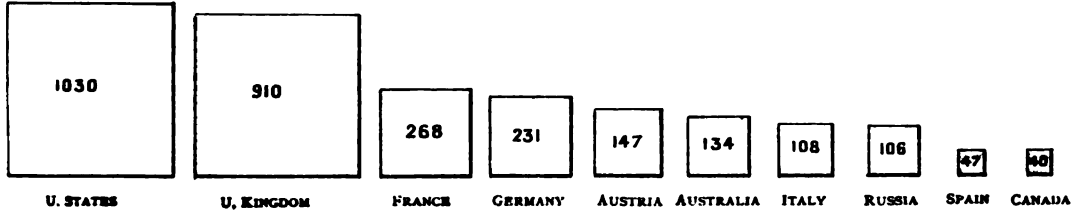
| Bank of—              | 1868         | 1880         | 1889-90      |
|-----------------------|--------------|--------------|--------------|
| England . . . . .     | £ 18,500,000 | £ 24,000,000 | £ 36,900,000 |
| France . . . . .      | 19,700,000   | 41,000,000   | 51,600,000   |
| Germany . . . . .     | 22,800,000   | 32,400,000   | 33,100,000   |
| Austria . . . . .     | 8,200,000    | 13,900,000   | 17,900,000   |
| Belgium . . . . .     | 5,800,000    | 10,100,000   | 12,100,000   |
| Holland . . . . .     | 3,200,000    | 4,600,000    | 9,500,000    |
| U. States banks . . . | 131,100,000  | 217,700,000  | 378,000,000  |
| Total . . . . .       | 209,300,000  | 343,700,000  | 539,100,000  |

It has been already shown that the banking power doubled between 1870 and 1888. The above table like-

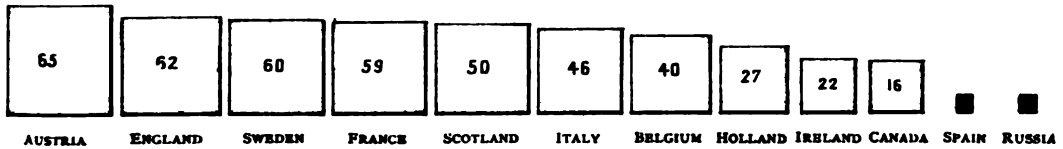
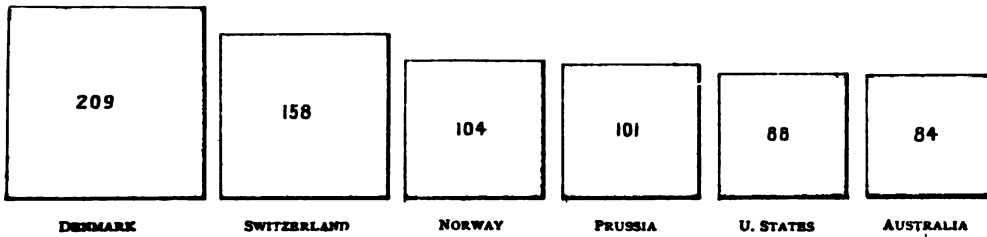


**BANKING.**

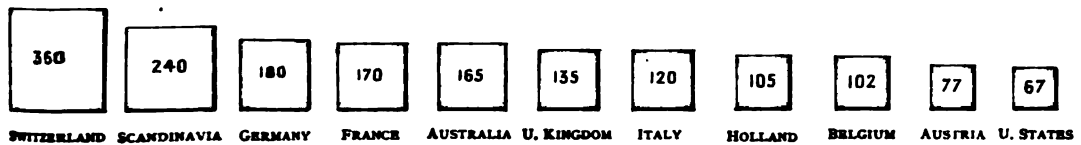
*Banking Capital, millions £.*



*Savings-Banks Deposits, Shillings per Inhabitant.*



*Depositors per 1000 Inhabitants.*





wise shows that discounts more than doubled between 1868 and 1890.

The rates of exchange in London on the principal markets for forty-two years were :—

| Period  | London on |         |           | Calcutta on London | Price of Silver per Oz., Pence |
|---------|-----------|---------|-----------|--------------------|--------------------------------|
|         | Paris     | Hamburg | Amsterdam |                    |                                |
| 1841-50 | 25.76     | 13.12   | 12.1      | 23.1               | 59.8                           |
| 1851-60 | 25.44     | 13.08   | 11.4      | 25.1               | 61.6                           |
| 1861-70 | 25.46     | 13.09   | 11.6      | 24.3               | 60.5                           |
| 1871-80 | 25.55     | 20.62   | 12.3      | 21.6               | 56.1                           |
| 1881-82 | 25.53     | 20.67   | 12.5      | 19.9               | 51.7                           |
| 1885-89 | ...       | ...     | ...       | ...                | 45.0                           |

London rates on Paris from 1800 to 1880 were :—

| Period  | Highest | Lowest | Average | Date of Highest | Date of Lowest |
|---------|---------|--------|---------|-----------------|----------------|
| 1800-10 | 25.2    | 19.6   | 22.4    | 1805            | 1809           |
| 1811-20 | 26.1    | 17.6   | 22.0    | 1816            | 1811           |
| 1821-30 | 25.9    | 25.2   | 25.6    | 1829            | 1824           |
| 1831-40 | 25.9    | 25.2   | 25.5    | 1832            | 1831           |
| 1841-50 | 26.7    | 24.9   | 25.8    | 1848            | 1850           |
| 1851-60 | 25.5    | 24.9   | 25.4    | 1856            | 1851           |
| 1861-70 | 25.5    | 25.0   | 25.4    | 1869            | 1869           |
| 1871-80 | 26.9    | 25.2   | 25.6    | 1872            | 1874           |

The rates of interest in the United States, according to the New England Mutual Insurance Company, have steadily declined in the last twenty-one years, viz. :—

| Years   | Per Cent. |
|---------|-----------|
| 1869-73 | 6.1       |
| 1874-78 | 5.9       |
| 1879-83 | 5.0       |
| 1884-89 | 4.7       |

Berlin rates on the other great cities were as follows :—

|                | 1875   | 1880   | 1887   | 1888   |
|----------------|--------|--------|--------|--------|
| London         | 20.60  | 20.44  | 20.35  | 20.48  |
| Paris          | 81.60  | 80.95  | 80.70  | 81.00  |
| Amsterdam      | 174.90 | 169.10 | 168.65 | ...    |
| Vienna         | 183.50 | 170.70 | 160.60 | 172.60 |
| St. Petersburg | 281.25 | 213.80 | 202.80 | 193.80 |

The use of cheques compared with money at various dates and places shows thus :—

| Date | Place               | Per Cent. |                |
|------|---------------------|-----------|----------------|
|      |                     | Cheques   | Notes and Coin |
| 1839 | London              | 93.2      | 6.8            |
| 1859 | "                   | 96.8      | 3.2            |
| 1881 | "                   | 98.9      | 1.1            |
| 1859 | Provinces           | 47.3      | 52.7           |
| 1872 | "                   | 68.2      | 31.8           |
| 1881 | England and Wales   | 97.0      | 3.0            |
| 1881 | New York            | 98.7      | 1.3            |
| 1881 | Western States      | 81.7      | 18.3           |
| 1881 | United States       | 91.6      | 8.4            |
| 1881 | United States Banks | 94.4      | 5.6            |

|          | Paid Capital | Reserve    | Value of Stock | Deposits    | Discounts   | Assets        |
|----------|--------------|------------|----------------|-------------|-------------|---------------|
| England  | 53,800,000   | 27,800,000 | 165,500,000    | 387,700,000 | 289,800,000 | 517,100,000   |
| Scotland | 9,100,000    | 5,600,000  | 22,900,000     | 88,300,000  | 58,000,000  | 113,400,000   |
| Ireland  | 7,000,000    | 3,100,000  | 17,700,000     | 37,800,000  | 27,600,000  | 54,800,000    |
| Colonial | 43,000,000   | 19,100,000 | 77,600,000     | 240,700,000 | 303,100,000 | 387,000,000   |
| Total    | 112,900,000  | 55,600,000 | 283,700,000    | 754,500,000 | 678,500,000 | 1,072,300,000 |

The cheques paid in London and New York in one month aggregate 1270 millions sterling, which is much in excess of all the gold and silver coin in existence.

The business of the principal clearing-houses shows thus :—

| LONDON  |             |            | NEW YORK |             |            |
|---------|-------------|------------|----------|-------------|------------|
| Year    | Millions, £ | Per Day, £ | Year     | Millions, £ | Per Day, £ |
| 1817    | 880         | 2,900,000  | 1853     | 261         | 800,000    |
| 1839    | 980         | 3,200,000  | 1863     | 3,486       | 11,000,000 |
| 1867-70 | 3,540       | 12,000,000 | 1873     | 5,665       | 18,000,000 |
| 1871-80 | 5,210       | 17,000,000 | 1881     | 7,723       | 25,000,000 |
| 1881    | 6,383       | 20,500,000 | 1886     | 6,750       | 21,500,000 |
| 1889    | 7,620       | 25,400,000 | ...      | ...         | ...        |

The clearing-houses of thirty-six cities in the United States show the following aggregate returns :—

|      |                          |
|------|--------------------------|
| 1886 | 10,240 millions sterling |
| 1889 | 11,580 " "               |

The latest annual returns for Continental cities are, in millions sterling, thus: Berlin, 3780; Paris, 2200; Vienna, 498.

#### UNITED KINGDOM

The banking power has multiplied more than tenfold since 1825, viz. :—

| Year | Million £ | £ per Inhabitant |
|------|-----------|------------------|
| 1825 | 89        | 4.1              |
| 1835 | 101       | 4.0              |
| 1840 | 132       | 5.0              |
| 1850 | 260       | 9.3              |
| 1874 | 782       | 24.4             |
| 1890 | 910       | 24.0             |

The figures from 1825 to 1840 are taken from the *British Almanac*, those since 1850 from the *Banker's Magazine*, viz. :—

| Banks   | Million £           |      |       |
|---------|---------------------|------|-------|
|         | Capital and Deposit |      |       |
|         | 1850                | 1874 | 1890  |
| English | 207                 | 628  | 871   |
| Scotch  | 36                  | 106  | 111   |
| Irish   | 17                  | 48   | 56    |
| Total   | 260                 | 782  | 1,038 |

In the interval of twenty-four years from 1850 to 1874 the increase of banking power averaged 22 millions sterling per annum, and in that of sixteen years down to 1890 it averaged 16 millions per annum. In the whole period of forty years, about £18,500,000 per annum.

In the above table capital stands for the market value of the stock. English includes foreign and colonial banks domiciled in London, as appears from the following statement for 1890 :—

The value of stock or share capital along with the deposits makes up a total banking power of 1038 millions sterling; but this includes 128 millions of deposits belonging to the Colonies, deducting which, we find the banking power of the United Kingdom is 910 millions sterling. There are in the United Kingdom 4460 banking offices, representing 175 joint-stock banks, whose stock is held among 90,000 shareholders.

The Bank of England was founded in 1694 by Rev. W. Patterson, a Scotchman, who died in poverty. The principal features of its business are indicated below.

The capital of the Bank has risen as follows :—

| Year           | £          | Year           | £          |
|----------------|------------|----------------|------------|
| 1694 . . . . . | 1,200,000  | 1782 . . . . . | 11,600,000 |
| 1708 . . . . . | 4,400,000  | 1816 . . . . . | 14,500,000 |
| 1746 . . . . . | 10,800,000 | 1882 . . . . . | 14,500,000 |

| Year | Yearly Average |             |              |             |
|------|----------------|-------------|--------------|-------------|
|      | Issue          | Deposits    | Securities   | Bullion     |
| 1780 | £ 8,400,000    | £ 4,700,000 | £ 10,900,000 | £ 3,600,000 |
| 1790 | 10,000,000     | 6,200,000   | 10,300,000   | 8,600,000   |
| 1800 | 16,800,000     | 7,100,000   | 21,400,000   | 6,100,000   |
| 1810 | 21,000,000     | 12,500,000  | 35,400,000   | 3,500,000   |
| 1820 | 23,500,000     | 4,100,000   | 26,200,000   | 4,900,000   |
| 1830 | 20,100,000     | 20,800,000  | 24,200,000   | 9,200,000   |
| 1840 | 16,500,000     | 6,600,000   | 21,600,000   | 4,300,000   |
| 1850 | 20,400,000     | 18,400,000  | 26,000,000   | 16,000,000  |
| 1860 | 21,500,000     | 18,800,000  | 29,400,000   | 14,000,000  |
| 1870 | 24,500,000     | 24,200,000  | 29,500,000   | 22,300,000  |
| 1880 | 27,100,000     | 33,100,000  | 34,800,000   | 27,900,000  |
| 1882 | 25,700,000     | 28,800,000  | 37,100,000   | 20,400,000  |
| 1886 | 24,400,000     | 29,400,000  | 34,100,000   | 21,900,000  |
| 1890 | 24,600,000     | 32,300,000  | 36,600,000   | 20,800,000  |

The Bank first issued £10 notes in 1759, and £5 notes

The note issue of the United Kingdom was as follows :—

|                    | 1844         | 1854         | 1864         | 1874         | 1889         |
|--------------------|--------------|--------------|--------------|--------------|--------------|
| England . . . . .  | £ 28,400,000 | £ 27,900,000 | £ 26,700,000 | £ 31,500,000 | £ 27,200,000 |
| Scotland . . . . . | 3,000,000    | 4,100,000    | 4,300,000    | 6,000,000    | 5,700,000    |
| Ireland . . . . .  | 5,900,000    | 6,400,000    | 5,600,000    | 6,800,000    | 5,800,000    |
| Total . . . . .    | 37,300,000   | 38,400,000   | 36,600,000   | 44,300,000   | 38,700,000   |

The issue and specie reserves in 1849 and 1887 were as follows :—

|                       | 1849       |            |                 | 1887       |            |                 |
|-----------------------|------------|------------|-----------------|------------|------------|-----------------|
|                       | Issue, £   | Specie, £  | Ratio of Specie | Issue, £   | Specie, £  | Ratio of Specie |
| Bank of England . . . | 18,300,000 | 14,300,000 | Per Cent. 79    | 24,400,000 | 21,200,000 | Per Cent. 87    |
| All other banks . . . | 13,900,000 | 2,600,000  | 19              | 14,200,000 | 6,800,000  | 48              |
| Total, United Kingdom | 32,200,000 | 16,900,000 | 53              | 38,600,000 | 28,000,000 | 73              |

#### FRANCE.

Banking power seems to have increased seventeen-fold since 1839, viz. :—

| Year           | Millions, £ Sterling | £ per Inhabitant |
|----------------|----------------------|------------------|
| 1839 . . . . . | 16                   | 0.5              |
| 1869 . . . . . | 64                   | 1.7              |
| 1881 . . . . . | 268                  | 7.3              |

According to the *Journal des Economistes*, the increase of banking power between 1869 and 1881 was fourfold, viz. :—

in 1793.\* Specie payments were suspended in 1797, consequent on the war with France, and one-pound notes issued. The notes steadily depreciated till 1813, when a £5 note was worth 73s., a loss of 27 per cent., that is to say, gold was at 37 per cent. premium. From 1814 a progressive improvement took place, until specie payments were resumed in 1821. The rate of interest was as follows :—

| Period    | Per Cent. |        |         |
|-----------|-----------|--------|---------|
|           | Highest   | Lowest | Average |
| 1694-1800 | 6.0       | 3.0    | 4.5     |
| 1801-1850 | 8.0       | 2.5    | 4.5     |
| 1851-1860 | 10.0      | 2.0    | 4.1     |
| 1861-1870 | 10.0      | 2.0    | 4.2     |
| 1871-1880 | 9.0       | 2.0    | 3.3     |
| 1881-1888 | 5.8       | 2.0    | 3.3     |

The year which had the highest average was 1864, namely, 7½ per cent., although the rate never exceeded 9 in that year; the year with lowest average was 1852, namely, 2½ per cent. The rate has only twice reached 10 per cent.—in the crises of 1857 and 1866. The maximum issue of notes was in March 1879, namely, 31 millions sterling, and the highest bullion reserve in September of same year, namely, £35,500,000. In the crisis of 1857 the bullion reserve fell to £6,400,000. Deposits reached a maximum in June 1879, namely, 37 millions.

\* There had been, nevertheless, issued at earlier dates, as the records show, viz. :—

| Year           | £         | Year           | £         |
|----------------|-----------|----------------|-----------|
| 1700 . . . . . | 860,000   | 1740 . . . . . | 4,500,000 |
| 1710 . . . . . | 600,000   | 1750 . . . . . | 4,200,000 |
| 1720 . . . . . | 2,500,000 | 1760 . . . . . | 4,900,000 |
| 1730 . . . . . | 4,200,000 | 1770 . . . . . | 5,500,000 |

|                    | 1869, Millions, £ | 1881, Millions, £ |
|--------------------|-------------------|-------------------|
| Capital . . . . .  | 32                | 140               |
| Deposits . . . . . | 32                | 128               |
| Total . . . . .    | 64                | 268               |

The number of joint-stock banks was 20 in 1869, and 192 in 1881. There is no statement of capital and deposits in 1839, but as the turnover of the Bank of France for that year was one-fourth of the same in 1869, it is reasonable to infer that banking business had increased in the same degree. In 1881, on the authority above stated, there were in Paris 51 banks with a paid-up

capital of £48,200,000.\* In 1889 were published the balance-sheets of 46 banks in France with an aggregate paid-up capital of £59,000,000. The market value of the stock being £96,000,000, that is, an average premium of 63 per cent.; the aggregate dividend was £4,600,000, or almost 8 per cent. on capital. The Bank of France was founded in 1803, capital £3,650,000 in shares of £40, with sole right of issue; no notes to be under £4. In 1857 the capital was doubled, the Bank lending the Government 40 millions sterling and receiving permission to issue £2 notes, the limit of issue being raised to 72 millions sterling. During the Franco-German war of 1870-71 the Government demands reached 260 millions sterling, the Bank being authorised to suspend specie payments and issue small notes down to five francs. The limit of issue was ultimately raised in 1872 to 128 millions sterling, at which it now stands. The Bank has 90 branches in the Departments. Official returns show as follows:—

| Year | Issue, £    | Gold, Reserve, £ | Gold and Silver, £ | Year's Discounts, £ | Bank Rate |
|------|-------------|------------------|--------------------|---------------------|-----------|
| 1800 | 640,000     | 300,000          | 300,000            | 3,800,000           | 6.0       |
| 1810 | 4,000,000   | 800,000          | 1,700,000          | 31,700,000          | 4.0       |
| 1820 | 6,200,000   | ...              | 7,800,000          | 12,200,000          | 4.7       |
| 1830 | 9,000,000   | 100,000          | 5,800,000          | 24,700,000          | 4.0       |
| 1840 | 9,000,000   | 800,000          | 9,900,000          | 44,200,000          | 4.0       |
| 1850 | 19,800,000  | 700,000          | 18,300,000         | 46,800,000          | 4.0       |
| 1860 | 29,400,000  | ...              | 20,600,000         | 198,600,000         | 3.6       |
| 1870 | 62,600,000  | 23,400,000       | 45,200,000         | 265,000,000         | 4.0       |
| 1880 | 92,400,000  | 27,200,000       | 81,000,000         | 348,000,000         | 2.8       |
| 1889 | 114,800,000 | 53,300,000       | 103,800,000        | 340,000,000         | 3.2       |

The *Almanach de Gotha* (1888) compares the aggregate banking returns as follows:—

|                   | 1875        | 1880        | 1885        | 1888        |
|-------------------|-------------|-------------|-------------|-------------|
| Issue             | £52,500,000 | £49,200,000 | £53,000,000 | £64,400,000 |
| Specie reserve    | 33,800,000  | 37,000,000  | 38,200,000  | 59,400,000  |
| Current discounts | 179,000,000 | 157,000,000 | 165,000,000 | 164,000,000 |

In 1875 there were thirty-three banks of issue, but the number soon after fell to nineteen, the Reichsbank or Imperial German Bank having bought up several of them.

Besides the above banking issue the Government had £6,700,000 of Treasury notes in circulation.

The average rate of discount at Berlin for eight years ending 1889 was 3.9 per cent.

The Bank of Prussia (now the Imperial Bank) was founded in 1765, capital two millions sterling; this was doubled in 1856, the Government taking one-fourth of the stock, and giving it a charter to issue notes up to three times the amount of bullion at any time on hand. In 1875 it was reconstructed as the Imperial Bank, capital £6,000,000 in shares of £150 each; the Government drew out its capital, and the bank agreed to pay £100,000 per annum as royalty to the Imperial Treasury. The books of the old bank down to 1870 showed the turn-over thus:—

|      |             |      |             |
|------|-------------|------|-------------|
| 1820 | £11,400,000 | 1850 | £77,100,000 |
| 1830 | 35,500,000  | 1860 | 208,000,000 |
| 1840 | 45,200,000  | 1870 | 830,000,000 |

The turn-over of the Imperial Bank in 1877 was 2377 millions sterling.

The Bank of Munich, capital £1,700,000, has an issue

\* Deposits in 1881 were made up thus:—

|                 |             |
|-----------------|-------------|
| Bank of France  | £34,100,000 |
| 22 large banks  | 81,200,000  |
| 170 small banks | 12,700,000  |

Total . . . £128,000,000

The share of discounts done at Paris was as follows:—

|                | 1840  | 1850  | 1860  | 1870  | 1880  | 1887  |
|----------------|-------|-------|-------|-------|-------|-------|
| Paris . . . .  | 84.3  | 29.2  | 32.7  | 43.2  | 47.0  | 47.2  |
| Branches . . . | 15.7  | 70.8  | 67.3  | 56.8  | 53.0  | 52.8  |
| Total . . . .  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

In 1887 the average amount per bill was £30 sterling; 1,600,000 were for sums under £4.

#### GERMANY

If we take the annual turn-over of the Bank of Prussia as a measure of the banking power of Germany, the latter may be set down thus:—

| Year | Banking Power, Millions £ Sterling |
|------|------------------------------------|
| 1840 | 7                                  |
| 1850 | 11                                 |
| 1860 | 31                                 |
| 1870 | 125                                |
| 1888 | 231                                |

In 1876 Germany had 195 joint-stock banks with an aggregate capital of £85,000,000. Deposits in 1888 reached £146,000,000. This gives a total banking power of 231 millions, but the official return for 1887 gives the total of current discounts at only 164 millions sterling. The discount business is distributed thus:—

|                      |              |
|----------------------|--------------|
| Imperial Bank        | £25,700,000  |
| Other banks of issue | 14,500,000   |
| Joint-stock, &c.     | 123,800,000  |
| Total                | £164,000,000 |

of about one million sterling; those of Dresden and Stuttgart less. The aggregate issue of the minor banks in December 1887 amounted to £17,100,000; that of the Imperial Bank to £43,300,000.

#### RUSSIA

It appears that the banking capital is as follows:—

|                 |             |
|-----------------|-------------|
| Imperial Bank   | £4,000,000  |
| 29 great banks  | 15,000,000  |
| 347 small banks | 23,000,000  |
| Total           | £42,000,000 |

The latest complete returns are those of 1878, which showed an aggregate of deposits reaching 64 millions sterling. This makes the total banking power 106 millions. The aggregate of discounts was 82 millions sterling. The Imperial Bank was founded in 1859, with sole right of issue. It materially serves the Government by printing inconvertible paper money, the amount of which in circulation is 123 millions sterling, and has twenty-six branches in various parts of the Empire. The balance-sheet for December 1889 was as follows:—

|          | Liabilities, £ |                  | Assets, £   |
|----------|----------------|------------------|-------------|
| Issue    | 123,000,000    | Bullion          | 33,100,000  |
| Capital  | 4,000,000      | Discounts        | 11,500,000  |
| Deposits | 5,400,000      | Government bonds | 90,500,000  |
| Sundries | 27,600,000     | Sundries         | 24,900,000  |
| Total    | 160,000,000    | Total            | 160,000,000 |

For Land banks and Mortgage banks, see farther on.

## AUSTRIA

Official returns of all banks for 1887 were as follows :—

|                  | Austria    | Hungary    | Total       |
|------------------|------------|------------|-------------|
|                  | £          | £          | £           |
| Paid capital . . | 24,200,000 | 14,000,000 | 38,200,000  |
| Reserve fund . . | 4,000,000  | 3,200,000  | 7,200,000   |
| Deposits . . .   | 65,000,000 | 36,600,000 | 101,600,000 |
| Banking power .  | 93,200,000 | 53,800,000 | 147,000,000 |

The Austro-Hungarian Bank has the exclusive right of issue until December 1897. It was founded in 1861; capital £3,000,000 in shares of £60 each, with authority to issue uncovered notes up to 20 millions sterling, in notes from two shillings upwards. It was remodelled in 1880, the capital being raised to £9,000,000 sterling. The balance-sheet for 1887 showed :—

|                | Liabilities, £ |             | Assets, £  |
|----------------|----------------|-------------|------------|
| Capital . . .  | 9,000,000      | Cash . . .  | 22,400,000 |
| Issue . . .    | 39,100,000     | Discounts . | 16,000,000 |
| Mortgages, &c. | 12,900,000     | Sundries .  | 22,600,000 |
| Total . .      | 61,000,000     | Total . .   | 61,000,000 |

The issue and reserve have been :—

| Year       | Issue      | Reserve    | Ratio of Reserve | Premium on Gold |
|------------|------------|------------|------------------|-----------------|
|            | £          | £          | Per Cent.        | Per Cent.       |
| 1848 . . . | 27,600,000 | 3,100,000  | 11.2             | ...             |
| 1870 . . . | 29,700,000 | 11,200,000 | 37.0             | ...             |
| 1875 . . . | 28,600,000 | 13,400,000 | 47.0             | 17              |
| 1880 . . . | 32,900,000 | 17,300,000 | 52.5             | 21              |
| 1890 . . . | 42,500,000 | 21,400,000 | 50.1             | 25              |

The discounts of this bank during eight years ending 1885 averaged £5,900,000 in Vienna, £2,600,000 in Buda-Pesth, and £5,900,000 in the provinces; total, £14,400,000. The specie reserve in July 1890 was composed of £5,000,000 gold and £16,400,000 silver. There are 52 Austrian and 144 Hungarian joint-stock banks, besides 836 People's Banks in Hungary, and 1178 in Austria.

## ITALY

Banking power in 1881 amounted to 87 millions sterling, viz. :—

|                         | Capital and Reserve Fund | Deposits   | Total      |
|-------------------------|--------------------------|------------|------------|
| Bank of Italy . .       | 6,900,000                | 8,700,000  | 19,500,000 |
| 5 chartered banks .     | 3,900,000                |            |            |
| 113 joint-stock banks . | 8,200,000                |            |            |
| 362 other banks . .     | 4,200,000                | 17,500,000 | 25,700,000 |
|                         |                          | 37,300,000 | 41,500,000 |
| Total . . .             | 23,200,000               | 63,500,000 | 86,700,000 |

In 1889 the capital and deposits of all banks (exclusive of Post-Office savings banks) were approximately as follows :—

|                    | Capital, £ | Deposits, £ | Banking-Power, £ |
|--------------------|------------|-------------|------------------|
| Chartered banks .  | 12,600,000 | 28,500,000  | 41,100,000       |
| Joint-stock, &c. . | 12,400,000 | 54,100,000  | 66,500,000       |
| Total . .          | 25,000,000 | 82,600,000  | 107,600,000      |

The current discounts of the six great banks in 1889 amounted to 31 millions sterling, or three-fourths of their banking power.

The oldest chartered bank is that of Naples, founded in 1816, which now occupies the second rank, coming next after the Bank of Italy, founded in 1850. There are four other chartered banks with right of issue.

The returns of the chartered banks in 1876 were as follows :—

| Founded | Name            | Capital and Reserve, £ | Number of Branches | Issue, £   |
|---------|-----------------|------------------------|--------------------|------------|
| 1850    | Bank of Italy . | 6,900,000              | 68                 | 16,300,000 |
| 1816    | " " Naples .    | 1,700,000              | 12                 | 5,800,000  |
| 1857    | " " Tuscany .   | 900,000                | 8                  | 2,000,000  |
| 1850    | " " Rome .      | 700,000                | 1                  | 1,600,000  |
| 1843    | " " Sicily .    | 400,000                | 8                  | 1,500,000  |
| 1860    | Tuscan Credit . | 200,000                | 1                  | 600,000    |
|         | Total . .       | 10,800,000             | 98                 | 27,800,000 |

The Bank of Italy has a nominal capital of 10 millions sterling, of which 8 millions are paid-up, and a reserve fund of £1,600,000. It has right of issue up to 40 millions sterling, its actual issue in 1889 being £23,200,000, and its specie reserve £9,400,000, equal to 40 per cent. Taking the aggregate of discount business of the six chartered banks, the Bank of Italy stands for 40 per cent. of the total, according to returns published for 1875 and 1876, viz. :—

|                           | Number of Bills Discounted |           | Amount for Twelve Months |             |
|---------------------------|----------------------------|-----------|--------------------------|-------------|
|                           | 1875                       | 1876      | 1875                     | 1876        |
| Bank of Italy .           | 546,000                    | 555,000   | 51,600,000               | 46,100,000  |
| Other 5 chartered banks } | 792,000                    | 785,000   | 84,100,000               | 72,500,000  |
| Total .                   | 1,338,000                  | 1,340,000 | 135,700,000              | 118,600,000 |

The bills in the Bank of Italy averaged 60, those in the other banks, 36 days. The amount of each bill was £90 in the five chartered banks, £81 in the Bank of Italy, and £44 in the joint-stock banks.

In December 1889 the Bank of Italy showed :—

|                                |             |                  |              |
|--------------------------------|-------------|------------------|--------------|
| Capital and reserve fund . . . | £ 9,600,000 | Issue . . . . .  | £ 23,400,000 |
| Deposits . . . . .             | 6,500,000   | Specie . . . . . | 9,300,000    |

## SPAIN

In June 1890 the Bank of Spain had notes in circulation to the amount of £30,000,000, against a specie reserve of £11,500,000. The deposits reached £16,200,000, and discounts £43,500,000. The Bank of Madrid has likewise issue up to £1,000,000.

## PORTUGAL

Banking power is much greater than might be expected, a statement published in 1878 giving the aggregate of banks as follows :—

|                    |             |
|--------------------|-------------|
| Capital . . . . .  | £ 6,000,000 |
| Deposits . . . . . | 3,500,000   |

Banking power . . . . . 9,500,000

Nevertheless usurers do a large business. In 1861 they held mortgages for six millions sterling on real estate, interest 15 to 20 per cent.

## SWITZERLAND

Banking power 17 millions sterling, the returns of all Swiss banks in 1880 showing thus:—

|                         |             |
|-------------------------|-------------|
| Capital . . . . .       | £ 4,500,000 |
| Deposits . . . . .      | 12,200,000  |
| Banking power . . . . . | 16,700,000  |

Free banking is the rule, and there are thirty-four banks of issue, which show:—

| Year           | Issue<br>£ | Specie Reserve<br>£ |
|----------------|------------|---------------------|
| 1871 . . . . . | 1,000,000  | ...                 |
| 1877 . . . . . | 2,900,000  | 1,400,000           |
| 1885 . . . . . | 5,000,000  | 3,100,000           |
| 1890 . . . . . | 6,200,000  | 3,900,000           |

The aggregate of discounts or bills in portfolio in 1877 was £6,900,000. The paid-up capital of the thirty-four banks is £4,900,000.

## HOLLAND

The Netherlands Bank was founded in 1814, with sole right of issue up to 25 millions sterling, provided the specie reserve never fell below 40 per cent., the notes to have forced currency side by side with Government Treasury notes up to £1,200,000. The capital was at first £1,280,000 in £80 shares, but it has since been raised to two millions sterling. There are fifteen branches through Holland, and the notes are from £2 upwards. The statements for 1877 and 1890 showed thus:—

|                          | 1877<br>£  | 1890<br>£  |
|--------------------------|------------|------------|
| Issue . . . . .          | 15,800,000 | 17,200,000 |
| Specie reserve . . . . . | 12,800,000 | 10,600,000 |

Discounts average £9,600,000 (or 86 millions yearly), the average term of bills being under forty days. There are 287 other banks and branches, holding deposits to the sum of £4,800,000. Total banking power about 20 millions sterling.

## BELGIUM

The Bank of Belgium was founded in 1850, capital two millions sterling, which has since been raised to three millions in £40 shares, with sole right of issue. It has forty branches, and circulates notes from 16s. to £40. The balance-sheets showed as follows:—

| Year | Issue, £   | Bullion, £ | Deposits, £ | Discounts, £ | Rate |
|------|------------|------------|-------------|--------------|------|
| 1851 | 2,000,000  | 1,200,000  | 1,000,000   | 1,800,000    | 4.0  |
| 1860 | 4,800,000  | 2,500,000  | 3,300,000   | 6,200,000    | 3.2  |
| 1870 | 8,100,000  | 3,800,000  | 3,300,000   | 7,800,000    | 3.4  |
| 1880 | 13,600,000 | 4,000,000  | 2,900,000   | 11,400,000   | 3.4  |
| 1890 | 15,200,000 | 4,400,000  | 2,700,000   | 12,800,000   | 3.6  |

There are fifty-two other banks, the oldest, that of Flanders, founded at Ghent in 1836. The aggregate balance-sheets for 1888 showed:—

|                        |            |                            |            |
|------------------------|------------|----------------------------|------------|
| Paid capital . . . . . | 7,600,000  | Discounts . . . . .        | 16,600,000 |
| Reserve fund . . . . . | 3,200,000  | Loans & advances . . . . . | 8,200,000  |
| Deposits, &c. . . . .  | 16,400,000 | Sundries . . . . .         | 2,400,000  |
| Liabilities . . . . .  | 27,200,000 | Assets . . . . .           | 27,200,000 |

The total banking power is just 30 millions £.

## SWEDEN

The Riks-bank or State Bank of Sweden was founded in 1656 by John Palmstruck, having obtained right of issue. It stopped payment four times, viz., in 1745, 1776, 1808, and 1813. The creditors received 70 per cent. in 1776, and 37 per cent. in 1813.

In 1830 the first of the Enskilda or private banks of issue was established, of which there are now 28, with 153 branches all over Sweden. They issue notes from £5 upwards, their specie reserve never falling below 35 per cent. The shareholders must be Swedes, each bank with a minimum capital of £55,000, and each shareholder individually liable up to the whole of that sum. The stock of the 28 banks in 1876 was held by 9100 persons.

The other fifteen joint-stock banks have no right of issue, and the shareholders are liable for no more than the amount of their shares.

Returns of all banks in 1889 showed as follows:—

|                          | State Bank  | Joint-Stock, &c. | Total       |
|--------------------------|-------------|------------------|-------------|
| Capital . . . . .        | £ 2,200,000 | £ 4,600,000      | £ 6,800,000 |
| Reserve fund . . . . .   | 300,000     | 900,000          | 1,200,000   |
| Issue . . . . .          | 2,500,000   | 3,800,000        | 6,300,000   |
| Deposits . . . . .       | 800,000     | 14,100,000       | 14,900,000  |
| Sundries . . . . .       | 1,700,000   | 10,400,000       | 12,100,000  |
| Liabilities . . . . .    | 7,500,000   | 33,800,000       | 41,300,000  |
| Bullion . . . . .        | 1,100,000   | 1,600,000        | 2,700,000   |
| Treasury bills . . . . . | 1,100,000   | 2,200,000        | 3,300,000   |
| Discounts . . . . .      | 3,400,000   | 17,400,000       | 20,800,000  |
| Cash, &c. . . . .        | 1,900,000   | 12,600,000       | 14,500,000  |
| Assets . . . . .         | 7,500,000   | 33,800,000       | 41,300,000  |

## NORWAY

The balance-sheets for 1888 summed up thus:—

|                         | Norges    | Joint-Stock, &c. | Total       |
|-------------------------|-----------|------------------|-------------|
| Paid capital . . . . .  | £ 700,000 | £ 800,000        | £ 1,500,000 |
| Reserve fund . . . . .  | 230,000   | 170,000          | 400,000     |
| Deposits . . . . .      | 500,000   | 10,200,000       | 10,700,000  |
| Banking power . . . . . | 1,430,000 | 11,170,000       | 12,600,000  |

The discounts of the Norges or State bank average £1,200,000, that is, £9,600,000 in a year, the average term being forty-five days. The Norges was founded in 1816 with sole right of issue, capital £450,000, since raised to £700,000, with a reserve fund of £230,000. It can issue up to £3,000,000: the actual issue in 1888 was only £2,400,000, and the bullion reserve was £2,500,000.

## DENMARK

The capital and deposits of all banks in Denmark in 1886 were as follows:—

|                    |             |
|--------------------|-------------|
| Capital . . . . .  | £ 2,200,000 |
| Deposits . . . . . | 20,800,000  |
| Total . . . . .    | 23,000,000  |

In 1813 the currency was on a bad footing, gold being at 300 per cent. premium, and the notes only worth one-fourth of their written value.

In 1814 the Bank of Copenhagen was converted into a Riks-bank, with sole right of issue up to £2,250,000, provided the specie reserve never fell below 50 per cent.; it fell to 40 per cent. in 1865, but the notes remained at par.

The charter was enlarged in 1860. The balance-sheet for 1888 showed thus: issue, £4,400,000; bullion, £3,100,000; discounts about £2,000,000. The first joint-stock bank was established at Copenhagen in 1857, with a paid-up capital of £700,000; in 1876 its discounts averaged £1,000,000.

## SERVIA

There are 37 banks, the principal being the National, with sole right of issue, and a paid-up capital of £800,000 sterling; the issue in 1889 was £1,200,000, specie reserve, £180,000. The others are 16 ordinary and 22 savings-banks.

The balance-sheets for 1881 and 1890 compare as follows:—

|                             | Deposits, £ |             | Discounts, £ |             |
|-----------------------------|-------------|-------------|--------------|-------------|
|                             | 1881        | 1890        | 1881         | 1890        |
| New South Wales . . . . .   | 18,800,000  | 34,600,000  | 17,200,000   | 39,800,000  |
| Victoria . . . . .          | 20,400,000  | 39,300,000  | 18,200,000   | 48,900,000  |
| Queensland . . . . .        | 3,400,000   | 9,900,000   | 4,000,000    | 17,100,000  |
| South Australia . . . . .   | 4,500,000   | 7,300,000   | 5,500,000    | 9,000,000   |
| New Zealand . . . . .       | 9,300,000   | 12,200,000  | 11,500,000   | 14,500,000  |
| Tasmania . . . . .          | 2,300,000   | 4,100,000   | 1,600,000    | 3,500,000   |
| Western Australia . . . . . | 300,000     | 900,000     | 400,000      | 1,400,000   |
| Total . . . . .             | 59,000,000  | 108,300,000 | 58,400,000   | 134,200,000 |

## AUSTRALIA

The increase of banking power is shown by the following statement of discounts and deposits:—

| Year           | Discounts, £ | Deposits, £ |
|----------------|--------------|-------------|
| 1872 . . . . . | 31,500,000   | 32,000,000  |
| 1881 . . . . . | 58,400,000   | 59,000,000  |
| 1890 . . . . . | 134,200,000  | 108,300,000 |

|                           | 1890      |            |                         |
|---------------------------|-----------|------------|-------------------------|
|                           | Issue     | Bullion    | Deposits per Inhabitant |
|                           | £         | £          | £ s. d.                 |
| New South Wales . . . . . | 1,520,000 | 5,200,000  | 38 0 0                  |
| Victoria . . . . .        | 1,670,000 | 6,900,000  | 43 0 0                  |
| Queensland . . . . .      | 670,000   | 2,200,000  | 25 0 0                  |
| South Australia . . . . . | 450,000   | 1,700,000  | 22 0 0                  |
| New Zealand . . . . .     | 880,000   | 2,400,000  | 18 10 0                 |
| Tasmania . . . . .        | 160,000   | 600,000    | 27 10 0                 |
| West Australia . . . . .  | 50,000    | 300,000    | 22 10 0                 |
| Total . . . . .           | 5,400,000 | 19,300,000 | 29 0 0                  |

The percentages of banking business in the principal provinces were in 1881 as follows:—

|                          |      |
|--------------------------|------|
| Quebec . . . . .         | 55.4 |
| Ontario . . . . .        | 35.1 |
| Nova Scotia, &c. . . . . | 9.5  |

Total . . . . . 100.0

Bullion reserve in 1888 was only £1,400,000, or 22 per cent. of issue. Liabilities of all the banks, £34,400,000; assets, £50,800,000, being 48 per cent. over liabilities.

## SOUTH AFRICA

Banking power is about nine millions sterling, capital two millions, deposits £7,000,000. The returns of 1887 for the two colonies were:—

|                          | Cape      | Natal     | Total     |
|--------------------------|-----------|-----------|-----------|
|                          | £         | £         | £         |
| Issue . . . . .          | 460,000   | 150,000   | 610,000   |
| Deposits . . . . .       | 5,950,000 | 1,200,000 | 7,150,000 |
| Specie reserve . . . . . | 1,300,000 | 300,000   | 1,600,000 |
| Discounts . . . . .      | 6,600,000 | 1,200,000 | 7,800,000 |

In 1888 the issue of Cape Colony reached £660,000, and the eleven banks had an aggregate of £2,350,000 in paid-up capital and reserve fund. Assets, £10,600,000.

## CANADA

In 1888 there were 41 banks, an increase of 14 since 1868; the balance-sheets summed up as follows:—

|                         | 1868       | 1878       | 1888       |
|-------------------------|------------|------------|------------|
|                         | £          | £          | £          |
| Paid capital . . . . .  | 6,300,000  | 13,100,000 | 12,500,000 |
| Deposits . . . . .      | 6,900,000  | 15,000,000 | 26,800,000 |
| Banking power . . . . . | 13,200,000 | 28,100,000 | 39,300,000 |
| Issue . . . . .         | 1,800,000  | 4,100,000  | 6,300,000  |
| Discounts . . . . .     | ...        | ...        | 31,200,000 |

## UNITED STATES

In 1783 the total banking capital was only £600,000; it appears to have multiplied twelve-fold in the ensuing eighteen years. We have regular statistics from 1801, as follows:—

| Year           | Number of Banks | Capital, £  | Deposits, £ | Issue, £   | Specie Reserve, £ | Ratio of Reserve |
|----------------|-----------------|-------------|-------------|------------|-------------------|------------------|
|                |                 |             |             |            |                   | Per Cent.        |
| 1801 . . . . . | 33              | 7,000,000   | ...         | ...        | ...               | ...              |
| 1811 . . . . . | 89              | 11,000,000  | ...         | 5,800,000  | 3,100,000         | 53               |
| 1815 . . . . . | 208             | 17,100,000  | ...         | 9,600,000  | 3,500,000         | 36               |
| 1820 . . . . . | 308             | 28,400,000  | 7,500,000   | 9,400,000  | 4,200,000         | 45               |
| 1830 . . . . . | 330             | 30,200,000  | 11,600,000  | 12,700,000 | 4,600,000         | 36               |
| 1836 . . . . . | 689             | 48,000,000  | 10,100,000  | 27,600,000 | 8,200,000         | 30               |
| 1840 . . . . . | 901             | 74,400,000  | 15,800,000  | 24,400,000 | 6,900,000         | 28               |
| 1845 . . . . . | 707             | 42,800,000  | 18,400,000  | 18,700,000 | 9,200,000         | 49               |
| 1850 . . . . . | 872             | 47,200,000  | 27,100,000  | 32,200,000 | 10,200,000        | 31               |
| 1860 . . . . . | 1,562           | 87,600,000  | 52,800,000  | 43,000,000 | 17,500,000        | 41               |
| 1870 . . . . . | ...             | 130,000,000 | 420,000,000 | 62,800,000 | ...               | ...              |
| 1876 . . . . . | 6,611           | 149,600,000 | 432,000,000 | 69,400,000 | ...               | ...              |
| 1882 . . . . . | 7,448           | 149,200,000 | 604,200,000 | 65,600,000 | 21,400,000        | 33               |
| 1887 . . . . . | 6,666           | 167,600,000 | 684,100,000 | 34,800,000 | 34,300,000        | 99               |
| 1889 . . . . . | 6,721           | 180,100,000 | 759,400,000 | 26,700,000 | 34,300,000        | 128              |



In the above table it is well to remember that the figures for 1870 are depreciated paper-money at 13 per cent. discount, and 10 per cent. in 1876. Discounts in 1879 comprised 3,200,000 bills for 700 millions sterling, say £220 each.

The first bank was that of Massachusetts, founded in 1740, the second that of North America in 1781, the third that of New York in 1784. The United States Bank was established at Philadelphia in 1790 with a capital of \$10,000,000, having several branches, and col-

lapsed in the "Wild Cat" crisis of 1837. There were 901 banks in the year 1840, but the land speculation that ensued smashed more than 200, the number falling to 691 in 1843. From the latter year steady progress was made till 1861, when the war for the Union brought a suspension of specie payments. Nevertheless rapid advance was made till 1876, when a new tax on banks caused a contraction of about 10 per cent. in the capital employed in banking, without, however, causing any decline in the amount of deposits or discounts.

From information contained in the *Statesman's Year-Book* and the official Abstract for 1890, the banking of the Union may be summed up thus:—

| Banks              | No.   | Capital      | Reserve Fund | Deposits     | Discounts    |
|--------------------|-------|--------------|--------------|--------------|--------------|
| National . . . . . | 3,194 | £125,000,000 | £41,000,000  | £317,000,000 | £378,000,000 |
| State . . . . .    | 1,403 | 32,200,000   | 11,800,000   | 85,400,000   | ...          |
| Private . . . . .  | 1,323 | 19,600,000   | 10,700,000   | 73,100,000   | ...          |
| Savings . . . . .  | 801   | 3,300,000    | 27,500,000   | 283,900,000  | ...          |
| Total . . . . .    | 6,721 | 180,100,000  | 91,000,000   | 759,400,000  | ...          |

The above shows a total banking power of 1030 millions sterling.

The National banks showed the following balance-sheets:—

|                    | Liabilities  |              |                     | Assets       |              |
|--------------------|--------------|--------------|---------------------|--------------|--------------|
|                    | 1880         | 1889         |                     | 1880         | 1889         |
| Capital . . . . .  | £130,000,000 | £166,000,000 | Discounts . . . . . | £216,000,000 | £378,000,000 |
| Issue . . . . .    | 66,000,000   | 26,700,000   | Bullion . . . . .   | 20,800,000   | 34,000,000   |
| Deposits . . . . . | 185,000,000  | 317,000,000  | Bonds . . . . .     | 75,000,000   | 30,400,000   |
| Sundries . . . . . | 57,000,000   | 114,300,000  | Sundries . . . . .  | 126,200,000  | 181,600,000  |
| Total . . . . .    | 438,000,000  | 624,000,000  | Total . . . . .     | 438,000,000  | 624,000,000  |

In the above table capital includes also reserve fund.

The ratio of banking power to population was as follows:—

| Year           | Banking Power | Population | Banking Power per Head |
|----------------|---------------|------------|------------------------|
| 1801 . . . . . | £7,000,000    | £5,300,000 | 1.3                    |
| 1820 . . . . . | 35,900,000    | 9,600,000  | 3.8                    |
| 1840 . . . . . | 90,200,000    | 17,100,000 | 5.3                    |
| 1860 . . . . . | 140,400,000   | 31,400,000 | 4.4                    |
| 1876 . . . . . | 581,600,000   | 44,400,000 | 13.1                   |
| 1889 . . . . . | 1,030,500,000 | 64,000,000 | 16.1                   |

The distribution of banking power, according to official returns, was:—

| States                | Million, £ Sterling |      |      |
|-----------------------|---------------------|------|------|
|                       | 1850                | 1860 | 1880 |
| New England . . . . . | 18                  | 34   | 162  |
| Middle . . . . .      | 33                  | 63   | 274  |
| Southern . . . . .    | 19                  | 33   | 35   |
| Western . . . . .     | 4                   | 10   | 125  |
| Total . . . . .       | 74                  | 140  | 596  |

No other than National banks have right of issue, and they compare with the earlier chartered banks of issue in 1811-30 as follows:—

| Year           | Capital     | Issue      | Deposit     |
|----------------|-------------|------------|-------------|
| 1811 . . . . . | £5,100,000  | £2,700,000 | £...        |
| 1820 . . . . . | 13,000,000  | 5,500,000  | 4,100,000   |
| 1830 . . . . . | 19,800,000  | 8,100,000  | 6,800,000   |
| 1889 . . . . . | 125,000,000 | 26,700,000 | 317,000,000 |

In 1880 the shares of the National Banks were held by 208,000 persons, showing an average banking capital of £700 per shareholder, against £800 in Great Britain. Of 7 million shares, only 26,000 were held in Europe, of which 7000 in Great Britain.

#### MEXICO

The Banco Nacional, founded in 1881, has a nominal capital of 20 million dollars or £3,000,000 sterling, of which only 40 per cent. is paid up. Its issue in December 1888 was 14 millions, say £2,100,000 sterling, and balance-sheet 48 millions, say £7,200,000. The Bank of London and Mexico has a capital of £300,000, and no issue; balance-sheet, £1,500,000. There are various land-banks.

#### CHILE

There are nineteen banks of issue, aggregate capital 23 million dollars, say £2,500,000; issue, 17 millions, or £1,800,000. The balance-sheets of these banks in December 1886 showed:—

| Bank of                  | Dollars     | £ Sterling |
|--------------------------|-------------|------------|
| Valparaiso . . . . .     | 83,000,000  | 9,100,000  |
| Chile . . . . .          | 66,000,000  | 7,200,000  |
| Guarantees . . . . .     | 50,000,000  | 5,500,000  |
| Edwards . . . . .        | 16,500,000  | 1,800,000  |
| Fifteen others . . . . . | 68,500,000  | 7,500,000  |
| Total . . . . .          | 284,000,000 | 31,100,000 |

#### BRAZIL

In December 1886 there were sixteen banks, whose balance-sheets showed as follows:—

| Bank             | £          | Bank                | £          |
|------------------|------------|---------------------|------------|
| Brazil . . .     | 26,900,000 | London and Brazil   | 3,100,000  |
| Rural . . .      | 7,400,000  | English . . .       | 2,200,000  |
| Commercial . . . | 5,500,000  | International . . . | 2,000,000  |
| Industrial . . . | 3,300,000  | Nine others . . .   | 11,600,000 |

Summing up a total of 62 millions sterling. The Bank of Brazil was remodelled in 1872, with a paid-up capital of £3,600,000 in shares of £22 each; it has a reserve fund of £500,000, and a right of issue until December 1900 of £3,000,000 sterling; it must always lend up to 70 per cent. of its capital to planters, at 6 per cent. annual interest.

## JAPAN

In December 1889 were published the accounts of 100 National Banks, with an aggregate capital of £7,100,000, the Tokio Bank standing for £3,500,000. Of the total number, 69 paid dividends ranging from 10 to 20 per cent., and 31 paid less than 10 per cent.

## ARGENTINA

In 1884 there were six banks at Buenos Ayres, with an aggregate banking power of 35 millions sterling, viz. :—

|                    | Capital, £ | Deposits, £ | Total, £   |
|--------------------|------------|-------------|------------|
| B. of Buenos Ayres | 6,600,000  | 13,400,000  | 20,000,000 |
| National . . . . . | 4,100,000  | 2,800,000   | 6,900,000  |
| Four foreign banks | 4,400,000  | 3,600,000   | 8,000,000  |
| Total . . . . .    | 15,100,000 | 19,800,000  | 34,900,000 |

In 1885 specie payments were suspended, and a number of banks sprung up issuing forced currency notes. In September 1889 there were 52 banks in Buenos Ayres and the other provinces of Argentina, with an aggregate capital of 185 million dollars, nominally 37 millions sterling, but the currency dollar having lost 67 cents of its value, the capital (in July 1890) is only equal to 12 millions sterling. Deposits in like manner were nominally close on 50 millions sterling, equivalent to 17 millions in gold. Banking power is therefore about 29 millions.

In September 1889 the aggregate balance-sheets of 24 banks (nothing being stated of the other 28) showed as follows :—

|                        | Gold, \$   | Paper, \$   | Nominal Value in £ Sterling | Approximate Real Value in 1890, £ |
|------------------------|------------|-------------|-----------------------------|-----------------------------------|
| Capital . . . . .      | 8,500,000  | 149,600,000 | 31,600,000                  | 10,500,000                        |
| Reserve fund . . . . . | 1,600,000  | 2,200,000   | 700,000                     | 200,000                           |
| Deposits . . . . .     | 66,300,000 | 166,000,000 | 46,400,000                  | 15,500,000                        |
| Discounts . . . . .    | 85,200,000 | 253,700,000 | 68,000,000                  | 22,700,000                        |
| Cash . . . . .         | 28,700,000 | 28,300,000  | 10,400,000                  | 3,500,000                         |

Paper issue has risen as follows :—

| Year           | Million \$  | Real Value Reduced to Gold, £ |
|----------------|-------------|-------------------------------|
| 1836 . . . . . | 15,000,000  | 360,000                       |
| 1840 . . . . . | 51,000,000  | 300,000                       |
| 1852 . . . . . | 125,000,000 | 1,250,000                     |
| 1877 . . . . . | 711,000,000 | 4,500,000                     |
| 1884 . . . . . | 56,000,000  | 11,200,000                    |
| 1890 . . . . . | 270,000,000 | 18,000,000                    |

In 1881 the old currency was called in and converted, one new dollar being given for 25 old ones. Another

issue called Cédulas is described under *Land Banks*, p. 85.

## URUGUAY

Banking power is about 8 millions sterling, discounts in June 1889 showing more or less as follows :—

|                              |           |
|------------------------------|-----------|
| National Bank . . . . .      | 3,800,000 |
| Four foreign banks . . . . . | 4,300,000 |
| Total . . . . .              | 8,100,000 |

Issue and reserve of specie were as follows :—

|                           | Issue, £  |           | Reserve of Specie, £ |
|---------------------------|-----------|-----------|----------------------|
|                           | 1882      | 1889      | 1889                 |
| National Bank . . . . .   | ...       | 1,700,000 | 1,100,000            |
| All other banks . . . . . | 1,100,000 | 1,400,000 | 1,900,000            |
| Total . . . . .           | 1,100,000 | 3,100,000 | 3,000,000            |

The National Bank suspended specie payments in June 1890.

## LAND BANKS

In many countries there are institutions called Land Banks or Mortgage Banks for lending money or debentures on real estate.

*France.*—The Credit Foncier, founded in 1852, capital £3,600,000, has the power to issue debentures up to £72,000,000. The issue was as follows :—

| Year | Issue, £   | No. of Mortgages | Average, £ |
|------|------------|------------------|------------|
| 1856 | 3,050,000  | 1,390            | 2,100      |
| 1866 | 31,170,000 | 12,180           | 2,500      |
| 1873 | 46,480,000 | 20,116           | 2,300      |

Deducting the amount redeemed, the actual issue in 1873 was £34,700,000. The Credit Agricole, founded in 1860, has a paid-up capital of £800,000; issue outstanding in 1873 about 15 millions sterling.

*Germany.*—The Bank of Munich has a Mortgage branch, being compelled by law to keep £1,200,000 always lent out to agriculturists at 4 per cent. per annum, the mortgage never to exceed 50 per cent. of the value of the farm. In 1864 it commenced to issue debentures bearing 4½ per cent. interest, the borrower having also to pay ½ per cent. sinking-fund. The borrower in selling these debentures gets barely 90 per cent. cash. In 1871 the issue had reached £5,000,000. The Bank of Nuremberg also grants loans on mortgage. Saxony has four Land Banks of this description, the borrower paying 5 per cent. for forty-one years, when the loan is extinct. The Ritter's Bank of Leipzig is a mutual landowner's bank, making advances only to its members, interest 4 per cent. The Wurttemberg Land Bank makes advances to small proprietors at 6 per cent., including sinking-fund, the loan becoming extinct in twenty-five years. The Mortgage Bank of Prussia, founded in 1810, issues 4 per cent. debentures; the issue and the market price were as follows :—

| Year | Issue, £   | Maximum | Minimum | Average Price |
|------|------------|---------|---------|---------------|
| 1815 | 9,500,000  | 103     | 64      | 84            |
| 1835 | 14,100,000 | 107     | 101     | 104           |
| 1845 | 16,500,000 | 105     | 94      | 100           |
| 1868 | 28,800,000 | 84      | 78      | 81            |

The above was mainly for impoverished noblemen. The Rent-charge Bank, founded in 1811, had issued to peasant proprietors debentures up to 13 millions sterling prior to 1870; these bore 4 per cent. interest, and sold in the market at 87 per cent. of nominal value; outstanding £11,500,000. The amount advanced on mortgage by

banks and private individuals in 1870 was officially stated thus:—

|                        | £           |
|------------------------|-------------|
| Prussia . . . . .      | 190,000,000 |
| Bavaria . . . . .      | 25,000,000  |
| Saxony . . . . .       | 26,000,000  |
| Wurtemberg . . . . .   | 10,000,000  |
| Small States . . . . . | 22,000,000  |
| Total . . . . .        | 273,000,000 |

In 1837 it was found that many of the nobles had mortgaged their estates beyond their value, in some cases up to 114 per cent. From 1858 to 1867 the authorities sold off 34,000 bankrupt estates, which reduced the sum due by Prussian noblemen to the Land-banks to 25 millions sterling. The Mortgage Bank of Bavaria, distinct from the Munich Bank, was founded in 1848, to enable the peasants to buy their lands. In twenty-two years, down to 1870, the debentures issued by it reached 18½ millions sterling, the amount outstanding being £15,300,000. In 1880 the Land-banks of Germany had an aggregate capital of 18 millions sterling, and the debentures in circulation summed up 80 millions sterling.

*Russia.*—The Imperial Bank as early as 1859 had advanced 30 millions sterling on mortgage to the nobles, who owed altogether 60 millions sterling. Subsequently a separate office or bank was started as a Mortgage-bank, and in December 1889 the amount of existing loans on mortgage was 196 million roubles, nominally £31,000,000, but at the present exchange only £19,600,000. Moreover, a Land-bank was founded about 1861 to help the peasants to buy their lands from the nobles. According to Sir A. Buchanan, the peasants owed 85 millions sterling in 1875; this was perhaps an error, as the *Statesman's Year-Book* gives the following:—"Up to December 1889, the Land-bank lent 58 million roubles (say £5,800,000) to 234,000 peasants towards purchasing 4,240,000 acres, valued at £7,300,000, the peasants finding the remaining £1,500,000. The peasants did not buy individually, but in 7240 villages or associations. The above purchases only refer to Beggar's Lots (see *Land*), as the peasants in ten years, ending 1870, became masters of 35,000,000 acres.

*Norway.*—The Hypothek Bank was founded in 1852 to lend on mortgage; it belongs to the State, and has a capital of £600,000. The outstanding loans in December 1888 reached £4,600,000, and the bonds in circulation £4,200,000.

*Austria.*—The Bank of Vienna in 1878 held mortgages on real estate for £10,300,000, of which £7,900,000 was on lands. In 1886 the various banks held mortgages to the amount of £65,000,000.

*Italy.*—The Credito Fondiario was founded in 1866 at Naples, with branches at Milan, &c., to make advances in 5 per cent. debentures on real estate, no loan to exceed £20,000, nor to be for more than 50 per cent. of the value of the property. The borrower pays also 1 per cent. sinking-fund; the debentures usually sell about 80 per cent. of nominal value. Issue averages £500,000 per annum. In 1870 two other Land-banks were founded, the Agricola Italiana and Agricola Nazionale. The amount of all mortgages held by these Land-banks in 1887 was £28,000,000 sterling.

*Spain and Portugal.*—There are no Land-banks in Spain; usurers have a free field. Murcia is mortgaged up to 65 per cent. of its value, and the usurers get 10 per cent. of the crops. The Credito Portuguez was founded in 1866 to rescue Portuguese landowners from usurers; it lends money at 6 per cent. in debentures, the advances down to 1869 reaching £1,100,000 on 1630 estates of distressed noblemen. In 1861 the mortgages then held in Portugal were:—

| Loans by                   | Amount, £ | Interest     |
|----------------------------|-----------|--------------|
| Usurers . . . . .          | 6,300,000 | 15 per cent. |
| Religious houses . . . . . | 1,600,000 | 5 "          |
| Total . . . . .            | 7,900,000 | ...          |

*Sweden.*—The General Mortgage Bank, founded in 1861, has 47,000 shareholders, the qualification being the possession of property worth £50, or upwards. In 1877, debentures had been issued to the amount of 13½ millions sterling, of which 2 millions had been redeemed. Borrowers pay 6 per cent. per annum, which cancels the loan in sixty years, the bank reserving ¼ per cent. for expenses, which, however, do not exceed 15d. per £100. The debentures rarely fall below 100; the reserve fund is £900,000, one-half in Government stock. The House-Mortgage Bank is on similar principles, applicable to house property.

*Denmark.*—The Landman's Bank advances on mortgages of land in 4 per cent. debentures, which sell in the market at 85 or 90 per cent. of their nominal value. Sinking-fund 1 per cent.; borrowers pay altogether 5 per cent.

*Switzerland.*—There are no distinct Land-banks; mortgages on land amount to one-fourth the estimated value.

*Brazil.*—The Rural Mortgage Bank was established in 1853 to make loans to planters; capital £900,000, reserve fund £400,000 sterling. The Bank of Brazil is, moreover, by its charter obliged to have always £2,600,000 in similar loans at 6 per cent. annual interest.

*Chile.*—There are several Mortgage-banks which issue Cédulas on houses and lands. The amount of these Cédulas in 1888 was 76 millions, say £8,300,000 sterling.

*Argentina.*—The Mortgage Bank of Buenos Ayres was founded in 1873, to make advances in 6 per cent. debentures up to half the value of the houses or lands mortgaged, the Bank charging 1 per cent. commission, its debentures being, moreover, guaranteed by the State. The National Mortgage Bank was established on like principles in 1886. Similar banks have been founded in Santa Fé and other provinces.

The balance-sheets for December 1888 showed as follows:—

|                                         | Issued     | Redeemed   | Balance Outstanding |
|-----------------------------------------|------------|------------|---------------------|
|                                         | £          | £          | £                   |
| Mortgage Bank of Buenos Ayres . . . . . | 47,000,000 | 11,300,000 | 35,700,000          |
| National Mortgage Bank . . . . .        | 15,000,000 | 600,000    | 14,400,000          |
| Total . . . . .                         | 62,000,000 | 11,900,000 | 50,100,000          |

The above was the nominal amount, but the currency was at 33 per cent. discount. The real value of debentures in circulation was about £33,500,000.

In December 1889 the actual Cédulas in circulation were approximately:—

|                                      | Millions | Nominal Value | At Current Exchange |
|--------------------------------------|----------|---------------|---------------------|
|                                      | \$       | £             | £                   |
| National Mortgage Bank               | 120      | 24,000,000    | 10,000,000          |
| Buenos Ayres Mortgage Bank . . . . . | 280      | 56,000,000    | 23,000,000          |
| Total . . . . .                      | 400      | 80,000,000    | 33,000,000          |

#### SAVINGS-BANKS

The first was established at Brunswick in 1765, the second at Hamburg in 1778. Mrs. Wakefield founded one in England in 1803. The first in France was in 1818

at Paris. In 1835 we find the following returns of France, Vienna, and Prague :—

|                  | Depositors | Amount, £ |
|------------------|------------|-----------|
| France . . . . . | 122,000    | 2,500,000 |
| Vienna . . . . . | 57,000     | 1,400,000 |
| Prague . . . . . | 18,000     | 520,000   |

From this time they began to grow rapidly in many countries. In the following table, 1889 includes latest information as regards some countries for which we have no particulars for that year :—

|                               | 1840       | 1850       | 1860        | 1870        | 1889        |
|-------------------------------|------------|------------|-------------|-------------|-------------|
|                               | £          | £          | £           | £           | £           |
| United Kingdom . . . . .      | 23,400,000 | 30,100,000 | 41,300,000  | 53,100,000  | 107,200,000 |
| France . . . . .              | 7,600,000  | 5,400,000  | 15,100,000  | 27,400,000  | 111,800,000 |
| Prussia . . . . .             | 4,000,000  | 5,500,000  | 14,500,000  | 76,600,000  | 144,600,000 |
| Russia . . . . .              | ...        | ...        | 1,100,000   | 2,400,000   | 7,200,000   |
| Austria . . . . .             | 3,000,000  | 4,500,000  | 28,000,000  | 40,300,000  | 122,600,000 |
| Italy . . . . .               | 700,000    | 1,600,000  | 12,400,000  | 14,800,000  | 69,200,000  |
| Switzerland . . . . .         | ...        | 700,000    | 5,100,000   | 11,600,000  | 23,700,000  |
| Spain . . . . .               | ...        | ...        | 200,000     | 1,000,000   | 2,000,000   |
| Belgium and Holland . . . . . | ...        | 1,800,000  | 2,200,000   | 4,500,000   | 16,400,000  |
| Scandinavia . . . . .         | ...        | 3,100,000  | 7,200,000   | 14,600,000  | 44,100,000  |
| Europe . . . . .              | 38,700,000 | 52,700,000 | 127,100,000 | 246,300,000 | 648,800,000 |

|                               | Number of Depositors |            |            | Number per 1000 Inhabitants |      |      |
|-------------------------------|----------------------|------------|------------|-----------------------------|------|------|
|                               | 1850                 | 1870       | 1882       | 1850                        | 1872 | 1882 |
| United Kingdom . . . . .      | 1,060,000            | 2,620,000  | 3,715,000  | 40                          | 85   | 95   |
| France . . . . .              | 586,000              | 2,050,000  | 4,150,000  | 16                          | 57   | 110  |
| Germany . . . . .             | 530,000              | 2,200,000  | 5,000,000  | 16                          | 55   | 111  |
| Russia . . . . .              | ...                  | 150,000    | 200,000    | ...                         | 2    | 2    |
| Austria . . . . .             | 160,000              | 1,300,000  | 1,850,000  | 5                           | 37   | 48   |
| Italy . . . . .               | 170,000              | 570,000    | 1,970,000  | 3                           | 23   | 66   |
| Belgium and Holland . . . . . | 40,000               | 180,000    | 310,000    | 5                           | 20   | 31   |
| Switzerland . . . . .         | 52,000               | 512,000    | 1,080,000  | 20                          | 195  | 360  |
| Scandinavia . . . . .         | 150,000              | 900,000    | 1,600,000  | 25                          | 110  | 180  |
| Europe . . . . .              | 2,748,000            | 10,482,000 | 19,875,000 | 12                          | 40   | 67   |

*United Kingdom.*—The savings-banks of the United Kingdom have shown as follows :—

| Year | Amount of Deposits, £ |            |           | Shillings per Inhabitant |           |          |
|------|-----------------------|------------|-----------|--------------------------|-----------|----------|
|      | England               | Scotland   | Ireland   | Eng-land                 | Scot-land | Ire-land |
| 1830 | 12,600,000            | ...        | 910,000   | 18                       | ...       | 2        |
| 1840 | 20,700,000            | 520,000    | 2,200,000 | 25                       | 4         | 5        |
| 1850 | 27,680,000            | 1,080,000  | 1,360,000 | 30                       | 7         | 4        |
| 1860 | 36,700,000            | 2,410,000  | 2,140,000 | 37                       | 16        | 7        |
| 1870 | 46,230,000            | 4,130,000  | 2,690,000 | 40                       | 25        | 10       |
| 1880 | 66,900,000            | 7,200,000  | 3,700,000 | 52                       | 39        | 15       |
| 1888 | 88,600,000            | 10,400,000 | 5,300,000 | 62                       | 50        | 22       |

*France.*—The official returns show as follows :—

| Year           | Depositors | Amount, £   |
|----------------|------------|-------------|
| 1835 . . . . . | 80,000     | 1,700,000   |
| 1840 . . . . . | 311,000    | 6,800,000   |
| 1850 . . . . . | 586,000    | 3,000,000   |
| 1860 . . . . . | 1,126,000  | 13,600,000  |
| 1870 . . . . . | 2,050,000  | 27,400,000  |
| 1880 . . . . . | 3,508,000  | 46,200,000  |
| 1886 . . . . . | 4,937,000  | 88,400,000  |
| 1888 . . . . . | 6,492,000  | 111,800,000 |

In 1888 the Post-Office savings-banks showed £12,000,000 in deposits, the average to each depositor

The returns for 1887 give the following aggregates (taking the florin at 20 pence) :—

|                   | Depositors | Amount, £   |                       | Depositors | Amount, £   |
|-------------------|------------|-------------|-----------------------|------------|-------------|
| Austria . . . . . | 2,620,000  | 91,300,000  | Post-office . . . . . | 722,000    | 5,200,000   |
| Hungary . . . . . | 584,000    | 31,300,000  | Ordinary . . . . .    | 2,491,000  | 117,400,000 |
| Total . . . . .   | 3,213,000  | 122,600,000 | Total . . . . .       | 3,213,000  | 122,600,000 |

being £9, 4s. ; the private savings-banks £99,800,000, average £18, 6s.

*Russia.*—In 1888 the Government savings-banks showed £820,000 at St. Petersburg, £640,000 at Moscow, and £7,200,000 for the whole Empire.

*Italy.*—The number of depositors and amount showed :—

| Year           | Depositors | Amount, £  |
|----------------|------------|------------|
| 1850 . . . . . | 170,000    | 2,200,000  |
| 1870 . . . . . | 571,000    | 14,800,000 |
| 1881 . . . . . | 1,970,000  | 33,600,000 |
| 1888 . . . . . | 3,510,000  | 69,200,000 |

The returns for 1887 make up as follows :—

|                        | Offices | Depositors | Deposits, £ |
|------------------------|---------|------------|-------------|
| Post-office . . . . .  | 4,237   | 1,571,000  | 9,600,000   |
| Ordinary . . . . .     | 395     | 1,295,000  | 40,300,000  |
| Co-operative . . . . . | 619     | 390,000    | 13,800,000  |
| Total . . . . .        | 5,251   | 3,256,000  | 63,700,000  |

*Austria.*—Depositors and amount are shown approximately as follows :—

| Year           | Depositors | Amount, £   |
|----------------|------------|-------------|
| 1850 . . . . . | 160,000    | 19,600,000  |
| 1870 . . . . . | 1,300,000  | 40,300,000  |
| 1881 . . . . . | 1,850,000  | 85,100,000  |
| 1887 . . . . . | 3,017,000  | 122,600,000 |

*Belgium.*—The first was opened in 1835, in which year the deposits reached £720,000. Subsequent returns are as follows:—

| Year           | Depositors | Amount, £  |
|----------------|------------|------------|
| 1840 . . . . . | 38,500     | 2,060,000  |
| 1850 . . . . . | 29,500     | 1,100,000  |
| 1860 . . . . . | 32,400     | 1,050,000  |
| 1870 . . . . . | 52,000     | 800,000    |
| 1880 . . . . . | 200,600    | 5,040,000  |
| 1888 . . . . . | 599,000    | 10,400,000 |

The above does not include People's Banks, which showed as follows:—

| Year           | Capital, £ | Discounts, £ | Deposits, £ |
|----------------|------------|--------------|-------------|
| 1861 . . . . . | 1,400,000  | 300,000      | 200,000     |
| 1870 . . . . . | 2,700,000  | 600,000      | 900,000     |
| 1880 . . . . . | 3,200,000  | 800,000      | 1,200,000   |
| 1888 . . . . . | 2,800,000  | 900,000      | 1,300,000   |

*Holland.*—The returns of 1888 for State savings-banks, and of 1885 for private ones, sum up thus:—

|                   | Depositors | Amount, £ |
|-------------------|------------|-----------|
| State . . . . .   | 202,000    | 1,100,000 |
| Private . . . . . | 270,000    | 3,900,000 |
| Total . . . . .   | 472,000    | 5,000,000 |

In 1888 there were 499,000 depositors, holding a total of £5,980,000.

*Scandinavia.*—The returns for 1886–88 were as follows:—

|                   | Depositors | Amount, £  |
|-------------------|------------|------------|
| Denmark . . . . . | 697,000    | 20,900,000 |
| Sweden . . . . .  | 1,010,000  | 13,700,000 |
| Norway . . . . .  | 452,000    | 10,400,000 |
| Total . . . . .   | 2,159,000  | 44,100,000 |

*United States.*—No distinct returns were kept before 1873; the returns since then show as follows:—

| Year           | Depositors | Amount, £   |
|----------------|------------|-------------|
| 1873 . . . . . | 2,190,000  | 135,200,000 |
| 1880 . . . . . | 2,528,000  | 185,400,000 |
| 1884 . . . . . | 3,071,000  | 227,800,000 |
| 1889 . . . . . | 4,022,000  | 283,900,000 |

The following table shows the States where savings banks are most in use (1889):—

|                         | Depositors | Amount, £   | Depositors per 100 Inhab. | Amount per Inhabitant, £ |
|-------------------------|------------|-------------|---------------------------|--------------------------|
| New York . . . . .      | 1,363,000  | 109,000,000 | 20                        | 16.4                     |
| Massachusetts . . . . . | 983,000    | 65,500,000  | 42                        | 26.5                     |
| Connecticut . . . . .   | 288,000    | 22,000,000  | 35                        | 27.0                     |
| California . . . . .    | 114,000    | 18,100,000  | 10                        | 15.6                     |
| Pennsylvania . . . . .  | 213,000    | 13,500,000  | 4                         | 2.4                      |
| N. Hampshire . . . . .  | 145,000    | 12,000,000  | 31                        | 25.5                     |
| Rhode Island . . . . .  | 123,000    | 12,100,000  | 34                        | 33.0                     |
| Maine . . . . .         | 125,000    | 8,600,000   | 15                        | 10.1                     |
| Maryland . . . . .      | 123,000    | 7,100,000   | 10                        | 5.8                      |
| New Jersey . . . . .    | 115,000    | 6,400,000   | 8                         | 4.2                      |
| Various . . . . .       | 430,000    | 9,600,000   | ...                       | ...                      |
| Total . . . . .         | 4,022,000  | 283,900,000 | 6                         | 4.4                      |

*Canada.*—The deposits were as follow:—

| Year           | Sum       |                  | 1887      |
|----------------|-----------|------------------|-----------|
|                | £         | £                | £         |
| 1867 . . . . . | 300,000   | Ontario          | 3,200,000 |
| 1879 . . . . . | 1,900,000 | Quebec           | 730,000   |
| 1887 . . . . . | 4,060,000 | Nova Scotia, &c. | 130,000   |

*Australia.*—In 1888 the returns were as follows:—

|                             | Depositors | Amount, £  | Depositors per 100 Inhab. | Amount per Inhabitant, £ |
|-----------------------------|------------|------------|---------------------------|--------------------------|
| New South Wales . . . . .   | 128,000    | 4,040,000  | 12                        | 3.7                      |
| Victoria . . . . .          | 248,000    | 4,880,000  | 23                        | 4.5                      |
| Queensland . . . . .        | 43,000     | 1,610,000  | 11                        | 4.2                      |
| South Australia . . . . .   | 62,000     | 1,760,000  | 20                        | 5.6                      |
| New Zealand . . . . .       | 103,000    | 2,690,000  | 17                        | 4.4                      |
| Tasmania . . . . .          | 23,000     | 470,000    | 16                        | 3.2                      |
| Western Australia . . . . . | 3,000      | 30,000     | 7                         | 0.7                      |
| Total . . . . .             | 610,000    | 15,480,000 | 17                        | 4.2                      |

The aggregate of the seven colonies was as follows:—

| Year           | Depositors | Amount, £  | Depositors per 100 Inhabitants | Amount per Inhabitant, £ |
|----------------|------------|------------|--------------------------------|--------------------------|
| 1861 . . . . . | 28,800     | 1,360,000  | 2                              | 1.1                      |
| 1871 . . . . . | 114,000    | 3,660,000  | 6                              | 1.9                      |
| 1881 . . . . . | 308,000    | 9,420,000  | 11                             | 3.3                      |
| 1888 . . . . . | 610,000    | 15,480,000 | 17                             | 4.2                      |

*India.*—The official returns for 1884 and 1888 (taking the rupee at 18 pence) were:—

|            | 1884      | 1888      | 1888      |                   |
|------------|-----------|-----------|-----------|-------------------|
|            |           |           | No.       | Amount            |
| Depositors | 204,000   | 332,000   | Europeans | 65,000 1,100,000  |
| Amount, £  | 3,010,000 | 4,940,000 | Natives   | 267,000 3,840,000 |

There are 6150 savings-banks, of which 5960 belong to the Post-Office.

## BANKRUPTCY

The averages for the years 1879–81 in five principal countries were:—

|                          | No. of Failures | Amount     | Ratio to Commerce |
|--------------------------|-----------------|------------|-------------------|
|                          |                 | £          | Per Cent.         |
| United Kingdom . . . . . | 13,720          | 31,300,000 | 5½                |
| France . . . . .         | 5,580           | 10,200,000 | 3                 |
| Austria . . . . .        | 1,414           | 1,820,000  | 1½                |
| United States . . . . .  | 5,715           | 16,300,000 | 5½                |
| Canada . . . . .         | 920             | 2,730,000  | 8                 |

## UNITED KINGDOM

Wholesale failures in the years 1880–89 were as follows:—

| Year           | London | Provinces | Scotland | Ireland | Total |
|----------------|--------|-----------|----------|---------|-------|
| 1880 . . . . . | 385    | 972       | 99       | 22      | 1,478 |
| 1882 . . . . . | 399    | 823       | 78       | 14      | 1,314 |
| 1883 . . . . . | 377    | 885       | 83       | 16      | 1,361 |
| 1889 . . . . . | 193    | 563       | 51       | 11      | 818   |

Wholesale and retail for nineteen years in England and Wales showed thus:—

| Years             | Annual Average |            | Average per Failure, £ | Assets, Annual Average, £ | Percentage of Assets |
|-------------------|----------------|------------|------------------------|---------------------------|----------------------|
|                   | Number         | Sum, £     |                        |                           |                      |
| 1870–72 . . . . . | 6,039          | 15,300,000 | 2,500                  | 4,600,000                 | 30                   |
| 1873–75 . . . . . | 7,766          | 21,600,000 | 2,800                  | 6,300,000                 | 29                   |
| 1876–78 . . . . . | 10,077         | 23,500,000 | 2,300                  | 7,100,000                 | 30                   |
| 1879–81 . . . . . | 11,052         | 21,200,000 | 1,930                  | 6,500,000                 | 31                   |
| 1882–84 . . . . . | 7,263          | 18,100,000 | 2,500                  | 5,200,000                 | 29                   |
| 1885–88 . . . . . | 4,587          | 8,300,000  | 1,800                  | 2,800,000                 | 33                   |

The ratio of assets for the years 1870 and 1881 in England and Wales were:—

| Assets              | Number |       | Percentage |      |
|---------------------|--------|-------|------------|------|
|                     | 1870   | 1881  | 1870       | 1881 |
| Under 5 per cent. . | 123    | 963   | 7          | 25   |
| 5-25 " .            | 833    | 2,256 | 44         | 58   |
| 25-40 " .           | 316    | 349   | 17         | 9    |
| Over 40 " .         | 616    | 322   | 32         | 8    |
| Total . .           | 1,888  | 3,890 | 100        | 100  |

From a judicial report in 1881 are taken the following:—

| Year             | No. of Cases | Amount     | Assets    | Ratio of Assets |
|------------------|--------------|------------|-----------|-----------------|
|                  |              | £          | £         | Per Cent.       |
| 1870 . . .       | 5,002        | 17,400,000 | 5,300,000 | 30              |
| 1880 . . .       | 10,298       | 16,200,000 | 4,600,000 | 28              |
| Average 10 years | 9,515        | 20,300,000 | 6,200,000 | 31              |

In eight years ending 1888 the bankruptcies averaged thus: liabilities, £13,100,000; assets, £3,300,000.

The cases liquidated in court showed that law-costs absorbed 40 per cent. of assets.

In the eighteenth century the number of bankruptcies in England averaged 177 yearly down to 1750, and 460 in the fifty years following.

In Scotland the bankruptcies were:—

| Period   | Annual Average |           | Average per Failure, £ | Percentage of Assets |
|----------|----------------|-----------|------------------------|----------------------|
|          | No.            | Amount, £ |                        |                      |
| 1874-88  | 603            | 1,360,000 | 2,270                  | 46                   |
| 1881-84  | 412            | 6,300,000 | 15,200                 | 11                   |
| 1885-88  | 425            | 1,450,000 | 3,400                  | 46                   |
| 15 years | 505            | 2,690,000 | 5,300                  | 25                   |

Some of the above were for bankruptcies of previous years, liquidated as above.

The aggregate of business in Ireland that passed through the Court of Bankruptcy in five years ending 1880 was as follows:—

|                   |           |                    |         |
|-------------------|-----------|--------------------|---------|
| Liabilities . . . | 2,750,000 | Law-costs . . .    | 245,000 |
| Assets . . . . .  | 805,000   | To creditors . . . | 560,000 |

The average dividend, therefore, was 20 per cent. on the liabilities. Law-costs absorbed 30 per cent. of the assets.

Irish bankruptcy business from 1880 to 1887 showed:—

|                        |           |                  |
|------------------------|-----------|------------------|
|                        |           | <i>Per Annum</i> |
| Number of bankruptcies | 4,124     | 516              |
| Liabilities, £ . . .   | 9,700,000 | 1,210,000        |

This gives an average of £2300 per failure.

France.—Official returns give the following:—

| Years          | Annual Average  |                 |
|----------------|-----------------|-----------------|
|                | No. of Failures | Ratio of Assets |
|                |                 | Per Cent.       |
| 1840-50 . . .  | 3,480           | 31              |
| 1860-70 . . .  | 5,120           | 21              |
| 1878-81 . . .  | 5,580           | 17              |
| 1881-84 . . .  | 7,135           | ...             |
| 1885 . . . . . | 8,024           | 25              |

The following table shows the number of failures compared with that of merchants and traders:—

| Year           | No. of Merchants | Failed | Ratio to Merchants | Failures over £2000 |
|----------------|------------------|--------|--------------------|---------------------|
|                |                  |        | Per Cent.          | Per Cent.           |
| 1844 . . . . . | 1,414,000        | 3,011  | 2.1                | 52                  |
| 1854 . . . . . | 1,420,000        | 3,691  | 2.6                | 48                  |
| 1864 . . . . . | 1,410,000        | 4,642  | 3.3                | 43                  |
| 1874 . . . . . | 1,606,000        | 5,508  | 3.4                | 54                  |

Not only has the ratio of failures risen, but also the average amount per failure.

The following table is for fourteen years ending 1885:—

| Period          | Annual Average  |            |                       |
|-----------------|-----------------|------------|-----------------------|
|                 | No. of Failures | Amount, £  | Amount per Failure, £ |
| 1872-75 . . . . | 5,442           | 9,200,000  | 1,700                 |
| 1876-80 . . . . | 5,832           | 10,600,000 | 1,800                 |
| 1881-84 . . . . | 7,135           | 10,700,000 | 1,500                 |
| 1885 . . . . .  | 8,024           | 14,200,000 | 1,750                 |

Austria.—The annual number of bankruptcies was as follows:—

|                   |       |
|-------------------|-------|
| 1871-75 . . . . . | 909   |
| 1876-80 . . . . . | 1,304 |
| 1881-83 . . . . . | 1,017 |

No returns as to liabilities or assets.

Germany.—The number of bankruptcies in 1886 was 5912, against 5905 in 1882; amount not stated.

Australia.—There are no returns for Western Australia. The aggregate for the other six colonies showed as follows:—

| Year           | Failures | Liabilities | Assets    | Ratio of Assets |
|----------------|----------|-------------|-----------|-----------------|
|                |          | £           | £         | Per Cent.       |
| 1861 . . . . . | 2,037    | 2,000,000   | 1,095,000 | 55              |
| 1871 . . . . . | 2,257    | 1,490,000   | 695,000   | 47              |
| 1881 . . . . . | 3,632    | 1,720,000   | 1,230,000 | 72              |
| 1888 . . . . . | 2,769    | 2,260,000   | 1,510,000 | 67              |

The returns for 1888 were as follows:—

|                   | Failures | Liabilities | Assets    | Ratio of Assets |
|-------------------|----------|-------------|-----------|-----------------|
|                   |          | £           | £         | Per Cent.       |
| N. S. Wales . . . | 851      | 660,000     | 460,000   | 70              |
| Victoria . . . .  | 479      | 350,000     | 185,000   | 53              |
| Queensland . . .  | 249      | 260,000     | 120,000   | 46              |
| South Australia . | 219      | 80,000      | 60,000    | 75              |
| New Zealand . .   | 881      | 865,000     | 670,000   | 77              |
| Tasmania . . . .  | 90       | 45,000      | 15,000    | 33              |
| Total . . . . .   | 2,769    | 2,260,000   | 1,510,000 | 67              |

#### UNITED STATES

The annual averages have been as follows since 1857:—

| Period          | Number of Failures | Amount, £  | Amount per Failure, £ |
|-----------------|--------------------|------------|-----------------------|
| 1857-60 . . . . | 3,262              | 23,500,000 | 7,100                 |
| 1861-65 . . . . | 1,830              | 10,600,000 | 5,800                 |
| 1866-69 . . . . | 2,425              | 15,100,000 | 6,200                 |
| 1870-75 . . . . | 4,882              | 30,500,000 | 6,100                 |
| 1876-80 . . . . | 7,970              | 32,400,000 | 4,100                 |
| 1881-86 . . . . | 8,823              | 28,300,000 | 3,200                 |
| 1889 . . . . .  | 11,719             | 29,200,000 | 2,400                 |

## CANADA

| Years          | Number | Amount, £ | Average, £ |
|----------------|--------|-----------|------------|
| 1879-80 . . .  | 1,060  | 3,080,000 | 3,000      |
| 1881-82 . . .  | 625    | 1,450,000 | 2,300      |
| 1885 . . . . . | 1,246  | 1,920,000 | 1,600      |
| 1886 . . . . . | 1,186  | 2,320,000 | 2,000      |

## REMARKABLE CRISES

1763. Amsterdam, originating with the house of De Neufville. Failures—20 in Holland, 20 in England, 37 in Hamburg.
1773. Failures in Holland exceeding 10 millions.
1799. Hamburg, 82 failures, 2 millions.
1814. England, 240 banks suspended.
1825. Manchester, failures 2 millions.
1831. Calcutta, failures 15 millions.
1837. United States "Wild Cat" crisis; all banks closed.
1839. Bank of England saved by Bank of France. Severe also in France, where 93 companies failed for 6 millions.
1844. England. State loans to merchants.
1847. England, failures 20 millions; discount 13 per cent.
1857. United States, 7200 houses failed for 111 millions.
1866. London, Overend-Gurney; failures 100 millions.

## BANQUET

One of the greatest on record was that given at Paris by President Carnot, 19th July 1889, to 15,000 mayors, senators, deputies, and other officials. There were 195 cooks, 1050 waiters, 80,000 plates, 30,000 loaves, 23,000 bottles of wine, 600 gallons soup, 3 tons fish, 32 cwts. beef, and 7200 poultry, with 6 tons ice.

## BATHS

*Baths.*—The use of baths among the working-classes in London is shown by the receipts thus: 1850, £9,800; 1860, £25,000; 1880, £41,000.

## BATTLES

|                  | Men Engaged | Hors de Combat | Per Cent. |
|------------------|-------------|----------------|-----------|
| Agincourt . . .  | 62,000      | 11,400         | 18        |
| Alma . . . . .   | 105,000     | 8,400          | 8         |
| Bannockburn . .  | 135,000     | 38,000         | 28        |
| Borodino . . . . | 250,000     | 78,000         | 31        |
| Cannæ . . . . .  | 146,000     | 52,000         | 34        |
| Cressy . . . . . | 117,000     | 31,200         | 27        |
| Gravelotte . . . | 396,000     | 62,000         | 16        |
| Sadowa . . . . . | 291,000     | 33,000         | 11        |
| Thrasymene . . . | 65,000      | 17,000         | 27        |
| Waterloo . . . . | 221,000     | 51,000         | 23        |

| Date       | Battle     | Won by    | Lost by      | Went into Action |             | Losses of |             | Per Cent. of Loss |             |
|------------|------------|-----------|--------------|------------------|-------------|-----------|-------------|-------------------|-------------|
|            |            |           |              | Victors          | Van-quished | Victors   | Van-quished | Victors           | Van-quished |
| 1862 . . . | Antietam   | Federals  | Confederates | 87,000           | 97,000      | 11,000    | 20,000      | 13                | 20          |
| 1805 . . . | Austerlitz | French    | Austrians    | 70,000           | 84,000      | 12,000    | 26,000      | 17                | 31          |
| 1813 . . . | Bautzen    | French    | Prussians    | 150,000          | 110,000     | 28,000    | 24,000      | 18                | 21          |
| 1863 . . . | Gettysburg | Federals  | Confederates | 117,000          | 68,000      | 17,000    | 27,000      | 14                | 40          |
| 1870 . . . | Gravelotte | Germans   | French       | 270,000          | 126,000     | 35,000    | 27,000      | 13                | 22          |
| 1806 . . . | Jena       | French    | Prussians    | 40,000           | 70,000      | 4,000     | 27,000      | 10                | 39          |
| 1813 . . . | Leipzig    | Germans   | French       | 300,000          | 171,000     | 47,000    | 60,000      | 16                | 36          |
| 1859 . . . | Magenta    | French    | Austrians    | 47,000           | 61,000      | 5,000     | 10,000      | 11                | 17          |
| 1800 . . . | Marengo    | French    | Austrians    | 28,000           | 40,000      | 7,000     | 12,000      | 25                | 30          |
| 1812 . . . | Moscow     | French    | Russians     | 120,000          | 125,000     | 23,000    | 51,000      | 19                | 40          |
| 1866 . . . | Sadowa     | Prussians | Austrians    | 141,000          | 150,000     | 9,000     | 24,000      | 7                 | 17          |
| 1870 . . . | Sedan      | Prussians | French       | 190,000          | 124,000     | 9,000     | 38,000      | 5                 | 31          |
| 1859 . . . | Solferino  | French    | Austrians    | 124,000          | 163,000     | 15,000    | 22,000      | 12                | 14          |
| 1809 . . . | Wagram     | French    | Austrians    | 140,000          | 90,000      | 32,000    | 25,000      | 22                | 28          |
| 1815 . . . | Waterloo   | British   | French       | 101,000          | 120,000     | 22,000    | 29,000      | 22                | 24          |

## BEER

Table of yearly production and consumption (1886-89) :—

|                   | Number of Breweries | Millions of Gallons |           | Value of Beer Produced, £ |
|-------------------|---------------------|---------------------|-----------|---------------------------|
|                   |                     | Pro-duced           | Con-sumed |                           |
| U. Kingdom . .    | 16,114              | 1,040               | 1,022     | 69,000,000                |
| France . . . .    | 2,722               | 186                 | 193       | 12,000,000                |
| Germany . . .     | 26,458              | 930                 | 910       | 62,000,000                |
| Russia . . . .    | 1,592               | 92                  | 92        | 6,200,000                 |
| Austria . . . .   | 1,962               | 290                 | 280       | 19,000,000                |
| Italy . . . . .   | 135                 | 4                   | 5         | 300,000                   |
| Switzerland . .   | 417                 | 20                  | 21        | 1,300,000                 |
| Belgium . . . .   | 1,248               | 204                 | 206       | 14,000,000                |
| Holland . . . .   | 560                 | 32                  | 32        | 2,100,000                 |
| Denmark . . . .   | 441                 | 25                  | 25        | 1,600,000                 |
| Sweden . . . .    | 253                 | 21                  | 21        | 1,400,000                 |
| Norway . . . .    | 56                  | 13                  | 13        | 900,000                   |
| Europe . . . .    | 51,958              | 2,857               | 2,820     | 189,800,000               |
| United States . . | 3,293               | 753                 | 780       | 40,000,000                |
| Australia . . .   | 187                 | 18                  | 22        | 1,200,000                 |
| India . . . . .   | 24                  | 3                   | 5         | 200,000                   |
| Total . . . . .   | 55,462              | 3,631               | 3,627     | 231,200,000               |

The breweries of the world consume yearly 4 million tons of barley (say 160 million bushels), and 70,000 tons of hops. Germany has an annual surplus of 8000 tons of hops, Austria 3000, but England and France have to import some. British breweries consume 56 million bushels barley, and 70,000 tons sugar.

## RETROSPECT OF PRODUCTION

|      | Millions of Gallons |        |         |         |         |               |       |
|------|---------------------|--------|---------|---------|---------|---------------|-------|
|      | United Kingdom      | France | Germany | Austria | Belgium | United States | Total |
| 1840 | 650                 | 92     | 500     | 160     | 100     | 23            | 1,525 |
| 1850 | 710                 | 106    | 600     | 180     | 120     | 36            | 1,752 |
| 1860 | 770                 | 140    | 700     | 200     | 140     | 100           | 2,050 |
| 1870 | 980                 | 150    | 800     | 220     | 153     | 204           | 2,507 |
| 1880 | 1,020               | 180    | 815     | 240     | 200     | 413           | 2,868 |
| 1887 | 1,040               | 186    | 930     | 290     | 204     | 612           | 3,262 |

The figures for Germany, Austria, and Belgium previous to 1870 are conjectural.

## ENGLAND AND WALES

The annual consumption in England and Wales has been :—

| Period              | Million Gallons | Per Inhab. | Period              | Million Gallons | Per Inhab. |
|---------------------|-----------------|------------|---------------------|-----------------|------------|
| 1660-1700 . . . . . | 255             | 44         | 1801-1830 . . . . . | 335             | 30         |
| 1701-1750 . . . . . | 215             | 35         | 1831-1860 . . . . . | 560             | 33         |
| 1751-1800 . . . . . | 252             | 32         | 1861-1880 . . . . . | 835             | 36         |

The price per gallon during 680 years has ruled thus :—

| Period              | Pence | Period              | Pence |
|---------------------|-------|---------------------|-------|
| 1201-1300 . . . . . | 3     | 1701-1800 . . . . . | 11    |
| 1301-1600 . . . . . | 5     | 1801-1880 . . . . . | 17    |
| 1601-1700 . . . . . | 6     | 1882 . . . . .      | 20    |

The above are according to weight of silver, but the nominal price was, for example, in the thirteenth century one penny.

The strength varies as follows :—

|                          | Alcohol | Bushels of Malt per Barrel |
|--------------------------|---------|----------------------------|
| Burton ale . . . . .     | 8.2     | 4.5                        |
| Bass's ale . . . . .     | 8.4     | 4.2                        |
| Edinburgh ale . . . . .  | 4.4     | 1.8                        |
| Guinness's ale . . . . . | 6.8     | 2.9                        |
| London porter . . . . .  | 4.1     | 1.9                        |
| London beer . . . . .    | 3.9     | 1.7                        |
| Lager beer . . . . .     | 3.2     | 1.5                        |

The annual consumption of malt in England has been as follows :—

| Period              | Bushels | Duty, Pence | Bushels per Inhabitant |
|---------------------|---------|-------------|------------------------|
| 1700-20 . . . . .   | 19.2    | 6           | 3.4                    |
| 1720-50 . . . . .   | 26.7    | 6           | 4.2                    |
| 1760-80 . . . . .   | 27.6    | 9           | 3.6                    |
| 1790-1800 . . . . . | 18.0    | 16          | 2.1                    |
| 1810-20 . . . . .   | 23.7    | 50          | 2.2                    |
| 1830-50 . . . . .   | 32.7    | 31          | 2.1                    |
| 1850-70 . . . . .   | 39.8    | 31          | 1.9                    |

In 1888 the consumption was about 48 million bushels in England, 3 millions in Scotland, and 5 millions in Ireland, total 56 millions, or two bushels per barrel of beer.

## GERMANY (1885)

|                        | Number of Breweries | Product, Gallons Beer | Gallons per Inhabitant |
|------------------------|---------------------|-----------------------|------------------------|
| Prussia . . . . .      | 7,691               | 540,000,000           | 19.2                   |
| Bavaria . . . . .      | 5,395               | 277,000,000           | 50.5                   |
| Wurtemberg . . . . .   | 7,381               | 66,000,000            | 33.0                   |
| Other States . . . . . | 4,539               | 47,000,000            | 4.3                    |
| Total . . . . .        | 25,006              | 930,000,000           | ...                    |

The statistics of German breweries showed as follows :—

| Year                        | Beer, Gallons | Tons Grain Consumed | Beer per Inhabitant, Gallons | Lbs. Grain per Inhabitant |
|-----------------------------|---------------|---------------------|------------------------------|---------------------------|
| 1873 . . . . .              | 830,000,000   | 780,000             | 20                           | 40                        |
| 1880 . . . . .              | 820,000,000   | 770,000             | 18                           | 37                        |
| 1887 . . . . .              | 990,000,000   | 930,000             | 21                           | 43                        |
| 15 years' average . . . . . | 880,000,000   | 830,000             | 19½                          | 39                        |

In the above years nearly 99 per cent. of the beer produced was consumed in Germany, exports ranging from 10 to 18 million gallons.

## AUSTRIA

| Year           | Millions of Gallons |         |       | Number of Breweries |
|----------------|---------------------|---------|-------|---------------------|
|                | Austria             | Hungary | Total |                     |
| 1870 . . . . . | 204                 | 16      | 220   | 2,743               |
| 1880 . . . . . | 231                 | 9       | 240   | 2,247               |
| 1887 . . . . . | 275                 | 15      | 290   | 1,962               |

## UNITED STATES

| Year           | Number of Breweries | Capital, £ | Gallons     |
|----------------|---------------------|------------|-------------|
| 1863 . . . . . | 1,269               | 3,100,000  | 53,000,000  |
| 1870 . . . . . | 2,785               | 13,500,000 | 204,000,000 |
| 1882 . . . . . | 2,557               | 31,800,000 | 525,000,000 |
| 1889 . . . . . | 1,964               | ...        | 777,000,000 |

Statistics of production and consumption were as follows :—

| Year           | Product, Gallons | Consumption, Galls. | Consumption per Inhab. |
|----------------|------------------|---------------------|------------------------|
| 1875 . . . . . | 293,000,000      | 295,000,000         | 6.5                    |
| 1880 . . . . . | 413,000,000      | 414,000,000         | 8.3                    |
| 1885 . . . . . | 594,000,000      | 596,000,000         | 9.5                    |
| 1889 . . . . . | 777,000,000      | 780,000,000         | 12.0                   |

The principal beer-producing States were as follows :—

|                         | 1878        | 1884        | 1889        |
|-------------------------|-------------|-------------|-------------|
|                         | Gallons     | Gallons     | Gallons     |
| New York . . . . .      | 109,000,000 | 204,000,000 | 250,000,000 |
| Pennsylvania . . . . .  | 31,000,000  | 62,000,000  | 71,000,000  |
| Ohio . . . . .          | 30,000,000  | 53,000,000  | 65,000,000  |
| Illinois . . . . .      | 18,000,000  | 35,000,000  | 62,000,000  |
| Wisconsin . . . . .     | 16,000,000  | 45,000,000  | 55,000,000  |
| Missouri . . . . .      | 17,000,000  | 35,000,000  | 52,000,000  |
| New Jersey . . . . .    | 16,000,000  | 28,000,000  | 42,000,000  |
| Massachusetts . . . . . | 19,000,000  | 27,000,000  | 31,000,000  |
| Various . . . . .       | 60,000,000  | 99,000,000  | 149,000,000 |
| Total . . . . .         | 316,000,000 | 588,000,000 | 777,000,000 |

## BEES

A hive of 5000 bees produces about 50 lbs. of honey yearly, and multiplies tenfold in five years. The ordinary value of a hive in Europe is £1 sterling.

Bees eat 20 lbs. honey in making 1 lb. of wax.

|                   | Hives     |                         | Hives     |
|-------------------|-----------|-------------------------|-----------|
| France . . . . .  | 950,000   | Belgium . . . . .       | 200,000   |
| Germany . . . . . | 1,910,000 | Holland . . . . .       | 240,000   |
| Russia . . . . .  | 110,000   | Denmark . . . . .       | 90,000    |
| Austria . . . . . | 1,550,000 | Greece . . . . .        | 30,000    |
| Spain . . . . .   | 1,690,000 | United States . . . . . | 2,800,000 |

The largest bee-owner in the world is Mr. Harbison of California, who has 6000 hives, producing 200,000 lbs. honey yearly, worth £8000. There are in the United States 70,000 bee-growers, but the average which they get from their hives is only 22 lbs., whereas the average in England is 50 lbs. In 1888 there were in Ireland 28,600 hives, of which 9100 in movable frames; annual product 210 tons of honey, worth £12,000. The average is only 16 lbs. honey per hive, but in Kildare it reached 37 lbs. In 1889 the product in France was :—

|                 | Tons  | Value, £ |
|-----------------|-------|----------|
| Honey . . . . . | 6,600 | 370,000  |
| Wax . . . . .   | 2,000 | 180,000  |

The ordinary value is 10d. per lb. for wax and 6d. for honey.



In Austria the production of wax averages 2000 tons. The total annual yield of bees in Europe may be estimated thus :—

|                 | Tons   | Value, £  |
|-----------------|--------|-----------|
| Honey . . . . . | 40,000 | 2,200,000 |
| Wax . . . . .   | 15,000 | 1,350,000 |
| Total . . . . . | 55,000 | 3,550,000 |

One hundred bees weigh an ounce. The wing of a bee makes 190 movements a second, of a wasp 110, of a fly 330.

### BEETROOT

This is grown both as cattle food and for making sugar. The crop ranges from 5 tons of roots per acre in Russia, to 9 tons in Germany. In England it has given 12 tons per acre, equivalent for cattle food to 4 tons of hay, and worth 16 shillings per ton; but it has been found too costly in cultivation. Experimental growing in Canada has proved most successful. It takes about 11 tons of roots in Europe generally per ton of beet sugar, the average of saccharine matter being 9 per cent. as compared with 4 per cent. twenty years ago. In Germany 8 tons of roots give a ton of sugar.

The acreage and crop of all kinds of beetroot are approximately as follows :—

|                   | Acres     | Tons, Beet | Sugar, Beet |
|-------------------|-----------|------------|-------------|
| France . . . . .  | 1,310,000 | 13,300,000 | 5,100,000   |
| Germany . . . . . | 1,700,000 | 12,400,000 | 8,300,000   |
| Russia . . . . .  | 1,000,000 | 5,200,000  | 5,200,000   |
| Austria . . . . . | 1,100,000 | 6,500,000  | 6,500,000   |
| Belgium . . . . . | 145,000   | 2,100,000  | 2,100,000   |
| Holland . . . . . | 60,000    | 600,000    | 400,000     |
| Denmark . . . . . | 30,000    | 300,000    | 300,000     |
| Europe . . . . .  | 5,345,000 | 40,400,000 | 27,900,000  |

The *Journal de la Société Stat.* of Paris mentions that the production of beet sugar in the United States during five years ending 1884 averaged 337,000 tons per annum, from which must be inferred that the Union grows about 3 million tons of beetroot. The following table shows approximately the growth of all kinds of beetroot at different dates :—

|                   | 1836    | 1850      | 1870       | 1880       | 1888       |
|-------------------|---------|-----------|------------|------------|------------|
|                   | Tons    | Tons      | Tons       | Tons       | Tons       |
| France . . . . .  | 700,000 | 1,500,000 | 6,600,000  | 14,800,000 | 13,300,000 |
| Germany . . . . . | 40,000  | 550,000   | 2,700,000  | 11,200,000 | 12,400,000 |
| Russia . . . . .  | ...     | 100,000   | 2,200,000  | 4,800,000  | 5,200,000  |
| Austria . . . . . | 10,000  | 200,000   | 1,500,000  | 5,500,000  | 6,500,000  |
| Belgium . . . . . | ...     | 150,000   | 800,000    | 1,800,000  | 2,100,000  |
| Holland . . . . . | ...     | ...       | 100,000    | 440,000    | 400,000    |
| Denmark . . . . . | ...     | ...       | 200,000    | 300,000    | 300,000    |
| Europe . . . . .  | 750,000 | 2,500,000 | 14,100,000 | 38,840,000 | 40,200,000 |

It appears that two-thirds of the total crop is used for making sugar, the product of which now reaches 2,800,000 tons yearly in all the world.

### BELLS

The largest are the following :—

| Tons                 | Tons                  | Tons                  |
|----------------------|-----------------------|-----------------------|
| Moscow . . . . .     | Rouen . . . . .       | Montreal . . . . .    |
| Burmah . . . . .     | Olmütz . . . . .      | Cologne . . . . .     |
| Pekin . . . . .      | Vienna . . . . .      | Oxford . . . . .      |
| Novgorod . . . . .   | St. Paul's . . . . .  | St. Peter's . . . . . |
| Notre Dame . . . . . | Westminster . . . . . | ...                   |

Bell-metal should have 77 parts copper and 23 tin.

### BIRDS

In hatching, the number of days that birds sit are :—

| Days             | Days             |
|------------------|------------------|
| Pigeon . . . . . | Duck . . . . .   |
| Canary . . . . . | Goose . . . . .  |
| Hen . . . . .    | Parrot . . . . . |
| Turkey . . . . . | Swan . . . . .   |

The ages to which birds attain are :—

| Years               | Years                 | Years             |
|---------------------|-----------------------|-------------------|
| Wren . . . . .      | Lark . . . . .        | Sparrow . . . . . |
| Thrush . . . . .    | Nightingale . . . . . | Goose . . . . .   |
| Hen . . . . .       | Pigeon . . . . .      | Pelican . . . . . |
| Robin . . . . .     | Linnet . . . . .      | Parrot . . . . .  |
| Blackbird . . . . . | Canary . . . . .      | Heron . . . . .   |
| Goldfinch . . . . . | Crane . . . . .       | Crow . . . . .    |
| Partridge . . . . . | Peacock . . . . .     | Swan . . . . .    |
| Pheasant . . . . .  | Skylark . . . . .     | Eagle . . . . .   |

The flight of the following birds per hour is :—

|                      |           |                  |          |
|----------------------|-----------|------------------|----------|
| Hawk . . . . .       | 150 miles | Rook . . . . .   | 60 miles |
| Eider-duck . . . . . | 90 „      | Pigeon . . . . . | 40 „     |

Carrier-pigeons from Paris to Versailles, ten miles, usually take twenty minutes. In November 1882 some flew from Canton Vaud to Paris, 160 miles, in 6½ hours.

The departure and return of birds of passage from England (*Brit. Assoc. Report*) are usually on the following dates :—

|                    | Leave England | Return     | Days Absent |
|--------------------|---------------|------------|-------------|
| Cuckoo . . . . .   | August 25th   | April 14th | 232         |
| Blackcap . . . . . | October 10th  | „ 22nd     | 194         |
| Martin . . . . .   | „ 12th        | „ 14th     | 184         |
| Swallow . . . . .  | „ 15th        | „ 10th     | 177         |

Birds' nests are used in China for making soup; 9,000,000 are imported yearly into Canton, valued at 10s. per oz., fifty weighing about 1 lb.

### BIRTHS

The birth-rate per 1000 of population was as follows :—

|                      | 1821-40 | 1841-60 | 1861-80 | 1881-85 |                       | 1841-60 | 1861-80 | 1881-85 |
|----------------------|---------|---------|---------|---------|-----------------------|---------|---------|---------|
| France . . . . .     | 29.7    | 26.7    | 25.8    | 24.7    | Belgium . . . . .     | 30.2    | 32.0    | 31.0    |
| Prussia . . . . .    | 41.0    | 38.6    | 39.1    | 37.2    | Denmark . . . . .     | 32.8    | 31.4    | 32.5    |
| Sweden . . . . .     | 33.1    | 32.0    | 31.4    | 29.4    | England . . . . .     | 33.4    | 35.1    | 33.3    |
| Norway . . . . .     | 31.3    | 32.4    | 30.8    | 30.9    | Scotland . . . . .    | ...     | 35.1    | 33.0    |
| Russia . . . . .     | 44.6    | 45.5    | 49.6    | 48.7    | Ireland . . . . .     | ...     | 26.2    | 24.0    |
| Saxony . . . . .     | 38.1    | 39.3    | 41.5    | 41.9    | Switzerland . . . . . | ...     | 31.0    | 28.2    |
| Wurtemberg . . . . . | ...     | ...     | 41.8    | 37.7    | Italy . . . . .       | ...     | 37.2    | 37.8    |
| Austria . . . . .    | 39.5    | 40.3    | 39.0    | 38.3    | Spain . . . . .       | ...     | 37.1    | ...     |
| Bavaria . . . . .    | 30.7    | 33.2    | 39.2    | 38.7    | Hungary . . . . .     | ...     | ...     | 45.0    |
| Paris . . . . .      | 33.9    | 31.8    | 28.8    | 26.7    | Roumania . . . . .    | ...     | ...     | 37.4    |
| Holland . . . . .    | ...     | 34.9    | 36.3    | 34.8    | Australia . . . . .   | ...     | ...     | 35.5    |

# BIRTHS

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# BIRTHS

The following table of birth-rate for various cities is not for any uniform date or period :—

|                         |                       |                           |
|-------------------------|-----------------------|---------------------------|
| Alexandria . . . 45.0   | Dresden . . . 35.4    | Munich . . . 39.5         |
| Amsterdam . . . 36.7    | Dublin . . . 29.1     | Naples . . . 32.0         |
| Barcelona . . . 29.2    | Edinburgh . . . 32.2  | New York . . . 39.4       |
| Berlin . . . 37.5       | Geneva . . . 24.3     | Nottingham . . . 36.7     |
| Birmingham . . . 37.6   | Glasgow . . . 37.4    | Paris . . . 30.5          |
| Bombay . . . 25.6       | Hague . . . 39.7      | Philadelphia . . . 36.0   |
| Boston . . . 30.0       | Hamburg . . . 37.5    | Rio Janeiro . . . 35.5    |
| Breslau . . . 37.7      | Havana . . . 25.4     | Rome . . . 27.2           |
| Brighton . . . 30.6     | Hull . . . 36.4       | Rotterdam . . . 38.8      |
| Bristol . . . 34.5      | Leeds . . . 36.8      | St. Louis . . . 30.0      |
| Brussels . . . 34.7     | Liverpool . . . 37.6  | St. Petersburg . . . 37.8 |
| Bucharest . . . 29.5    | London . . . 34.7     | Sheffield . . . 38.0      |
| Buda-Pesth . . . 35.8   | Lyons . . . 26.0      | Stockholm . . . 33.0      |
| Buenos Ayres . . . 31.7 | Madrid . . . 39.0     | Turin . . . 31.5          |
| Christiania . . . 34.5  | Madrid . . . 37.5     | Venice . . . 30.2         |
| Copenhagen . . . 39.1   | Manchester . . . 36.9 | Vienna . . . 39.2         |

The sexes of children born average as follows :—

|                  | Per 1000 |         |                   | Per 1000 |         |
|------------------|----------|---------|-------------------|----------|---------|
|                  | Males    | Females |                   | Males    | Females |
| England . . .    | 511      | 489     | Portugal . . .    | 515      | 485     |
| Scotland . . .   | 514      | 486     | Holland . . .     | 513      | 487     |
| Ireland . . .    | 515      | 485     | Belgium . . .     | 514      | 486     |
| U. Kingdom . . . | 512      | 488     | Denmark . . .     | 513      | 487     |
| France . . .     | 513      | 487     | Sweden . . .      | 512      | 488     |
| Prussia . . .    | 514      | 486     | Norway . . .      | 514      | 486     |
| Russia . . .     | 508      | 492     | Switzerland . . . | 512      | 488     |
| Austria . . .    | 516      | 484     | Greece . . .      | 519      | 481     |
| Italy . . .      | 517      | 483     | Roumania . . .    | 521      | 479     |
| Spain . . .      | 516      | 484     | Europe . . .      | 513      | 487     |

Births occur according to months as follows :—

|                 | Scotland | France | Germany | Italy | Greece | Spain | Holland |
|-----------------|----------|--------|---------|-------|--------|-------|---------|
| January . . .   | 100      | 105    | 103     | 107   | 122    | 114   | 106     |
| February . . .  | 93       | 110    | 105     | 114   | 119    | 108   | 115     |
| March . . .     | 103      | 109    | 103     | 110   | 98     | 112   | 112     |
| April . . .     | 104      | 106    | 100     | 106   | 97     | 102   | 104     |
| May . . .       | 106      | 99     | 97      | 95    | 88     | 100   | 94      |
| June . . .      | 104      | 95     | 95      | 89    | 85     | 86    | 86      |
| July . . .      | 102      | 96     | 96      | 91    | 88     | 88    | 86      |
| August . . .    | 96       | 96     | 98      | 93    | 88     | 91    | 96      |
| September . . . | 96       | 97     | 104     | 100   | 94     | 98    | 103     |
| October . . .   | 101      | 95     | 100     | 98    | 110    | 100   | 99      |
| November . . .  | 96       | 97     | 100     | 98    | 113    | 97    | 99      |
| December . . .  | 99       | 95     | 99      | 99    | 98     | 101   | 100     |
| Total . . .     | 1,200    | 1,200  | 1,200   | 1,200 | 1,200  | 1,200 | 1,200   |

|                 | Sweden | Norway | Denmark | Geneva | Algeria | Hungary | Belgium | Average |
|-----------------|--------|--------|---------|--------|---------|---------|---------|---------|
| January . . .   | 106    | 108    | 99      | 105    | 95      | 108     | 105     | 107     |
| February . . .  | 106    | 108    | 99      | 106    | 136     | 99      | 103     | 107     |
| March . . .     | 107    | 107    | 110     | 112    | 64      | 105     | 112     | 107     |
| April . . .     | 102    | 102    | 107     | 111    | 124     | 98      | 104     | 103     |
| May . . .       | 98     | 100    | 104     | 107    | 107     | 99      | 101     | 99      |
| June . . .      | 94     | 97     | 98      | 96     | 109     | 95      | 95      | 94      |
| July . . .      | 92     | 94     | 96      | 85     | 110     | 98      | 96      | 93      |
| August . . .    | 91     | 96     | 98      | 98     | 93      | 104     | 98      | 95      |
| September . . . | 108    | 111    | 102     | 94     | 102     | 96      | 101     | 101     |
| October . . .   | 99     | 96     | 97      | 99     | 90      | 103     | 97      | 99      |
| November . . .  | 96     | 93     | 91      | 90     | 90      | 97      | 95      | 97      |
| December . . .  | 101    | 98     | 94      | 97     | 100     | 92      | 98      | 98      |
| Total . . .     | 1,200  | 1,200  | 1,200   | 1,200  | 1,200   | 1,200   | 1,200   | 1,200   |

The number of births to 100 marriages was as follows :—

|                | 1861-80 | 1881-85 |                   | 1881-88 |
|----------------|---------|---------|-------------------|---------|
| England . . .  | 407     | 420     | Germany . . .     | 439     |
| Scotland . . . | 447     | 439     | Russia . . .      | 500     |
| Ireland . . .  | 520     | 540     | Norway . . .      | 430     |
| France . . .   | 304     | 305     | Switzerland . . . | 398     |
| Belgium . . .  | 408     | 418     | Italy . . .       | 440     |
| Holland . . .  | 422     | 470     | Austria . . .     | 419     |
| Denmark . . .  | 360     | 376     | Hungary . . .     | 404     |
| Sweden . . .   | 414     | 408     |                   |         |

## BIRTHS ACCORDING TO HOURS

| Between                 | French Towns | French Rural | Belgium, Quetelet | Dresden, Mayr | Medium |
|-------------------------|--------------|--------------|-------------------|---------------|--------|
| Midnight and 6 a.m. . . | 30.3         | 29.4         | 29.6              | 28.5          | 29.5   |
| 6 a.m. and noon . . .   | 25.6         | 25.4         | 23.2              | 23.8          | 24.5   |
| Noon and 6 p.m. . .     | 21.4         | 23.4         | 21.5              | 21.7          | 22.0   |
| 6 p.m. and midnight . . | 22.7         | 21.8         | 25.7              | 26.0          | 24.0   |
| Total . . .             | 100.0        | 100.0        | 100.0             | 100.0         | 100.0  |

From observations made (1855-74) in various countries, it appears that 1000 maids or widows between the ages of 15 and 50 have the following number of children yearly :—

|                      |                  |                   |
|----------------------|------------------|-------------------|
| Ireland . . . 4      | France . . . 18  | Scotland . . . 24 |
| Holland . . . 10     | Prussia . . . 20 | Denmark . . . 31  |
| Switzerland . . . 11 | Norway . . . 21  | Saxony . . . 33   |
| Belgium . . . 17     | Italy . . . 21   | Bavaria . . . 42  |
| England . . . 17     | Sweden . . . 23  | Average . . . 21  |

The ratio of illegitimate children in various countries is shown as follows from observations in 1865-78 :—

## ILLEGITIMATES IN 1000 BIRTHS

|                      |                        |                   |
|----------------------|------------------------|-------------------|
| Greece . . . 16      | Spain . . . 55         | Norway . . . 85   |
| Ireland . . . 23     | Portugal . . . 56      | Germany . . . 87  |
| Russia . . . 31      | Italy . . . 65         | Scotland . . . 93 |
| Holland . . . 35     | United States . . . 70 | Sweden . . . 102  |
| Switzerland . . . 48 | Belgium . . . 71       | Denmark . . . 111 |
| Canada . . . 50      | Hungary . . . 71       | Austria . . . 135 |
| England . . . 54     | France . . . 74        |                   |

The ratio of still-births in various countries is as follows :—

## PER 1000 BIRTHS

|                  |                  |                      |
|------------------|------------------|----------------------|
| France . . . 45  | Holland . . . 52 | Switzerland . . . 46 |
| Prussia . . . 41 | Belgium . . . 45 | Denmark . . . 30     |
| Austria . . . 22 | Sweden . . . 32  | Bavaria . . . 34     |
| Italy . . . 25   | Norway . . . 35  | Average . . . 37     |

The occurrence of still-births according to months, 1861-70, was as follows :—

|                 | France | Norway | Sweden | Leipzig | Frankfort | Hamburg |
|-----------------|--------|--------|--------|---------|-----------|---------|
| January . . .   | 109    | 104    | 104    | 129     | 115       | 96      |
| February . . .  | 105    | 104    | 109    | 84      | 120       | 134     |
| March . . .     | 102    | 105    | 103    | 115     | 88        | 111     |
| April . . .     | 100    | 103    | 97     | 109     | 93        | 103     |
| May . . .       | 99     | 104    | 91     | 109     | 104       | 109     |
| June . . .      | 99     | 102    | 95     | 84      | 104       | 76      |
| July . . .      | 97     | 91     | 93     | 100     | 102       | 78      |
| August . . .    | 96     | 99     | 103    | 90      | 110       | 96      |
| September . . . | 94     | 85     | 81     | 102     | 95        | 85      |
| October . . .   | 96     | 102    | 107    | 87      | 72        | 90      |
| November . . .  | 98     | 99     | 108    | 100     | 104       | 136     |
| December . . .  | 105    | 102    | 109    | 100     | 93        | 94      |
| Total . . .     | 1,200  | 1,200  | 1,200  | 1,200   | 1,200     | 1,200   |

Still-births are more frequent in towns than in rural districts, viz. :—

|             | Per 1000 Births |       |         | Per 1000 Births |       |
|-------------|-----------------|-------|---------|-----------------|-------|
|             | Urban           | Rural |         | Urban           | Rural |
| Italy . .   | 31              | 22    | France  | 53              | 39    |
| Sweden . .  | 41              | 31    | Belgium | 50              | 41    |
| Prussia . . | 45              | 40    | Holland | 54              | 51    |

Males are oftener still-born than females, because, as Bertillon thinks, the former have larger heads. The following table shows the number of males to females :—

*Still-Born Males to 100 Females*

|             |     |             |     |             |     |
|-------------|-----|-------------|-----|-------------|-----|
| Holland . . | 127 | Austria . . | 131 | Belgium . . | 135 |
| Prussia . . | 129 | Sweden . .  | 133 | Italy . .   | 141 |
| Norway . .  | 121 | Denmark . . | 125 | France . .  | 144 |

Multiple births, from observations in 1851-73, average thus :—

|              | Twins in<br>10,000 Births | Triplets in a<br>Million Births |               | Twins in<br>10,000 Births | Triplets in a<br>Million Births |
|--------------|---------------------------|---------------------------------|---------------|---------------------------|---------------------------------|
| England . .  | 112                       | 23                              | Denmark . .   | 142                       | 160                             |
| Scotland . . | 117                       | ...                             | Belgium . .   | 97                        | 100                             |
| Ireland . .  | 176                       | ...                             | Holland . .   | 131                       | 170                             |
| France . .   | 108                       | 120                             | Sweden . .    | 145                       | 180                             |
| Prussia . .  | 125                       | 150                             | Norway . .    | 125                       | 160                             |
| Russia . .   | 121                       | ...                             | Iceland . .   | 142                       | 330                             |
| Austria . .  | 134                       | 180                             | Switzerland . | 120                       | ...                             |
| Italy . .    | 118                       | 150                             | Spain . .     | 84                        | 120                             |
| Bavaria . .  | 174                       | 310                             | Wurtemberg .  | 128                       | 120                             |

In France, Italy, and Bavaria twins are most numerous in those Departments which furnish the tallest conscripts. The age of the mother has also some influence, as the tables of Lebel and Puech show :—

| Mother's Age     | Lebel | Puech | Medium |
|------------------|-------|-------|--------|
| Under 25 . . . . | 35    | 17    | 26     |
| 25-30 . . . .    | 35    | 41    | 38     |
| 30-35 . . . .    | 20    | 30    | 25     |
| Over 35 . . . .  | 10    | 12    | 11     |
| Total . . . .    | 100   | 100   | 100    |

According to Dubois, the mean ratio of multiple births in England, France, and Germany is 13 twins per 1000 births, and 160 triplets and 8 quadruplets per million births. Aristotle mentions a woman who had 5 children at a birth four times successively; Menage one who had 21 children in seven years. The Belgian official returns for 1851-60 give a case of 5 children at a birth, viz., 2 boys and 3 girls, and another case of 4, all boys. The Empress Catherine received a Russian peasant woman in 1757 who had 57 children, all living, having been born thus :—

|       |                |
|-------|----------------|
| 16 in | 4 confinements |
| 21 in | 7 "            |
| 20 in | 10 "           |
| —     | —              |
| 57    | 21             |

This woman's husband married again, and his second wife had 15 children in 7 confinements.

A similar case is that of Fedor Vassileff, of Moscow, 1782, who had 83 children living when pensioned by the Czar. He had 69 children by his first wife at 27 births, and after her death had 18 more by his second in 8 births.

The records of Florence also show that Signora Frescobaldi, who died in 1570, had 52 children, never less than 3 at a birth. Madrid newspapers in 1883 stated that Lucas Saez returned to Spain from the United States with 37 children, 79 grandchildren, and 81 great-grandchildren, in all 107 males and 90 females, his eldest son being aged 70.

The *Daily Telegraph* of London, November 1888, published the confinement of Mrs. George Hirsch, of Dallas, Texas, of 6 children, 4 being boys and 2 girls. This surpasses all records.

Twins give 108 males to 100 females, and triplets show a medium result for France, Germany, and Austria as follows :—

|                              |       |
|------------------------------|-------|
| Birth of three boys . . . .  | 26.0  |
| Birth of three girls . . . . | 22.7  |
| Two boys and a girl . . . .  | 27.0  |
| Two girls and a boy . . . .  | 24.3  |
|                              | 100.0 |

This gives 156 boys and 144 girls, that is, precisely the same ratio as in the case of twins.

The child-bearing age of women rarely passes 50; one mother in 3300 occurs after that age. If a woman has been married 18 years without children, the probabilities are 6000 to 1 against her having any. The Dublin *Evening Post* of July 16, 1801, announces that Sarah, wife of Thomas Davis, was confined the previous week of a son, her first child, after 11 years of marriage, being in her 53rd year. Men of very advanced age have begotten children. Schneider mentions a case at 86, Meade at 89, Ruttell at 92, Plater (his own grandfather) at 100. We know also that Thomas Parr was sued for adultery at 118.

There are opposing estimates as to the period of gestation :—

|                | Days |              | Days |              | Days |
|----------------|------|--------------|------|--------------|------|
| Depaul . . . . | 268  | Schwegel . . | 270  | Rann . . . . | 272  |
| Wallichs . . . | 269  | Schoeder . . | 271  | Reid . . . . | 276  |

Reid's table is as follows :—

| Days            | Ratio |
|-----------------|-------|
| 260-266 . . . . | 12.5  |
| 267-273 . . . . | 17.5  |
| 274-280 . . . . | 15.0  |
| 281-287 . . . . | 15.0  |
| 288-294 . . . . | 10.0  |
|                 | 100.0 |

Reid and Tourdes agree in fixing 294 days as the maximum, but French law allows 300 as the limit for legitimacy. The number of children born yearly to 1000 wives is as follows :—

|                 |     |                  |     |
|-----------------|-----|------------------|-----|
| France . . . .  | 180 | Ireland . . . .  | 298 |
| Norway . . . .  | 284 | England . . . .  | 312 |
| Prussia . . . . | 286 | Belgium . . . .  | 317 |
| Saxony . . . .  | 295 | Scotland . . . . | 339 |

According to Bertillon and other authorities, the European averages show that 100 married women will have in their life 420 children, 100 unmarried 21; furthermore, that as regards prostitutes 100 will give birth in their life to 60 children. The poorer classes have more children than the rich. Bertillon's observations during ten years, 1851-60, in Norway, show as follows :—

|                                |              |
|--------------------------------|--------------|
| 100 rich families have         | 313 children |
| 100 middle-class families have | 360 children |
| 100 poor families have         | 370 children |

Drysdale found, in 1888, that 100 women of Montmartre, the work-people of Paris, have 175 children, while 100 women of the fashionable Champs Elysées quarter have only 86.

As regards the sexes of infants, it is observed that young couples are most likely to have boys, middle-aged ones girls. Bertillon says that observations in Denmark, Norway, and Austria give this average:—

## Males Born to 100 Females

|                      | First-Born | Subsequent Births |
|----------------------|------------|-------------------|
| Lawful . . . . .     | 110        | 105               |
| Illegitimate . . . . | 104        | 106               |

Salder's table, published in 1830, was as follows:—

|                       | Children to 100 Couples | Male Infants to 100 Females |
|-----------------------|-------------------------|-----------------------------|
| Husband younger . .   | 487                     | 87                          |
| Even age with wife .  | 617                     | 95                          |
| Husband 4 years older | 571                     | 104                         |
| " 8 " " "             | 547                     | 127                         |
| " 14 " " "            | 558                     | 146                         |
| " 20 " " "            | 455                     | 163                         |

## UNITED KINGDOM

The surplus of births over deaths, per 1000 of the population, of late years is greater in England than in Scotland:—

|                  | Births and Deaths per 1000 Population in England |         |         |         |          |
|------------------|--------------------------------------------------|---------|---------|---------|----------|
|                  | 1841-50                                          | 1851-60 | 1861-70 | 1871-80 | 40 Years |
| Births . . . . . | 32.6                                             | 34.1    | 35.3    | 35.5    | 34.4     |
| Deaths . . . . . | 22.4                                             | 22.2    | 22.6    | 21.5    | 22.2     |
| Surplus births   | 10.2                                             | 11.9    | 12.7    | 14.0    | 12.2     |

## SCOTLAND

|                      | 1855-60 | 1861-70 | 1871-80 | 26 Years |
|----------------------|---------|---------|---------|----------|
| Births . . . . .     | 33.9    | 35.0    | 35.2    | 34.8     |
| Deaths . . . . .     | 20.8    | 22.0    | 21.8    | 21.6     |
| Surplus births . . . | 13.1    | 13.0    | 13.4    | 13.2     |

## IRELAND

|                      | 1864-70 | 1871-80 | 17 Years |
|----------------------|---------|---------|----------|
| Births . . . . .     | 26.3    | 26.2    | 26.2     |
| Deaths . . . . .     | 16.7    | 18.1    | 17.5     |
| Surplus births . . . | 9.6     | 8.1     | 8.7      |

The percentage of births, according to Quarter, compares in England with other countries thus:—

| Quarter Ending     | England | Scotland | France | Germany |
|--------------------|---------|----------|--------|---------|
| March . . . . .    | 26.2    | 24.7     | 27.0   | 25.9    |
| June . . . . .     | 26.0    | 26.2     | 25.0   | 24.2    |
| September . . . .  | 24.0    | 24.4     | 24.1   | 24.9    |
| December . . . . . | 23.8    | 24.7     | 23.9   | 25.0    |
| Total . . . . .    | 100.0   | 100.0    | 100.0  | 100.0   |

According to the *Dic. Medicale*, the forceps is less used in lying-in hospitals of London or Dublin than elsewhere, viz.:—

| In               | Per 10,000 Births | In               | Per 10,000 Births |
|------------------|-------------------|------------------|-------------------|
| Dublin . . . . . | 15                | Vienna . . . . . | 37                |
| London . . . . . | 18                | Paris . . . . .  | 39                |

Illegitimacy is declining in England, as appears thus:—

| Period            | Per 1000 Births | Period            | Per 1000 Births |
|-------------------|-----------------|-------------------|-----------------|
| 1841-50 . . . . . | 67              | 1861-70 . . . . . | 61              |
| 1851-60 . . . . . | 65              | 1871-80 . . . . . | 51              |

## FRANCE

The birth-rate is declining since 1801, viz.:—

| Period  | France | Paris | Period  | France | Paris |
|---------|--------|-------|---------|--------|-------|
| 1801-10 | 33.0   | ...   | 1841-50 | 27.3   | 31.4  |
| 1811-20 | 31.8   | ...   | 1851-60 | 26.1   | 31.5  |
| 1821-30 | 30.6   | 35.9  | 1861-70 | 26.0   | 30.1  |
| 1831-40 | 28.8   | 35.1  | 1871-80 | 25.6   | 27.4  |

In 1886 there were 10,425,341 families with children thus:—

| Children         | Number of Families | Ratio |
|------------------|--------------------|-------|
| None . . . . .   | 2,073,205          | 19.9  |
| 1 . . . . .      | 2,542,611          | 24.4  |
| 2 . . . . .      | 2,265,337          | 21.7  |
| 3 . . . . .      | 1,512,054          | 14.5  |
| 4 . . . . .      | 936,853            | 9.0   |
| 5 . . . . .      | 540,693            | 5.2   |
| Over 5 . . . . . | 554,588            | 5.3   |
|                  | 10,425,341         | 100.0 |

According to a return by the Minister of Finance, there are 148,808 families, each with seven children or more, which have claimed the exemption from certain taxes recently voted by the French Parliament. These families have 1,157,547 children, or as nearly as possible eight each.

In 1856 the ratio of married couples that had no children was much lower, only 15.5 per cent. If we compare the number of lawful births with that of marriages, we see, moreover, a constant decline since 1830, viz.:—

| Period            | Per Marriage |
|-------------------|--------------|
| 1800-30 . . . . . | 3.82         |
| 1831-60 . . . . . | 3.20         |
| 1861-70 . . . . . | 3.09         |
| 1871-80 . . . . . | 2.98         |

The ratio of illegitimacy has varied little in forty years, viz.:—

| Period            | Per 100 Births |
|-------------------|----------------|
| 1841-50 . . . . . | 7.2            |
| 1851-60 . . . . . | 7.4            |
| 1861-70 . . . . . | 7.5            |
| 1871-80 . . . . . | 7.3            |

It is a custom common in France for fathers to declare lawful their illegitimate children. The proportion thus recognised in the years 1870-74 was 25 per cent., against 21 per cent. in the fifteen years preceding. In ordinary births there are 105 males to 100 females, but in twins only 102 to 100. Births of twins average thus per 1000:—

335 of boys  
315 of girls  
350 mixed

1000

The increase of still-births is an alarming feature, viz.:—

|         | Per 1000 Births |        |       |        |              |       |
|---------|-----------------|--------|-------|--------|--------------|-------|
|         | Male            | Female | Total | Lawful | Illegitimate | Total |
| 1841-50 | 39              | 29     | 34    | 32     | 66           | 34    |
| 1853-62 | 49              | 35     | 42    | 40     | 71           | 42    |
| 1863-70 | 51              | 38     | 45    | 41     | 81           | 45    |

## GERMANY

The annual birth and death rates of all Germany for forty-six years ending 1886 were as follows :—

| Period        | Per 1000 Inhabitants |        |                | Of 100 Births |              |
|---------------|----------------------|--------|----------------|---------------|--------------|
|               | Births               | Deaths | Surplus Births | Still-born    | Illegitimate |
| 1841-50 . . . | 37.5                 | 28.2   | 9.3            | 3.9           | 10.8         |
| 1851-60 . . . | 36.8                 | 27.8   | 9.0            | 4.0           | 11.4         |
| 1861-70 . . . | 38.7                 | 28.4   | 10.3           | 4.1           | 11.5         |
| 1871-80 . . . | 40.7                 | 28.7   | 12.0           | 4.0           | 8.9          |
| 1881-86 . . . | 38.5                 | 27.3   | 11.2           | 3.8           | 9.3          |

Birth-rates have been as follows :—

| Prussia       |                     |              | Saxony        |                     |              |
|---------------|---------------------|--------------|---------------|---------------------|--------------|
| Period        | Per 1000 Population | Per Marriage | Period        | Per 1000 Population | Per Marriage |
| 1748-90 . . . | 40.6                | ...          | 1831-40 . . . | 38.1                | 4.2          |
| 1816-40 . . . | 40.8                | 4.3          | 1841-50 . . . | 39.2                | 4.1          |
| 1841-60 . . . | 38.6                | ...          | 1851-60 . . . | 39.4                | 4.1          |
| 1861-70 . . . | 39.5                | 4.6          | 1861-70 . . . | 40.4                | 4.0          |
| 1871-80 . . . | 38.7                | 4.5          | 1871-80 . . . | 42.7                | 4.5          |
| 1881-85 . . . | 37.4                | 4.7          | 1881-85 . . . | 41.9                | 4.7          |

| Bavaria       |                     |              | Wurtemberg    |                     |              |
|---------------|---------------------|--------------|---------------|---------------------|--------------|
| Period        | Per 1000 Population | Per Marriage | Period        | Per 1000 Population | Per Marriage |
| 1830-50 . . . | 30.7                | 4.6          | 1815-29 . . . | 36.4                | 5.1          |
| 1851-70 . . . | 35.5                | 4.7          | 1861-68 . . . | 40.8                | 5.2          |
| 1871-80 . . . | 40.6                | 4.8          | 1876-80 . . . | 42.7                | 5.9          |
| 1881-85 . . . | 38.7                | 5.5          | 1881-85 . . . | 37.7                | 5.9          |

In Saxony the proportion of still-births was as follows :—

| Per 1000 Births |        |              |       |
|-----------------|--------|--------------|-------|
| Period          | Lawful | Illegitimate | Total |
| 1801-40 . . .   | 53     | 75           | 57    |
| 1841-60 . . .   | 47     | 75           | 51    |
| 1861-70 . . .   | 43     | 71           | 48    |
| 1871-75 . . .   | 40     | 74           | 47    |
| 1871-75 . . .   | 44     | 91           | 52    |

The proportion of still-births in Prussia was thus :—

|                       | Per 1000 Jew Births (1820-64) | Per 1000 Christian Births (1865-74) |
|-----------------------|-------------------------------|-------------------------------------|
| Male . . .            | 22                            | 44                                  |
| Female . . .          | 19                            | 36                                  |
| General average . . . | 21                            | 41                                  |

The surplus of births over deaths in Prussia from 1822 to 1866 showed more favourably among Jews than in the Christian population, viz. :—

|                      | Among 1000 Jews |         | Among 1000 Christians |         |
|----------------------|-----------------|---------|-----------------------|---------|
|                      | 1822-40         | 1841-66 | 1822-40               | 1841-66 |
| Births . . .         | 35.5            | 34.7    | 40.0                  | 39.5    |
| Deaths . . .         | 21.4            | 18.9    | 29.6                  | 29.1    |
| Surplus births . . . | 14.1            | 15.8    | 10.4                  | 10.4    |

In sixty years ending 1875 the average number of births yearly was :—

|                               |     |
|-------------------------------|-----|
| To 1000 married women . . .   | 285 |
| To 1000 unmarried women . . . | 25  |

In a period of forty-six years ending 1886 the proportion of illegitimate births was as follows :—

|                                     |    |
|-------------------------------------|----|
| In 1000 Jewish births . . .         | 24 |
| In 1000 Roman Catholic births . . . | 28 |
| In 1000 Protestant births . . .     | 85 |

The proportion was 98 per 1000 in town births, and 72 in rural. The average during fifty-eight years in the large cities was as follows :—

|               | Per 1000 |                  | Per 1000 |
|---------------|----------|------------------|----------|
| Cologne . . . | 105      | Breslau . . .    | 180      |
| Berlin . . .  | 157      | Königsberg . . . | 189      |

The illegitimate ratios in Bavaria and Saxony were :—

| Bavaria       |                 | Saxony        |                 |
|---------------|-----------------|---------------|-----------------|
| Period        | Per 1000 Births | Period        | Per 1000 Births |
| 1850-59 . . . | 240             | 1821-40 . . . | 128             |
| 1862-70 . . . | 210             | 1841-50 . . . | 151             |
| 1871-78 . . . | 130             | 1861-75 . . . | 143             |

Twins appear to be increasing in Prussia, viz. :—

|               |                      |
|---------------|----------------------|
| 1821-57 . . . | 115 in 10,000 births |
| 1858-74 . . . | 126 " "              |

In Saxony the proportion in 1834-49 was 127 in 10,000. Sexes of twins in Prussia were: 327 of boys, 303 of girls, and 370 mixed, in 1000 cases, being as 105 boys to 100 girls.

## HOLLAND

Birth-rate from 1840 showed as follows :—

| Period        | Per 1000 Inhab. | Per Marriage |
|---------------|-----------------|--------------|
| 1841-60 . . . | 34.9            | 4.6          |
| 1861-80 . . . | 36.3            | 4.5          |
| 1881-85 . . . | 34.8            | 4.8          |

## SWEDEN

The birth-rate from 1751 was as follows :—

| Period          | Per 1000 Pop. | Per Marriage |
|-----------------|---------------|--------------|
| 1751-70 . . .   | 35.2          | 4.0          |
| 1771-90 . . .   | 32.5          | 4.0          |
| 1791-1810 . . . | 32.1          | 3.8          |
| 1811-30 . . .   | 34.1          | 4.0          |
| 1831-50 . . .   | 31.4          | 4.3          |
| 1851-70 . . .   | 32.4          | 4.6          |
| 1871-80 . . .   | 30.8          | 4.5          |
| 1881-85 . . .   | 29.4          | 4.6          |

The number of births yearly to 1000 women of 15 to 50 years of age was as follows :—

|                 |     |               |     |
|-----------------|-----|---------------|-----|
| 1776-1820 . . . | 122 | 1841-60 . . . | 127 |
| 1821-40 . . .   | 130 | 1861-75 . . . | 123 |

In 1875 of 10,000 births the ages of the mothers were :—

| Age            | Rural  | City   | Total  |
|----------------|--------|--------|--------|
| Under 18 . . . | 21     | 25     | 22     |
| 18-20 . . .    | 115    | 185    | 125    |
| 21-25 . . .    | 1,378  | 1,555  | 1,404  |
| 26-35 . . .    | 4,988  | 5,326  | 5,041  |
| 36-45 . . .    | 3,315  | 2,818  | 3,238  |
| 46-50 . . .    | 180    | 88     | 167    |
| Over 50 . . .  | 3      | 3      | 3      |
| Total . . .    | 10,000 | 10,000 | 10,000 |

The records of 100 years down to 1885 showed the average ages of every 10,000 women confined to be thus :—

|                      |        |
|----------------------|--------|
| Under 20 . . .       | 194    |
| 20-30 . . .          | 4,059  |
| 31-40 . . .          | 4,593  |
| 41-45 . . .          | 988    |
| 46 and upwards . . . | 166    |
| Total . . .          | 10,000 |

The number of children born yearly to 1000 women at various ages, married and unmarried, is as follows :—

| Age             | Per 1000 |           |           |
|-----------------|----------|-----------|-----------|
|                 | Wives    | Unmarried | All Women |
| 16-20 . . . . . | 477      | 3         | 9         |
| 20-25 . . . . . | 464      | 30        | 106       |
| 25-35 . . . . . | 342      | 46        | 220       |
| 35-40 . . . . . | 251      | 32        | 203       |
| 40-45 . . . . . | 142      | 14        | 121       |
| 45-50 . . . . . | 22       | 1         | 18        |

From observations during the years 1871-75 it appears that the mothers of every 1000 children born were as follows :—

| Mothers              | Urban | Rural | All Sweden |
|----------------------|-------|-------|------------|
| Wives . . . . .      | 773   | 908   | 890        |
| Spinsters . . . . .  | 218   | 85    | 104        |
| Widows . . . . .     | 9     | 7     | 6          |
| All births . . . . . | 1,000 | 1,000 | 1,000      |

Birth-rate was higher in the towns, with reference to population, than in rural districts, viz. :—

| Period            | Per 1000 of Population |       |            |
|-------------------|------------------------|-------|------------|
|                   | Towns                  | Rural | All Sweden |
| 1861-70 . . . . . | 33.2                   | 31.2  | 31.5       |
| 1871-75 . . . . . | 31.9                   | 30.5  | 30.7       |

In the same periods 1000 married women produced the following number of children :—

| Period            | Town | Rural | All Sweden |
|-------------------|------|-------|------------|
| 1861-70 . . . . . | 197  | 172   | 174        |
| 1871-75 . . . . . | 184  | 168   | 170        |

The ratio of women who had midwives in their confinement was as follows, per cent. :—

| Period            | Town | Rural | All Sweden |
|-------------------|------|-------|------------|
| 1861-70 . . . . . | 93   | 37    | 45         |
| 1871-75 . . . . . | 92   | 43    | 50         |

The number of boys born to 1000 girls was as follows :—

| Period            | Town  | Rural | All Sweden |
|-------------------|-------|-------|------------|
| 1861-70 . . . . . | 1,046 | 1,052 | 1,050      |
| 1871-75 . . . . . | 1,042 | 1,055 | 1,052      |

Bertillon found that the clergy had 108 boys, the nobles only 98 to 100 girls; the common people 105. The ratio of births to 100 deaths was as follows :—

| Period            | Town | Rural | All Sweden |
|-------------------|------|-------|------------|
| 1861-70 . . . . . | 126  | 162   | 157        |
| 1871-75 . . . . . | 124  | 178   | 168        |

Illegitimate births have increased very rapidly :—

| Period              | Per 1000 Births | Period            | Per 1000 Births |
|---------------------|-----------------|-------------------|-----------------|
| 1771-90 . . . . .   | 41              | 1841-60 . . . . . | 97              |
| 1791-1815 . . . . . | 59              | 1861-70 . . . . . | 105             |
| 1816-40 . . . . .   | 72              | 1871-75 . . . . . | 115             |

In the last period the ratio was 90 per 1000 in the rural districts and 220 in the towns. Still-births were as follows :—

| Period            | Per 1000 Births | Period            | Per 1000 Births |
|-------------------|-----------------|-------------------|-----------------|
| 1816-40 . . . . . | 27              | 1861-70 . . . . . | 33              |
| 1841-60 . . . . . | 32              | 1871-75 . . . . . | 32              |

Still-births occur more frequently in town than in country :—

| Period            | Per 1000 Births |       |            |
|-------------------|-----------------|-------|------------|
|                   | Urban           | Rural | All Sweden |
| 1861-70 . . . . . | 40              | 32    | 33         |
| 1871-75 . . . . . | 39              | 31    | 32         |

Twins and triplets occurred as follows :—

| Period              | Twins per 10,000 Births | Triplets per Million Births | Period            | Twins per 10,000 Births | Triplets per Million Births |
|---------------------|-------------------------|-----------------------------|-------------------|-------------------------|-----------------------------|
| 1776-95 . . . . .   | 174                     | 310                         | 1831-50 . . . . . | 140                     | 200                         |
| 1796-1810 . . . . . | 165                     | 260                         | 1851-70 . . . . . | 141                     | 195                         |
| 1811-30 . . . . .   | 155                     | 250                         | 1871-75 . . . . . | 146                     | 160                         |

In the years 1871-75 the rate for twins was 150 in towns and 144 in rural districts among 10,000 births.

#### NORWAY

Birth-rate from the beginning of the century was thus :—

| Period            | Per 1000 Inhab. | Per Marriage | Period            | Per 1000 Inhab. | Per Marriage |
|-------------------|-----------------|--------------|-------------------|-----------------|--------------|
| 1801-25 . . . . . | 30.6            | 3.7          | 1861-70 . . . . . | 30.8            | 4.7          |
| 1826-45 . . . . . | 31.3            | 4.2          | 1871-80 . . . . . | 30.8            | 4.3          |
| 1846-60 . . . . . | 32.4            | 4.2          | 1881-85 . . . . . | 31.1            | 4.7          |

The number of children born yearly to 1000 women between 20 and 45 years of age was as follows :—

| Period            | Per 1000 Wives | Per 1000 Unmarried |
|-------------------|----------------|--------------------|
| 1836-45 . . . . . | 286            | 25                 |
| 1846-55 . . . . . | 305            | 32                 |
| 1856-65 . . . . . | 311            | 32                 |
| 1866-70 . . . . . | 284            | 32                 |

Wives and unmarried women had more children in town than in the country, the returns for ten years down to 1870 showing that 1000 women between the ages of 15 and 45 gave birth as follows :—

|                      | Per 1000 |           |
|----------------------|----------|-----------|
|                      | Wives    | Unmarried |
| Town . . . . .       | 311      | 33        |
| Rural . . . . .      | 301      | 20        |
| All Norway . . . . . | 303      | 21        |

The ratio of illegitimates in the same period was 80 per 1000 births rural, 95 for urban, and 83 per 1000 for all Norway. Still-births were 38 per 1000, against 42 in the decade ending 1860. Twins occurred as follows :—

| Period            | Per 10,000 Births |       |            |
|-------------------|-------------------|-------|------------|
|                   | Urban             | Rural | All Norway |
| 1851-60 . . . . . | 109               | 124   | 121        |
| 1861-70 . . . . . | 117               | 120   | 119        |

## BIRTHS

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## BIRTHS

The average of triplets in the above twenty years was 160 per million births. The number of boys born to 100 girls was as follows :—

|                      | Urban | Rural | All Norway |
|----------------------|-------|-------|------------|
| Lawful . . . .       | 1,040 | 1,058 | 1,053      |
| Illegitimate . . . . | 1,090 | 1,070 | 1,060      |
| Total . . . .        | 1,045 | 1,060 | 1,055      |

The preponderance of males varies with the length of time the parents may be married, thus :—

|                             |                        |
|-----------------------------|------------------------|
| Married under 7 years . . . | 116 boys to 100 girls. |
| " 7-12 " . . .              | 107 " "                |
| " over 12 " . . .           | 94 " "                 |

The sex of the first-born likewise varies thus :—

|                             |                        |
|-----------------------------|------------------------|
| Both parents under 25 . . . | 208 boys to 100 girls. |
| Father over 35 . . . .      | 92 " "                 |
| Both parents over 35 . . .  | 87 " "                 |

## FINLAND

Birth-rate for fifteen years ending 1865 averaged 36.2, against 34.3 in the twenty years preceding; still-births, 29 in 1000 births; twins, 149 in 10,000; illegitimate, 72 per 1000.

## ITALY

In the period from 1862 to 1885 the birth-rate showed :—

|                 | Per 1000<br>Inhabitants | Per<br>Marriage |
|-----------------|-------------------------|-----------------|
| 1862-70 . . . . | 37.5                    | 5.0             |
| 1871-80 . . . . | 36.9                    | 4.9             |
| 1881-85 . . . . | 38.0                    | 4.7             |

The ratio of still-births was found in 1872-74 to vary from 15 to 41 per 1000 in various parts of the kingdom, viz. :—

|                 |               |                  |
|-----------------|---------------|------------------|
| Sicily . . . 15 | Rome . . . 41 | Piedmont . . 34  |
| Naples . . . 18 | Lombardy . 38 | Tuscany . . . 35 |

The ratio for the whole kingdom was only 29 per 1000. From a census taken in Turin it was found that of 1000 children born in a given year, the ratios were as follows :—

|                  |     |                     |     |
|------------------|-----|---------------------|-----|
| 1st born . . . . | 231 | 5th born . . . .    | 88  |
| 2nd " . . . .    | 188 | 6th " . . . .       | 67  |
| 3rd " . . . .    | 152 | 7th " . . . .       | 50  |
| 4th " . . . .    | 118 | 8th, &c. born . . . | 106 |

## RUSSIA

The birth-rate has been as follows per 1000 population :—

| Years              | Years              | Years              |
|--------------------|--------------------|--------------------|
| 1801-20 . . . 39.6 | 1846-58 . . . 45.5 | 1876-80 . . . 48.4 |
| 1866-75 . . . 44.6 | 1801-65 . . . 50.7 | 1881-85 . . . 48.7 |

From 1861 to 1883 the number of births averaged 520 to 100 marriages. The sexes of children born were :—

|                      |                          |
|----------------------|--------------------------|
| 1801 to 1830 . . . . | 110 males to 100 females |
| 1831 to 1860 . . . . | 105 " 100 "              |

At St. Petersburg 1000 births occurred as follows :—

| Quarter Ending       |      |
|----------------------|------|
| March 31st . . . .   | 256  |
| June 30th . . . .    | 260  |
| September 30th . . . | 247  |
| December 31st . . .  | 237  |
| Total . . . .        | 1000 |

## AUSTRIA-HUNGARY

Birth-rates in Austria and Hungary were as follows :—

| Period          | Austria                 |                 | Hungary                 |                 |
|-----------------|-------------------------|-----------------|-------------------------|-----------------|
|                 | Per 1000<br>Inhabitants | Per<br>Marriage | Per 1000<br>Inhabitants | Per<br>Marriage |
| 1830-47 . . . . | 39.7                    | ...             | ...                     | ...             |
| 1853-60 . . . . | 40.6                    | 4.9             | ...                     | ...             |
| 1861-70 . . . . | 38.2                    | 4.4             | 42.2                    | 4.6             |
| 1871-80 . . . . | 39.7                    | 4.6             | 43.0                    | 4.5             |
| 1881-85 . . . . | 38.0                    | 4.8             | 45.2                    | 4.0             |

Illegitimacy has a high ratio in the cities, viz. :—

|                |              |
|----------------|--------------|
| Vienna . . . . | 402 per 1000 |
| Prague . . . . | 470 " "      |

In Prague in 1880 it was found that 1000 married women gave birth to 155 children yearly, and 1000 unmarried to 75. The birth-rate of Prague per 1000 inhabitants is 44, that of Vienna 42. Still-births in Vienna are 43 in 1000. The ratio of sexes in Vienna shows that 106 boys are born for 100 girls.

Returns for Austria proper during ten years to 1886 gave the following ratios of births :—

|                  |                    |                 |
|------------------|--------------------|-----------------|
| Male . . . 515   | Legitimate . 856   | Live-born . 973 |
| Female . . . 485 | Illegitimate . 144 | Still-born . 27 |
| Total. 1000      | 1000               | 1000            |

Returns for Hungary for six years ending 1886 give the following average :—

|         | Live-Born | Illegitimate |              | Still-Births |
|---------|-----------|--------------|--------------|--------------|
| Males . | 295,200   | 26,300       | Lawful .     | 9,510        |
| Females | 281,700   | 25,200       | Illegitimate | 1,620        |
| Total   | 576,900   | 51,000       | Total .      | 11,130       |

This gives a ratio of nearly 9 per cent. for illegitimates; still-births 19 per 1000. The proportion of still-born among bastards was very high, 32 per 1000. In the said interval of six years there were in Hungary the following multiple births :—

|                   | Number<br>of Births | Male  | Female | Total  |
|-------------------|---------------------|-------|--------|--------|
| Twins . . . .     | 8,485               | 8,620 | 8,350  | 16,970 |
| Triplets . . . .  | 104                 | 150   | 162    | 312    |
| Quadruplets . . . | 2                   | 3     | 5      | 8      |

## BELGIUM

The annual average of births was as follows :—

| Period          | Births  | Excess over<br>Deaths | Birth-rate<br>per 1000<br>Population | Births to 100<br>Marriages |
|-----------------|---------|-----------------------|--------------------------------------|----------------------------|
| 1831-40 . . . . | 140,000 | 32,000                | 33.4                                 | 4.57                       |
| 1841-50 . . . . | 130,000 | 26,000                | 30.3                                 | 4.50                       |
| 1851-60 . . . . | 137,000 | 35,000                | 30.0                                 | 4.08                       |
| 1861-70 . . . . | 155,000 | 40,000                | 31.6                                 | 4.26                       |
| 1871-80 . . . . | 172,000 | 52,000                | 32.1                                 | 4.42                       |
| 1881-87 . . . . | 175,000 | 57,000                | 30.7                                 | 4.43                       |

The above being the total number of births, legitimate and illegitimate, it follows that the number of children

born to each marriage was really less than shown above. The official tables show as follows :—

| Period  | Males Born to 100 Female Births | Births to 100 Deaths | Births to 100 Women of 15 to 45 Years of Age |
|---------|---------------------------------|----------------------|----------------------------------------------|
| 1841-50 | 105.3                           | 125                  | 13.4                                         |
| 1851-60 | 105.2                           | 134                  | 13.1                                         |
| 1861-70 | 105.2                           | 136                  | 14.4                                         |
| 1871-80 | 104.7                           | 143                  | 14.5                                         |
| 1887    | 106.0                           | 152                  | 13.7                                         |

The following is an official table of ratios :—

| Period  | Percentage of Illegitimate Births | Illegitimate Births to 100 Single Women (15-45) | Male Births to 100 Female |              | Still-births, Percentage |
|---------|-----------------------------------|-------------------------------------------------|---------------------------|--------------|--------------------------|
|         |                                   |                                                 | Legitimate                | Illegitimate |                          |
| 1841-50 | 7.4                               | 1.62                                            | 105.5                     | 102.5        | 4.37                     |
| 1851-60 | 7.9                               | 1.67                                            | 105.4                     | 102.5        | 4.73                     |
| 1861-70 | 7.1                               | 1.76                                            | 105.4                     | 103.0        | 4.81                     |
| 1871-80 | 7.2                               | 1.84                                            | 104.9                     | 102.4        | 4.54                     |
| 1887    | 8.8                               | 2.14                                            | 105.3                     | 100.9        | 4.97                     |

In Brussels the ratio of illegitimacy rises to 285 per 1000 births.

#### DENMARK

Since 1840 the birth-rate has been as follows :—

| Period  | Per 1000 Population | Per Marriage |
|---------|---------------------|--------------|
| 1840-60 | 32.8                | 4.0          |
| 1861-70 | 31.0                | 4.1          |
| 1871-80 | 31.5                | 4.0          |
| 1881-85 | 32.5                | 4.2          |

The number of male children born to 100 females shows thus :—

| Mother's Age | Male Births |
|--------------|-------------|
| Under 30     | 108         |
| 30 to 35     | 107         |
| Over 35      | 106         |

The ages of 1000 women in their confinement in the years 1861-70 were :—

|          |      |
|----------|------|
| Under 20 | 14   |
| 20 to 30 | 414  |
| 30 to 40 | 461  |
| Over 40  | 111  |
|          | 1000 |

#### GREECE

During ten years ending 1878 the birth-rate averaged 120 per 1000 women between 15 and 50 years, and 27.6 per 1000 of the general population. The number of lawful births per 1000 married women was 178 yearly.

#### SWITZERLAND

Birth-rate during twenty years showed as follows :—

| Period  | Per 1000 Population | Per Marriage |
|---------|---------------------|--------------|
| 1867-74 | 29.8                | ...          |
| 1876-80 | 32.2                | 4.3          |
| 1881-85 | 28.2                | 4.0          |
| 1886    | 27.4                | 4.0          |

The ratio of illegitimacy is high at Geneva, especially among the foreign population, viz. :—

| Illegitimacy in 100 Births |       |         |
|----------------------------|-------|---------|
| Period                     | Swiss | Foreign |
| 1847-56                    | 6.8   | 11.4    |
| 1857-66                    | 5.8   | 14.8    |
| 1867-76                    | 6.7   | 18.1    |

#### ALGERIA

The birth-rate among various classes of the population showed :—

| Race    | 1853-56 | 1872-76 |
|---------|---------|---------|
| French  | 41.0    | 38.0    |
| Spanish | 47.5    | 39.5    |
| Italian | 38.5    | 39.0    |
| Maltese | 44.0    | 38.4    |
| Germans | 31.0    | 28.8    |
| Jews    | 56.5    | 49.0    |

The number of children to 100 marriages, and the ratio of twins were as follows :—

| Race    | Children per 100 Marriages | Twins in 10,000 Births |
|---------|----------------------------|------------------------|
| French  | 370                        | 102                    |
| German  | 480                        | 160                    |
| Italian | 570                        | 120                    |
| Spanish | 630                        | 40                     |

The average of children to marriages and the ratio of male births have been as follows :—

| Period  | Children to 100 Marriages | Boys to 100 Girls |
|---------|---------------------------|-------------------|
| 1836-53 | 390                       | 117               |
| 1854-77 | 440                       | 107               |

#### AUSTRALIA

The annual birth and death rates of the seven colonies during thirteen years down to 1888 were as follows :—

|                 | Per 1000 Population |        |                | Percentage of Illegitimates |
|-----------------|---------------------|--------|----------------|-----------------------------|
|                 | Births              | Deaths | Surplus Births |                             |
| N. S. Wales     | 37.8                | 15.5   | 22.3           | 4.4                         |
| Victoria        | 31.6                | 15.1   | 16.5           | 4.5                         |
| Queensland      | 36.9                | 17.3   | 19.6           | 4.0                         |
| South Australia | 36.9                | 14.1   | 22.8           | 2.2                         |
| New Zealand     | 37.2                | 11.1   | 26.1           | 2.7                         |
| Tasmania        | 33.1                | 15.8   | 17.3           | 4.2                         |
| W. Australia    | 34.7                | 16.3   | 18.4           | 4.2                         |
| All Australia   | 35.5                | 15.0   | 20.5           | 4.3                         |

#### ARGENTINA

The birth-rate of Buenos Ayres is 31 per 1000 of population. Of 1000 children born the parents were :—

|            |      |
|------------|------|
| Argentines | 168  |
| Italians   | 434  |
| Various    | 398  |
|            | 1000 |

There were 35 still-births in 1000 births.



## BOTANY

The growth of various trees and products stops at the following heights above sea-level:—

|             |       |            |       |            |       |
|-------------|-------|------------|-------|------------|-------|
|             | Feet  |            | Feet  |            | Feet  |
| Vine . . .  | 2,300 | Oak . . .  | 3,350 | Pine . . . | 6,300 |
| Maize . . . | 2,800 | Walnut . . | 3,600 | Fir . . .  | 6,700 |

The number of leguminous plants in various parts of the world is as follows:—

|               |     |               |     |                |     |
|---------------|-----|---------------|-----|----------------|-----|
| Europe . . .  | 184 | S. America .  | 605 | Levant . . .   | 250 |
| Mediterranean | 468 | Australia . . | 229 | N. Africa . .  | 108 |
| United States | 183 | China . . .   | 77  | Central Africa | 130 |
| Mexico . . .  | 152 | East Indies . | 452 | S. Africa . .  | 395 |
| West Indies . | 221 | Siberia . . . | 129 | Islands . . .  | 42  |

The number of seeds in a bushel is 556,000 of wheat, 883,000 of rye, 16,400,000 of clover.

The quantity of seed to the acre is usually, in bushels, thus:—

|              |     |             |     |              |     |
|--------------|-----|-------------|-----|--------------|-----|
| Wheat . . .  | 1.6 | Rye . . .   | 1.5 | Hemp . . .   | 1.2 |
| Barley . . . | 2.0 | Rice . . .  | 2.0 | Flax . . .   | 0.5 |
| Oats . . .   | 3.0 | Beans . . . | 1.5 | Potatoes . . | 8.0 |

*Batata*.—Better known as the sweet potato, gives a crop of 5 tons per acre.

*Carob*.—Also called algarroba or locust tree; it flourishes in Cyprus, where there are 600,000 trees, covering 20,000 acres. The yield of beans varies from 10 to 100 lbs. Average crop 25,000 tons, value £75,000, the bulk being exported to Scotland to make whiskey. The bean has 66 per cent. sugar and gum.

*Caster-oil Plant*.—Flourishes in Algeria; average crop 10 cwt. per acre, which gives from 50 to 60 gallons oil, worth 10s. per gallon.

*Mulberry*.—An ordinary tree produces from 50 to 200 lbs. of leaves yearly, according to age, viz.:—

| Age, Years | Lbs., Leaves | Age, Years | Lbs., Leaves |
|------------|--------------|------------|--------------|
| 4          | 25           | 12         | 148          |
| 9          | 105          | 21         | 218          |

At the age of 45 the production begins to decline, and the tree dies at 70. Lombardy has 10 millions of these trees, and all Italy probably 40 millions; France has 6 millions. It is found that 10 lbs. of leaves suffice to yield one ounce of raw silk.

## BRIDGES AND VIADUCTS

One of the most remarkable bridges of the Middle Ages is that built over the Adda in Italy in 1377, which is of stone, and has a single span of 237 feet. Among those of historical interest may be mentioned:—

| Name             | Length (Feet) | Date | Over         |
|------------------|---------------|------|--------------|
| Ratisbon . . .   | 994           | 1135 | Danube       |
| St. Esprit . . . | 2,690         | 1285 | Rhone        |
| Cordoba . . .    | 460           | 1301 | Guadalquivir |
| Verona . . .     | 365           | 1354 | Po           |
| Rialto . . .     | 99            | 1588 | At Venice    |
| Prague . . .     | 1,706         | 1650 | Moldau       |
| Schaffhausen .   | 364           | 1758 | Rhine        |
| Neuilly . . .    | 740           | 1768 | Seine        |

Those of the greatest height appear to be the following:—

|                | Height (Feet) | Span (Feet) |
|----------------|---------------|-------------|
| Brooklyn . . . | 210           | 1,620       |
| Annecy . . .   | 656           | 636         |
| Clifton . . .  | 257           | 703         |
| Forth . . .    | ...           | 5,330       |

Brooklyn bridge has four cables, each of 5000 wires of  $\frac{1}{4}$  inch. Forth is by far the greatest ever constructed (see *Engineering*); the heaviest train deflection is 4 inches. The first iron bridge in the United Kingdom was at Coalbrookdale in 1779; the following table shows the most notable in all parts of the world since then:—

| Date       | Bridge          | Over          | Length (Feet) | Iron (Tons) | Cost      | Builder     |
|------------|-----------------|---------------|---------------|-------------|-----------|-------------|
| 1779 . . . | Coalbrookdale . | Severn . . .  | 100           | 378         | £         | Darby       |
| 1796 . . . | Sunderland . .  | Wear . . .    | 236           | 260         | 27,000    | Wilson      |
| 1819 . . . | Southwark . .   | Thames . .    | 800           | 5,780       | 800,000   | Rennie      |
| 1825 . . . | Menai . . .     | Menai Straits | 1,050         | 2,187       | 212,000   | Telford     |
| 1849 . . . | Newcastle . .   | Tyne . . .    | 900           | 5,050       | 243,000   | Stephenson  |
| 1850 . . . | Britannia . . . | Menai Straits | 1,511         | 9,600       | 602,000   | Stephenson  |
| 1855 . . . | Niagara . . .   | Niagara . .   | 850           | 400         | 83,000    | Roebling    |
| 1859 . . . | Victoria . . .  | St. Lawrence  | 7,200         | 8,230       | 1,700,000 | Stephenson  |
| 1860 . . . | Pesth-Buda . .  | Danube . .    | 1,900         | 7,000       | ...       | ...         |
| 1862 . . . | Freyburg . . .  | Sarine . . .  | 1,095         | 3,100       | 100,000   | ...         |
| 1867 . . . | Cincinnati . .  | Ohio . . .    | 2,252         | ...         | ...       | Roebling    |
| 1868 . . . | Clifton . . .   | Niagara . .   | 1,270         | ...         | 40,000    | ...         |
| 1874 . . . | St. Louis . . . | Mississippi . | 2,200         | 4,200       | 400,000   | Eads        |
| 1875 . . . | Wuzerabad . .   | Punjaub . .   | 9,300         | ...         | 650,000   | ...         |
| 1877 . . . | Oporto . . .    | Douro . . .   | 1,160         | ...         | ...       | Eiffel      |
| 1878 . . . | Annan . . .     | Solway . . .  | 5,120         | 1,600       | ...       | ...         |
| 1879 . . . | Empress . . .   | Sutlej . . .  | 6,000         | 6,650       | 550,000   | ...         |
| 1880 . . . | Moordyk . . .   | Maas . . .    | 4,850         | ...         | ...       | ...         |
| 1880 . . . | Pultowa . . .   | Dnieper . .   | 3,550         | ...         | ...       | ...         |
| 1881 . . . | Saratov . . .   | Volga . . .   | 4,872         | 5,150       | 695,000   | Beleloubski |
| 1882 . . . | Benares . . .   | Ganges . .    | 3,000         | ...         | 425,000   | ...         |
| 1883 . . . | Brooklyn . . .  | Hudson . .    | 4,500         | 30,000      | 3,100,000 | Roebling    |
| 1889 . . . | Forth . . .     | Forth . . .   | 5,330         | 48,000      | 2,550,000 | Fowler      |

The Chinese had suspension bridges of iron chains during many centuries. Ogilvy saw one over the Yunnan in 1669, erected by the Emperor Ming, who was contemporary with Tiberius Caesar.

In 1816 Captain Brown built an iron bridge of 112 feet, only for foot-passengers, at Galashiels, for the sum of £40, the cheapest bridge on record.

The quickest bridge ever built was by Mr. Dredge, in 1846, who in eight days placed an iron bridge, 74 feet span, across the Blackwater, co. Tyrone, Ireland. The greatest number of bridges built by one man was by Mr. Telford, surnamed Pontifex, who erected 1200 bridges in Scotland, between the years 1800 and 1820.

London has spent  $5\frac{1}{2}$  millions sterling on bridges since 1816, viz. :—

| Name            | Length, Feet | Cost      | Per Foot | Date |
|-----------------|--------------|-----------|----------|------|
| London . . .    | 900          | 2,000,000 | 2,200    | 1831 |
| Southwark . .   | 800          | 800,000   | 1,000    | 1819 |
| Waterloo . . .  | 1,326        | 1,060,000 | 800      | 1817 |
| Blackfriars . . | 1,000        | 270,000   | 270      | 1869 |
| Charing Cross . | 1,365        | 180,000   | 130      | 1817 |
| Westminster . . | 1,220        | 480,000   | 390      | 1862 |
| Vauxhall . . .  | 806          | 412,000   | 500      | 1816 |
| Hammersmith .   | 480          | 80,000    | 170      | 1827 |
| Total . . .     | 7,897        | 5,412,000 | 680      | ...  |

The French Government in 56 years spent 76 millions sterling on bridges, thus :—

| Years          | Cost       | Per Annum |
|----------------|------------|-----------|
| 1814-30 . . .  | 13,500,000 | 800,000   |
| 1831-47 . . .  | 22,500,000 | 1,330,000 |
| 1848-70 . . .  | 40,200,000 | 1,800,000 |
| 56 years . . . | 76,200,000 | 1,350,000 |

The most remarkable viaducts hitherto made are the following :—

|                | Length, Feet | No. of Arches | Span, Feet | Height, Feet | Width, Feet | Cost, Pence per Cubic Yd. |
|----------------|--------------|---------------|------------|--------------|-------------|---------------------------|
| Weaver . . .   | 1,484        | 20            | 60         | 84           | 30          | 92                        |
| Stockport . .  | 1,792        | 26            | 63         | 90           | 32          | 91                        |
| Dane . . .     | 1,717        | 23            | 63         | 88           | 31          | 75                        |
| Rugby . . .    | 720          | 13            | 50         | 51           | 30          | 88                        |
| Tanworth . .   | 710          | 20            | 30         | 45           | ...         | 99                        |
| Llangollen .   | 1,800        | 19            | 85         | 150          | ...         | 90                        |
| Wharnccliffe . | 895          | 11            | 70         | 83           | 35          | 144                       |
| Trent . . .    | 1,286        | 56            | 20         | 33           | 29          | 86                        |
| Kinzua (N.Y.)  | 2,050        | 20            | 60         | 301          | ...         | ...                       |
| Cantal (Fr.) . | 1,880        | ...           | ...        | 413          | ...         | ...                       |

The Kinzua, built by Mr. Barnes, consists of 2000 tons iron and 7000 tons masonry, supported by twenty iron piers, and costing altogether £62,000. The Cantal, by M. Eiffel, is the highest in the world, being nearly the same height as the top of the great Pyramid.

### BURIALS

The minimum time between death and burial was among the Egyptians 4 days, Romans 6, and Greeks 11 days. At present it is 48 hours in England, Germany, and Austria, 36 in Holland, 24 in France.

The cemeteries in England and France in 1882 were :—

|               | No.    | Per 100,000 Inhabitants |
|---------------|--------|-------------------------|
| England . . . | 11,304 | 45                      |
| Wales . . .   | 958    | 71                      |
| France . . .  | 38,041 | 101                     |

London has 22 cemeteries, with an aggregate of 2210 acres, that is, an acre for 1700 inhabitants. Besides those above stated for England and Wales, there are 1411 cemeteries that have been closed by Order of Council.

The practice of cremation has been recently introduced. A body weighing 140 lbs. produces 3 lbs. ashes; time for burning, 55 minutes.

Mr. Chadwick estimates the cost of funerals in England thus :—

|                    |      |                |       |
|--------------------|------|----------------|-------|
| Paupers . . .      | 13s. | Gentry . . .   | £100  |
| Working-class . .  | £5   | Nobility . . . | £1000 |
| Middle-class . . . | £40  |                |       |

Average—£10 for each interment, or 5 millions per annum.

The French official classification was as follows :—

| Funerals of         | Annual Percentage |         |
|---------------------|-------------------|---------|
|                     | 1872-74           | 1878-79 |
| Rich persons . . .  | 3.2               | 3.5     |
| Middle-class . . .  | 13.6              | 14.3    |
| Working-class . . . | 83.2              | 82.2    |
| Total . . .         | 100.0             | 100.0   |

### BUTTER

The various kinds of butter give the following analyses :—

|                 | Fat  | Water | Various | Total | Ratio of Caseine |
|-----------------|------|-------|---------|-------|------------------|
| Devonshire . .  | 82.7 | 16.2  | 1.1     | 100.0 | 16.2             |
| Norman . . .    | 82.4 | 12.6  | 5.0     | 100.0 | 10.6             |
| London . . .    | 47.1 | 42.4  | 10.5    | 100.0 | 7.8              |
| " . . .         | 67.5 | 24.0  | 8.5     | 100.0 | 6.9              |
| Isle of Wight . | 86.3 | 3.8   | 9.9     | 100.0 | 3.3              |
| Jersey . . .    | 78.5 | 10.4  | 11.1    | 100.0 | 2.5              |
| Oleomargarine . | 86.0 | 10.0  | 4.0     | 100.0 | 0.6              |

An English cow giving 1800 quarts milk per annum produces 140 lbs. butter, consuming 4 tons hay, which contain 168 lbs. fat.

The price of butter in London since 1730 has been :—

|                 | Pence |                 | Pence |
|-----------------|-------|-----------------|-------|
| 1730-1790 . . . | 5½    | 1841-1860 . . . | 12½   |
| 1791-1815 . . . | 13    | 1861-1880 . . . | 16    |
| 1816-1840 . . . | 9½    | 1881-1883 . . . | 18    |

See Dairy.

## C.

### CABS

There are 11,000 in London, and 6000 in Paris; the former average 80,000, the latter 50,000 passengers daily. The medium fare earned per passenger is 15 pence in Paris, 18 pence in London. The earnings in London per cab are 19 shillings a day in "the season," 9 the rest of the year, or 12 shillings all the year round. In 1888 the Société Générale de Paris averaged 16½ francs receipts and 14 francs expenditure daily per cab, being a net profit of 2½ francs or 2 shillings; the expenses included

2 francs a day in taxes per cab. The average earnings of this Company all the year round were 15 pence a day per cab over the average earnings in London. The cost of food per horse in Paris in 1888 was 13½ pence, against 18 pence in 1881 daily. The ratio of horses dead or disabled during the year in the Société Générale stables was :—

|               |              |
|---------------|--------------|
| 1858-60 . . . | 20 per cent. |
| 1867-69 . . . | 18           |
| 1878-88 . . . | 14           |

A statement published in 1844 showed that Paris had then 3100 cabs, earning on an average 14 francs (say 11 shillings) each daily, and 340 omnibuses, averaging 60 francs (48 shillings) daily.

Cabs kill or disable many thousands of persons yearly in the United Kingdom.

Of all males who die in England, one in 260 is killed by a cab or other vehicle, and of all females one in 2550. The ratio of these deaths to the general mortality is as follows:—

|                     | Per 10,000<br>Deaths |                    | Per 10,000<br>Deaths |
|---------------------|----------------------|--------------------|----------------------|
| Birmingham . . . .  | 12                   | Manchester . . . . | 24                   |
| Sheffield . . . . . | 17                   | Dublin . . . . .   | 33                   |
| Glasgow . . . . .   | 19                   | London . . . . .   | 37                   |
| Liverpool . . . . . | 21                   | Leeds . . . . .    | 79                   |

The value of articles left in cabs in London, and handed over to the police at Scotland Yard, averages £21,000 per annum.

### CALENDAR

1. Jewish, 383 days; the Jewish year 5650 began on September 26, 1889.

2. Julius Cæsar's, 365 days, B.C. 46, commenced in March.

3. Mahometan, 355 days, A.D. 622; the Mahometan year 1300 began March 1, 1883.

4. Charles IX., A.D. 1564, commenced 1st January.

5. Pope Gregory XIII., A.D. 1582; now used, except in Russia.

6. The Russian year begins on January 13 of our calendar. The Gregorian calendar was adopted in England in 1752, before which date the year began on March 25, which would now be April 5.

For the purpose of finding the day of the week of any event, the student will be facilitated by knowing the day on which the year began. The following table shows since 1601 the day of the week on which the 1st of January fell:—

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|---------|-----------|----------|--------|----------|
| ...    | ...    | ...     | ...       | 1601     | 1602   | 1603     |
| 1604   | ...    | 1605    | 1606      | 1607     | 1608   | ...      |
| 1609   | 1610   | 1611    | 1612      | ...      | 1613   | 1614     |
| 1615   | 1616   | ...     | 1617      | 1618     | 1619   | 1620     |
| ...    | 1621   | 1622    | 1623      | 1624     | ...    | 1625     |
| 1626   | 1627   | 1628    | ...       | 1629     | 1630   | 1631     |
| 1632   | ...    | 1633    | 1634      | 1635     | 1636   | ...      |
| 1637   | 1638   | 1639    | 1640      | ...      | 1641   | 1642     |
| 1643   | 1644   | ...     | 1645      | 1646     | 1647   | 1648     |
| ...    | 1649   | 1650    | 1651      | 1652     | ...    | 1653     |
| 1654   | 1655   | 1656    | ...       | 1657     | 1658   | 1659     |
| 1660   | ...    | 1661    | 1662      | 1663     | 1664   | ...      |
| 1665   | 1666   | 1667    | 1668      | ...      | 1669   | 1670     |
| 1671   | 1672   | ...     | 1673      | 1674     | 1675   | 1676     |
| ...    | 1677   | 1678    | 1679      | 1680     | ...    | 1681     |
| 1682   | 1683   | 1684    | ...       | 1685     | 1686   | 1687     |
| 1688   | ...    | 1689    | 1690      | 1691     | 1692   | ...      |
| 1693   | 1694   | 1695    | 1696      | ...      | 1697   | 1698     |
| 1699   | 1700   | ...     | 1701      | 1702     | 1703   | 1704     |
| ...    | 1705   | 1706    | 1707      | 1708     | ...    | 1709     |
| 1710   | 1711   | 1712    | ...       | 1713     | 1714   | 1715     |
| 1716   | ...    | 1717    | 1718      | 1719     | 1720   | ...      |
| 1721   | 1722   | 1723    | 1724      | ...      | 1725   | 1726     |
| 1727   | 1728   | ...     | 1729      | 1730     | 1731   | 1732     |
| ...    | 1733   | 1734    | 1735      | ...      | 1736   | 1737     |
| 1738   | 1739   | 1740    | ...       | 1741     | 1742   | 1743     |
| 1744   | ...    | 1745    | 1746      | 1747     | 1748   | ...      |
| 1749   | 1750   | 1751    | 1752      | ...      | ...    | ...      |

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|---------|-----------|----------|--------|----------|
| ...    | 1753*  | 1754    | 1755      | 1756     | ...    | 1757     |
| 1758   | 1759   | 1760    | ...       | 1761     | 1762   | 1763     |
| 1764   | ...    | 1765    | 1766      | 1767     | 1768   | ...      |
| 1769   | 1770   | 1771    | 1772      | ...      | 1773   | 1774     |
| 1775   | 1776   | ...     | 1777      | 1778     | 1779   | 1780     |
| ...    | 1781   | 1782    | 1783      | 1784     | ...    | 1785     |
| 1786   | 1787   | 1788    | ...       | 1789     | 1790   | 1791     |
| 1792   | ...    | 1793    | 1794      | 1795     | 1796   | ...      |
| 1797   | 1798   | 1799    | 1800      | 1801     | 1802   | 1803     |
| 1804   | ...    | 1805    | 1806      | 1807     | 1808   | ...      |
| 1809   | 1810   | 1811    | 1812      | ...      | 1813   | 1814     |
| 1815   | 1816   | ...     | 1817      | 1818     | 1819   | 1820     |
| ...    | 1821   | 1822    | 1823      | 1824     | ...    | 1825     |
| 1826   | 1827   | 1828    | ...       | 1829     | 1830   | 1831     |
| 1832   | ...    | 1833    | 1834      | 1835     | 1836   | ...      |
| 1837   | 1838   | 1839    | 1840      | ...      | 1841   | 1842     |
| 1843   | 1844   | ...     | 1845      | 1846     | 1847   | 1848     |
| ...    | 1849   | 1850    | 1851      | 1852     | ...    | 1853     |
| 1854   | 1855   | 1856    | ...       | 1857     | 1858   | 1859     |
| 1860   | ...    | 1861    | 1862      | 1863     | 1864   | ...      |
| 1865   | 1866   | 1867    | 1868      | ...      | 1869   | 1870     |
| 1871   | 1872   | ...     | 1873      | 1874     | 1875   | 1876     |
| ...    | 1877   | 1878    | 1879      | 1880     | ...    | 1881     |
| 1882   | 1883   | 1884    | ...       | 1885     | 1886   | 1887     |
| 1888   | ...    | 1889    | 1890      | 1891     | 1892   | ...      |
| 1893   | 1894   | 1895    | 1896      | ...      | 1897   | 1898     |

In connection with the preceding calendar, it will be easy by means of the following table to find the day of the week of any event:—

|                     |   |    |    |    |     |
|---------------------|---|----|----|----|-----|
| January . . . . .   | 1 | 8  | 15 | 22 | 29  |
| February . . . . .  | 5 | 12 | 19 | 26 | ... |
| March . . . . .     | 5 | 12 | 19 | 26 | ... |
| April . . . . .     | 2 | 9  | 16 | 23 | 30  |
| May . . . . .       | 7 | 14 | 21 | 28 | ... |
| June . . . . .      | 4 | 11 | 18 | 25 | ... |
| July . . . . .      | 2 | 9  | 16 | 23 | 30  |
| August . . . . .    | 6 | 13 | 20 | 27 | ... |
| September . . . . . | 3 | 10 | 17 | 24 | ... |
| October . . . . .   | 1 | 8  | 15 | 22 | 29  |
| November . . . . .  | 5 | 12 | 19 | 26 | ... |
| December . . . . .  | 3 | 10 | 17 | 24 | 31  |

Allowance must be made for February 29 in leap-years, which were those preceding the blank spaces in the previous calendar.

### CANALS

The most remarkable canals are:—

| Date | Name            | Miles | Cost       | Per Mile | Country   |
|------|-----------------|-------|------------|----------|-----------|
| 1668 | Languedoc       | 160   | 680,000    | 4,250    | France    |
| 1776 | Bridgewater     | 38    | 360,000    | 9,050    | England   |
| 1785 | Eyder . . . .   | 26    | 510,000    | 19,500   | Denmark   |
| 1822 | Caledonian      | 60    | 1,140,000  | 19,000   | Scotland  |
| 1825 | Heider . . . .  | 60    | 900,000    | 15,000   | Holland   |
| 1825 | Erie . . . . .  | 363   | 1,820,000  | 5,000    | U. States |
| 1830 | Cincinnati . .  | 306   | 610,000    | 2,000    | "         |
| ...  | Rideau . . . .  | 132   | 800,000    | 0,060    | Canada    |
| ...  | Welland . . . . | 41    | 1,400,000  | 34,150   | "         |
| 1832 | Burgundy . . .  | 158   | 2,220,000  | 14,050   | France    |
| 1854 | Bengal . . . .  | 900   | 2,000,000  | 2,200    | India     |
| 1869 | Suez . . . . .  | 92    | 17,030,000 | 185,000  | Egypt     |
| 1874 | North Sea . . . | 14    | 2,030,000  | 145,000  | Holland   |

\* First year of new style, which began September 2, 1752.

## CANALS

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## CANALS

The following table shows the mileage of canals and navigable rivers :—

|                        | Miles  |         |         |
|------------------------|--------|---------|---------|
|                        | Canals | Rivers  | Total   |
| United Kingdom . . .   | 2,794  | 1,020   | 3,814   |
| France . . . . .       | 2,910  | 4,820   | 7,730   |
| Germany . . . . .      | 1,320  | 15,760  | 17,080  |
| Russia . . . . .       | 870    | 33,046  | 33,916  |
| Austria . . . . .      | 1,710  | 5,490   | 7,200   |
| Italy . . . . .        | 664    | 626     | 1,290   |
| Spain and Portugal . . | 270    | 1,285   | 1,555   |
| Belgium . . . . .      | 535    | 540     | 1,075   |
| Holland . . . . .      | 1,830  | 870     | 2,700   |
| Scandinavia . . . . .  | 390    | 300     | 690     |
| Europe . . . . .       | 13,293 | 63,757  | 77,050  |
| United States . . . .  | 4,479  | 47,355  | 51,834  |
| Canada . . . . .       | 535    | 2,820   | 3,355   |
| Brazil . . . . .       | ...    | 22,200  | 22,200  |
| Argentina . . . . .    | ...    | 2,200   | 2,200   |
| India . . . . .        | 2,240  | 2,600   | 4,840   |
| China . . . . .        | 5,270  | 3,800   | 9,070   |
| Total . . . . .        | 25,817 | 144,732 | 170,549 |

The average cost of making canals has been £9600 in the United Kingdom, £7000 in France, £9800 in the United States, and £15,500 in Canada, per mile.

Among those projected or in construction are the following :—

| Locality                  | Miles | Estimated Cost | Per Mile |
|---------------------------|-------|----------------|----------|
| Panama . . . . .          | 46    | £26,500,000    | 575,000  |
| Alexandria and Suez . .   | 150   | ...            | ...      |
| Manchester and Liverpool  | 44    | 5,200,000      | 120,000  |
| Malacca . . . . .         | 66    | 4,000,000      | 60,000   |
| Bordeaux and Narbonne .   | 255   | 22,000,000     | 87,000   |
| Corinth . . . . .         | 4     | 1,200,000      | 300,000  |
| Dniester and Vistula . .  | 460   | 21,000,000     | 45,000   |
| Black Sea and Caspian . . | 310   | 4,000,000      | 13,000   |

The Panama Canal was begun in September 1884, the plans showing excavations of 160 million cubic yards; this included a tunnel of 4 miles or 7000 yards, 100 feet wide and 160 in height, to cost £800 per lineal yard. The whole was to be finished in 1892, at an estimated cost of 26½ millions sterling. In December 1885, Baron Lesseps had at work 10,000 men, 169 locomotives, 12,000 waggons and 7 dredges. Each of the dredges was capable of excavating 100,000 cubic yards monthly. In March 1888, after 42 months of work, the total excavations reached only 53 million cubic yards, or one-third of the total, and had cost 40 millions sterling—say 15 shillings per cubic yard, or five times the estimates. The work remaining to be excavated was 36 million tons of stone and 54 million of clay, in all 82 million cubic yards. The works were suspended in January 1889, the company having expended 60 millions sterling, but this was the nominal amount of stock. It is thought the actual works cost less than 40 millions. Death-rate among the men varied from 3 to 10 per cent. yearly.

The Suez Canal is the most remarkable and useful engineering work of ancient or modern times. It shortens the voyage between England and the East by one-third; that is, it enables two vessels to do the same work that would require three by the Cape of Good Hope, the distance in nautical miles being as follows :—

| London to           | By Canal | By Cape | Saving Miles |
|---------------------|----------|---------|--------------|
| Bombay . . . . .    | 6,330    | 10,595  | 4,265        |
| Madras . . . . .    | 7,330    | 10,830  | 3,500        |
| Calcutta . . . . .  | 7,950    | 11,450  | 3,500        |
| Singapore . . . . . | 8,345    | 11,670  | 3,325        |

It was begun by Lesseps in 1856, and completed in 1869 at a cost of £17,000,000 sterling, viz. :—

|                                   |            |
|-----------------------------------|------------|
| Preliminary expenses . . . . .    | £3,800,000 |
| Machinery . . . . .               | 2,200,000  |
| Excavation . . . . .              | 7,700,000  |
| Docks and harbours . . . . .      | 1,400,000  |
| Transport, buildings, &c. . . . . | 1,935,000  |

Total . . . . . £17,035,000

Length, 92 miles; depth, 26 feet. Tolls average £800 per vessel, or 8 shillings per ton of net tonnage. Tugs are provided for sailing vessels at a charge of £200. The saving to commerce by reason of the canal is above five millions sterling per annum, that is, 2½ millions after payment of the fees. The flags of vessels passing through since 1870 have been 77 per cent. British, 8 French, 4 Dutch, and 11 per cent. of other nations.

The traffic returns show as follows :—

| Year           | Ships | Tons      | Average Tonnage | Fees, £   |
|----------------|-------|-----------|-----------------|-----------|
| 1870 . . . . . | 486   | 436,000   | 900             | 206,000   |
| 1875 . . . . . | 1,494 | 2,940,000 | 1,960           | 1,156,000 |
| 1880 . . . . . | 2,026 | 4,345,000 | 2,150           | 1,630,000 |
| 1886 . . . . . | 3,100 | 8,180,000 | 2,640           | 2,260,000 |
| 1889 . . . . . | 3,425 | 9,606,000 | 2,800           | 2,640,000 |

The above is the gross tonnage, the net being 70 per cent. of same, the tonnage ratio of the various flags in late years showed thus :—

|                   | 1886  | 1889  |
|-------------------|-------|-------|
| British . . . . . | 76.4  | 77.9  |
| French . . . . .  | 8.5   | 5.7   |
| Italian . . . . . | 2.3   | 2.9   |
| German . . . . .  | 3.9   | 4.8   |
| Dutch . . . . .   | 3.8   | 3.8   |
| Various . . . . . | 5.1   | 4.9   |
| Total . . . . .   | 100.0 | 100.0 |

Electric light is now used for passage by night. The mean duration of passage was 48 hours in 1883, and only 27 hours in 1889. Expenses in 1889 were £1,300,000, leaving a profit of £1,340,000.

The ordinary share capital of the company is only 8 millions sterling, and the dividend ranges from 15 per cent. per annum upwards. The sum due on debentures is £8,867,000. The nominal capital called up for making the canal and the exact sum realised are shown thus :—

| Year            | Issue      | At  | Realised   |
|-----------------|------------|-----|------------|
| 1860 . . . . .  | £9,360,000 | 100 | 9,360,000  |
| 1868 . . . . .  | 6,667,000  | 60  | 4,000,000  |
| 1871 . . . . .  | 600,000    | 80  | 480,000    |
| 1880 . . . . .  | 240,000    | 67  | 160,000    |
| Total . . . . . | 16,867,000 | 83  | 14,000,000 |

It appears, therefore, that the real cost was only 14 millions sterling, or £150,000 per mile. The British Government owns nearly half the ordinary share capital, having bought 176,602 shares, nominal value £3,530,000,

from the Khedive in 1876, at a premium of 12½ per cent., the price paid being £3,976,600. The coupons had been cut off till 1892, but the Khedive pays interest until then. The proportions of Eastern and Southern trade passing to and from Great Britain through the Suez Canal appear as follows :—

| British Trade with | By Canal    | By Cape    | Total       |
|--------------------|-------------|------------|-------------|
|                    | £           | £          | £           |
| Australia . . .    | 12,000,000  | 43,000,000 | 65,000,000  |
| China and Japan    | 23,000,000  | 2,000,000  | 25,000,000  |
| India, &c. . . .   | 69,000,000  | 15,000,000 | 84,000,000  |
| Total . . .        | 104,000,000 | 60,000,000 | 164,000,000 |

The value of what passes through the canal is equal to one-seventh of the total foreign commerce of Great Britain.

Comparing the traffic on canals in the various parts of the world, we find the average of tons per mile as follows :—

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| Germany . . 6,000  | England . . 8,800  | U. States 10,000   |
| France . . . 8,000 | Russia . . . 9,000 | Suez . . . 102,000 |

## UNITED KINGDOM

It is stated by Haydn that the first canal in England was made by Henry I. to connect the Trent with the Witham in the year 1134. The first, however, of any note was that made by the Duke of Bridgewater, James Brindley being engineer; it was begun in 1759, completed in 1776 between Manchester and Liverpool at a cost of £360,000, length 38 miles. A canal from the Severn to the Thames was completed in 1789. The first in Scotland was that from the Forth to the Clyde, completed in 1790, after twenty-two years of labour. The Caledonian was begun in 1803 and completed in 1822, being known as Neptune's Staircase, with 28 locks, and so arduous in making that the cost exceeded £19,000 a mile. The Grand Canal of Ireland, connecting Dublin with the Shannon, was begun in 1765 and completed in 1788.

In 1889 the canals of the United Kingdom were :—

|                | Miles  |                  |       | Worked by |            |
|----------------|--------|------------------|-------|-----------|------------|
|                | Canals | Canalised Rivers | Total | Railways  | Canal Cos. |
| England . . .  | 2,500  | 550              | 3,050 | 1,025     | 2,025      |
| Scotland . . . | 150    | ...              | 150   | 75        | 75         |
| Ireland . . .  | 144    | 470              | 614   | 96        | 518        |
| U. Kingdom     | 2,794  | 1,020            | 3,814 | 1,196     | 2,618      |

The annual traffic was estimated as follows :—

| Worked by         | Miles | Tons Carried | Tons per Mile |
|-------------------|-------|--------------|---------------|
| Railways . . . .  | 1,196 | 6,600,000    | 5,500         |
| Companies . . . . | 2,618 | 27,700,000   | 10,600        |
| Total . . . .     | 3,814 | 34,300,000   | 9,000         |

They represent a capital of 36 millions sterling, or £9500 per mile; annual dividends ranging from 2 to 5 per cent. Some allow vessels of 6 feet draught, others only 3 feet.

The canals of the United Kingdom in actual use in 1887 were as follows :—

|                                 | Miles |
|---------------------------------|-------|
| Owned by railways . . . .       | 1,421 |
| Independent of railways . . . . | 1,537 |
| Total . . . .                   | 2,958 |

Nothing is known as to freight charges, but the net earnings do not seem to reach one shilling per ton carried.

## FRANCE

The French statistics of canals are as follows :—

| Date         | Miles | Capital Cost | Per Mile |
|--------------|-------|--------------|----------|
|              |       | £            | £        |
| 1800 . . . . | 766   | 4,600,000    | 6,100    |
| 1813 . . . . | 890   | 7,700,000    | 8,600    |
| 1830 . . . . | 1,450 | 15,100,000   | 10,400   |
| 1847 . . . . | 2,690 | 27,800,000   | 10,300   |
| 1870 . . . . | 3,150 | 31,400,000   | 10,000   |

In the interval from 1770 to 1844 the following were constructed :—

| Date of Works | Canal            | Cost, £    | Cost, £ Per Mile | Length, Miles | Fall, Feet |
|---------------|------------------|------------|------------------|---------------|------------|
| 1770-1837     | Somme            | 520,000    | 5,200            | 98            | 220        |
| 1775-1832     | Burgundy         | 2,200,000  | 14,500           | 158           | 1,650      |
| 1784-1843     | Nivernais        | 1,300,000  | 12,000           | 110           | 800        |
| 1785-1834     | { Rhone & Rhine  | 1,100,000  | 5,000            | 220           | 1,230      |
| 1806-1841     | { Nantes & Brest | 1,800,000  | 8,000            | 230           | 1,810      |
| 1808-1841     | Berry            | 1,100,000  | 5,500            | 200           | 810        |
| 1821-1838     | Ardennes         | 600,000    | 9,000            | 65            | 440        |
| 1822-1838     | Loire            | 1,200,000  | 9,600            | 124           | 350        |
| ...           | Various          | 1,580,000  | 7,500            | 205           | ...        |
|               | Total            | 11,400,000 | 8,000            | 1,410         | ...        |

A statement published in 1870 of French canals showed :—

| Date of Works   | Miles | Cost, £    | Cost, £ per Mile |
|-----------------|-------|------------|------------------|
| 1600-1820 . . . | 710   | 17,300,000 | 5,600            |
| 1821-1840 . . . | 1,860 |            |                  |
| 1841-1870 . . . | 560   |            |                  |
| Total . . . .   | 3,130 | ...        | ...              |

The following table shows the length and traffic of canals and canalised rivers at various dates :—

| Year | Miles  |        |       | Tons Carried 60 Miles |            |            |
|------|--------|--------|-------|-----------------------|------------|------------|
|      | Canals | Rivers | Total | Canals                | Rivers     | Total      |
| 1850 | 2,425  | 4,200  | 6,625 | 7,300,000             | 9,400,000  | 16,700,000 |
| 1860 | 2,750  | 4,200  | 6,950 | 10,400,000            | 8,600,000  | 19,000,000 |
| 1870 | 2,850  | 4,200  | 7,050 | 9,000,000             | 5,500,000  | 14,500,000 |
| 1880 | 2,720  | 4,140  | 6,860 | 11,000,000            | 9,100,000  | 20,100,000 |
| 1885 | 2,910  | 4,820  | 7,730 | 13,300,000            | 11,200,000 | 24,500,000 |

It will be observed that there is only a seeming discrepancy in the above statements, the first referring merely to canals, the second including canalised rivers.

The first constructed in France was the Briare, connecting the Loire and Seine, 124 miles, begun in 1605 and finished in 1642 at a cost of £1,300,000 sterling. The Languedoc, one of the finest works of the kind, was made by Riquet under Louis XIV., being opened for traffic in 1668; it is 60 feet wide, 6½ deep, and is carried up to a height of 600 feet by means of 114 locks, affording transit for small vessels between the Mediterranean and the Bay of Biscay: length, 160 miles; cost £680,000. The Central Canal connects the Loire and Saone, length 72 miles; it was completed in 1791 at a cost of £6300 per mile, being carried to a height of 240 feet by means

of 81 locks, and navigable for vessels of 5 feet draught. The Burgundy, connecting the Rhone and Seine, was 57 years in construction, length 158 miles, and the most costly in France, averaging £14,500 a mile, or three times as much as the Languedoc, being carried to a height of 1650 feet. France has altogether 74 canals, with an aggregate length of 2900 miles, the average cost having been £7000 a mile, and the traffic yearly 8000 tons per mile.

## GERMANY

The German Empire by latest accounts has 1320 miles of canal and 15,760 of navigable rivers, which differs but slightly from a statement published in 1878, viz:—

|              |   | Mileage of Canals<br>and Rivers |
|--------------|---|---------------------------------|
| Prussia      | . | 8,140                           |
| Bavaria      | . | 1,160                           |
| Other States | . | 7,690                           |
| Total        | . | 16,990                          |

The canals of Prussia in 1869 had a length of 430 miles, and the total of navigable waters 3800 miles, perhaps only for vessels of large size. The traffic in 1878 in all internal waters of Germany occupied 20,900 canal-boats and 463 steamers, with an aggregate of 1,550,000 tonnage; the goods carried on canals was about 8 million tons; the principal canal is the Altmühl, connecting the Rhine and Danube, 107 miles long, 54 feet wide; vessels drawing 5 feet can go from the German Ocean to the Black Sea. The Elbe and Oder Canal is next in importance. By far the greatest inland water traffic is done by the Rhine, which carried 5,500,000 tons in 1866 and 6,100,000 in 1871: the Prussian Government, between 1831 and 1871, spent 5 millions sterling on improving its course, reducing the length by one-fourth in point of time: the above traffic included 3 million tons of coal. The Elbe in 1872 was navigated by 11,760 vessels of all kinds, manned by 43,600 men; the Weser by 3080 vessels, manned by 10,400 men; the tonnage on the Elbe was 760,000, two-thirds up-stream.

## RUSSIA

Official returns for 1886 show as follows:—

|          | Tons      | System    | Miles Open |
|----------|-----------|-----------|------------|
| Grain    | 2,660,000 | Caspian   | 8,880      |
| Timber   | 710,000   | Black Sea | 3,820      |
| Fuel     | 2,220,000 | Baltic    | 5,050      |
| Naphtha  | 540,000   | Azof      | 2,100      |
| Sundries | 2,480,000 | Various   | 14,066     |
| Total    | 8,610,000 | Total     | 33,916     |

The total value of goods carried was £19,400,000. There were 1507 steamers, with an aggregate of 86,000 horse-power, 61,000 vessels without steam-power, and 74,000 rafts. In 1886 the Volga traffic stood for 86 per cent. of the total. It was completed in 1825 by the opening of the Vishney Canal, forming a direct highway of 1434 miles from St. Petersburg to the Caspian Sea. In 1889 a sum of £1,300,000 was set apart to make this route navigable for larger vessels up to 220 feet long. The Volga throws off another canal to Archangel in the North, by which goods are conveyed direct from the White Sea to the Caspian. The Tikwina, opened in 1822, is for empty boats returning from the Baltic to the Volga. The Kubinsko is mostly used for carrying timber; it was opened in 1828 and has 300 vessels. The great centres of the Volga trade are Astrakan, Saratov, Nijni Novgorod, Moscow, and St. Petersburg, the whole system from Astrakan on the Caspian to Archangel on the White Sea being about 2500 miles in length, the Volga running

1900 miles without a rapid, whirlpool, or sandbank; it is navigated by four steamboat companies with first-class steamers, and such is the traffic by boats and rafts that Nijni Novgorod employs 70,000 Bourlaki or raftsmen, going up or down to Moscow and Astrakan. Boats ascending the Volga usually take ninety days from the Caspian Sea to St. Petersburg. The proposed Dniester-Vistula canal, 460 miles, would connect the Black Sea with Dantzic on the German Ocean. The canal in construction from the Caspian to the Black Sea, 310 miles, is to cost £4,000,000. The inland waters of Russia employ 300,000 boatmen. Canals are open about 200 days of the year in the north, and 270 in the south. One of the earliest constructed was that by the Empress Marie at her own expense in 1808.

## AUSTRIA-HUNGARY

A statement published in 1850 gave the Empire 5450 miles of internal navigation. In 1887 the total length of navigable rivers and canals was 7200 miles, including 1700 of canals. There are, however, only two canals of much traffic, that which connects the Theiss and Danube, 80 miles, and that from Vienna to Neustadt, 33 miles. There is continuous water communication from Vienna downward by the Danube to the Black Sea, and upward by the Altmühl Canal and the Rhine to the German Ocean, in all 1800 miles, of which more than 1000 is by the Danube. Steamboats were introduced on this river in 1850, and it was thrown open to vessels of all flags in 1856. The traffic returns of the Danubian Company in 1880 and 1887 were as follows:—

|                     | 1880      | 1887      |
|---------------------|-----------|-----------|
| Steamers of Company | 193       | 190       |
| Tugs                | 700       | 729       |
| Passengers          | 2,600,000 | 1,650,000 |
| Goods, tons         | 1,350,000 | 1,710,000 |

In summer the part above Vienna is only navigable for vessels of two feet draught.

According to a Government report in 1887 Austria proper had:—

|                  | Miles |                   | Miles |
|------------------|-------|-------------------|-------|
| Navigable rivers | 2,440 | Vessels and rafts | 2,450 |
| Canals           | 1,710 | Rafts only        | 1,700 |
| Total            | 4,150 | Total             | 4,150 |

A sum of £230,000, say £50 a mile, is spent annually on their maintenance. Hungary has 3050 navigable miles.

## ITALY

The navigable mileage of Italy is as follows:—

|       | Miles |       | Miles |
|-------|-------|-------|-------|
| Po    | 340   | Tiber | 90    |
| Adige | 130   | Arno  | 66    |

to which add 664 miles of navigable canals, making in all 1290 miles. Lombardy has twelve canals, but only two are navigable, the rest being for irrigation, as are likewise those of Pavia, Padua, and Pisa. The Cavour Canal is the most important, pouring 400,000 tons of water hourly from the Po into the Ticino. Duke Torlonia made a canal recently at Lake Fucino. It is proposed to make a canal from Rome to Ostia, 16 miles long, 72 feet wide, 26 feet deep, cost £7,400,000.

## SPAIN AND PORTUGAL

Spain has 1085 miles, Portugal 470, of inland navigation. The Imperial Canal of Arragon, begun in the last century, is far from completion. In combination with

the Canal of Castile it will connect the Mediterranean with the Bay of Biscay, a length of 405 miles, of which only 175 are now made; it is 60 feet wide and 10 in depth. The other canals are of trifling importance, and sum up 95 miles. The principal watercourses of the Peninsula are:—

|                 | Miles |                        | Miles |
|-----------------|-------|------------------------|-------|
| Tagus . . . . . | 570   | Ebro . . . . .         | 470   |
| Douro . . . . . | 490   | Guadalquivir . . . . . | 300   |

Not more than half the above mileage is navigable.

#### HOLLAND

Without counting rivers, this country has 9 miles of canal for every 100 square miles of area, a proportion not equalled elsewhere, and four times as great as in the United Kingdom. The Dutch canals have an aggregate length of 1830 miles, the traffic occupying 5600 Trekshuits for conveying passengers, and 15,000 flat boats for cargo; for the maintenance of these canals the State expends £500,000 yearly. The Helder, begun in 1819 and completed six years later, is 60 miles long, 120 feet wide, and 20 deep, allowing two merchantmen to pass abreast, and navigable for the largest vessels; the traffic in 1877 exceeded 1,500,000 tons. The Y, or North Sea canal, made in 1863-74, is 240 feet wide and 23 deep, and brings Amsterdam within 15 miles of the sea: length, 14 miles, cost £2,000,000. The Maestricht is navigable for vessels up to 800 tons.

The water-ways of Holland sum up 2700 miles, irrespective of canals for irrigation.

#### BELGIUM

This country with relation to area possesses double the mileage of internal navigation that Holland can boast, and six times the European average. There are 29 canals, summing up 535 miles, and 540 miles of navigable rivers. The chief canal is from Brussels to Charleroi, 46 miles, the toll amounting to £1,020,000 yearly; working expenses, £460,000. The amount of tonnage carried on all the canals is 7,700,000 tons.

Traffic returns show as follows:—

|                                 | Tons Carried 60 Miles |           |
|---------------------------------|-----------------------|-----------|
|                                 | 1880                  | 1886      |
| Coal . . . . .                  | 1,600,000             | 1,700,000 |
| Other minerals . . . . .        | 2,100,000             | 2,100,000 |
| Agricultural products . . . . . | 1,300,000             | 1,200,000 |
| General merchandise . . . . .   | 2,200,000             | 2,700,000 |
| Total . . . . .                 | 7,200,000             | 7,700,000 |

#### SCANDINAVIA

Sweden has 365 miles of canal, which are open to traffic 210 days in the year, being frozen the rest. Over £200,000 was spent on canals between 1840 and 1860. The Gotha Canal is the most remarkable; it was attempted by various kings without success, and finally commenced by a joint-stock company in 1793, and completed in 1800, at a cost of £72,000, being only three miles long, but cut through a rock 150 feet high; it has eight locks, and is navigable for vessels of 6 feet draught, paying a usual dividend of 12 per cent. In later years a canal has been made from Lake Meler, near Stockholm, to the German Ocean. In 1886 there were 69,300 vessels paid canal tolls.

Denmark has the Eyder Canal connecting the Baltic and the German Ocean, 26 miles long and 10 feet deep, begun in 1777, and completed in 1784 at a cost of £510,000.

#### UNITED STATES

The water-ways of the great Republic were stated in 1880 thus:—

|                               | Miles  |
|-------------------------------|--------|
| Navigable rivers . . . . .    | 47,355 |
| Canals in use . . . . .       | 2,515  |
| Canals abandoned . . . . .    | 1,964  |
| Shore line of lakes . . . . . | 3,620  |

Total . . . . . 55,454

In 1860 there were 118 canals, with an aggregate of 5460 miles, supposed to have cost 48 millions sterling. This is, however, in excess of an official return published in 1880, viz:—

|                        | Miles  |           |       | Tons Carried | Earnings per Mile | Cost of Construction |
|------------------------|--------|-----------|-------|--------------|-------------------|----------------------|
|                        | In Use | Abandoned | Total |              |                   |                      |
| New York . . . . .     | 608    | 357       | 965   | 7,770,000    | £ 430             | £ 16,000,000         |
| Pennsylvania . . . . . | 629    | 477       | 1,106 | 6,100,000    | 515               | 11,000,000           |
| Ohio . . . . .         | 674    | 205       | 879   | 840,000      | 60                | 4,000,000            |
| Maryland . . . . .     | 194    | ...       | 194   | 1,310,000    | 370               | 2,000,000            |
| New Jersey . . . . .   | 171    | ...       | 171   | 1,860,000    | 750               | 2,000,000            |
| Illinois . . . . .     | 102    | ...       | 102   | 750,000      | 220               | 1,500,000            |
| Virginia . . . . .     | 43     | 197       | 240   | 4,045,000    | 490               | 2,000,000            |
| Other States . . . . . | 94     | 728       | 822   | 2,368,000    | 424               | 5,500,000            |
| Total . . . . .        | 2,515  | 1,964     | 4,479 | 25,043,000   | 355               | 44,000,000           |

The earnings per mile are computed on the canals in use. The first canal was that of Middlesex, from Boston to Concord, 27 miles, completed in 1789 at a cost of £110,000 sterling. The famous Hudson and Erie, 363 miles long and 40 feet wide, was opened in 1825, after eight years of labour, being carried over a range of hills 690 feet high by means of 83 locks and 18 aqueducts, at a cost of £1,800,000. The Delaware and Chesapeake, 14 miles long and 10 feet deep, was opened in 1826, having taken three years to make, and cost £400,000. A canal from Lake Champlain to the Hudson, 63 miles, cost £175,000. In 1830 was opened the great Cincinnati and Erie Canal, 306 miles, cost £600,000; also the Cincinnati and Miami, 70 miles, and a canal connecting the Dismal Swamp and

the Ohio. Another grand work was the Chesapeake and Ohio, opened in 1834 after six years of construction, 360 miles long, 60 feet wide, including a tunnel four miles long through the Alleghenies. Various canals were at the same time opened in Pennsylvania, in the aggregate 730 miles.

The navigable rivers are officially stated thus:—

|                                       | Miles  |                           | Miles  |
|---------------------------------------|--------|---------------------------|--------|
| Mississippi and tributaries . . . . . | 11,108 | Arkansas . . . . .        | 3,250  |
| Missouri . . . . .                    | 7,830  | Texas . . . . .           | 1,210  |
| Ohio . . . . .                        | 7,342  | Big Black . . . . .       | 1,190  |
| Red River . . . . .                   | 4,924  | Atlantic rivers . . . . . | 10,501 |

The traffic of these rivers and the great lakes is enormous. In 1880 the Mississippi and tributaries had 1100 steamboats and 850 flats, with a capacity of 415,000 tons, carrying merchandise worth 400 millions sterling per annum. The tug-boat *Ajax*, for example, has been known to tow at once 32 flats carrying 21,000 tons, which would have filled 2100 railway waggons. The great lakes have 900 steamers and 1800 sailing vessels, and flats with an aggregate of 590,000 tons, carrying over 9 million tons yearly, of which 2 million tons grain. The ordinary cost of freight in the inland waters of the Republic is 4s. per ton per 100 miles (one cent. per mile), or one-half of what is usual in Europe.

## CANADA

There are 7 canals, and these with the navigable rivers make up a total of 3355 miles of water-way. The Rideau, from Kingston to Ottawa, 132 miles, has 47 locks, and was constructed by Great Britain at a cost of £800,000. The Grenville, from Rideau to Montreal, gives a complete system of navigation up to Niagara, 460 miles. The Welland, from Erie to Ontario, 41 miles, cost £1,400,000, width 80 feet, depth 56 feet. The construction of 7 canals cost £6,500,000, being an average of £12,000 per mile; aggregate length 535 miles. Moreover, the St. Lawrence has been canalised at a cost of 6 millions sterling, so that vessels of 4000 tons can ascend to Montreal, which is 1000 miles from the sea, and those of 1500 tons, drawing 14 feet, can proceed from Montreal up to Lake Erie and Chicago: before the canalization no vessels exceeding 400 tons could get up to Montreal from the sea. The traffic showed as follows as regards vessels passing through Canadian canals:—

|                      | 1876      | 1887      |
|----------------------|-----------|-----------|
| Vessels . . . . .    | 27,400    | 22,870    |
| Tonnage . . . . .    | 3,500,000 | 3,410,000 |
| Passengers . . . . . | 92,000    | 83,000    |

Tolls paid in 1876 reached £84,000. Freight of merchandise in 1887 showed 2,820,000 tons.

## INDIA

Canals for navigation were begun in 1854, and the construction proceeded so rapidly that in 1862 the following were in traffic:—

| Name              | Miles | Cost, £   |
|-------------------|-------|-----------|
| Bengal . . . . .  | 900   | 2,000,000 |
| Jumna . . . . .   | 600   | 500,000   |
| Punjaub . . . . . | 450   | 4,000,000 |
| Total . . . . .   | 1,950 | 6,500,000 |

Irrigation canals have since been made at an outlay of 17 millions sterling. The maintenance of all canals in India costs 3 millions sterling per annum. The Bengal Canal connects with the Ganges, and has a depth of 10 feet. Navigable rivers have an aggregate length of about 2600 miles.

## CHINA

The Imperial Canal of China is the longest in the world, and the greatest in point of traffic: its length is 2100 miles, including river sections (or 825 miles the canal proper), and it connects 41 cities situated on its banks. It was completed A.D. 1350, after 600 years spent in its construction. China has 400 minor canals, of a supposed aggregate of 4450 miles, besides 3800 miles of river navigation.

## CANOE

The *Rob Roy*, which navigated 3000 miles of European rivers, was 13 feet long, 26 inches wide, and 12 inches deep.

## CAPITAL

In 1882 the following table was published of stocks quoted on the London Exchange:—

|                                | Millions £                      |                              |                                  |
|--------------------------------|---------------------------------|------------------------------|----------------------------------|
|                                | Amount Quoted on Stock Exchange | Amount Held in Great Britain | Interest Earned in Great Britain |
| National debt . . . . .        | 762                             | 700                          | 21                               |
| Colonial debts . . . . .       | 220                             | 200                          | 10                               |
| Foreign " . . . . .            | 2,016                           | 400                          | 22                               |
| British railways . . . . .     | 730                             | 700                          | 30                               |
| Foreign and colonial . . . . . | 825                             | 275                          | 14                               |
| Banks . . . . .                | 272                             | 260                          | 15                               |
| Docks, gas, &c. . . . .        | 125                             | 120                          | 10                               |
| Total . . . . .                | 4,950                           | 2,655                        | 122                              |

The amount of new capital called up in twelve years down to 1882 was:—

| Years             | Millions £ |           |       |                |
|-------------------|------------|-----------|-------|----------------|
|                   | Loans      | Companies | Total | Annual Average |
| 1871-74 . . . . . | 930        | 1,230     | 2,160 | 540            |
| 1875-78 . . . . . | 520        | 420       | 940   | 235            |
| 1879-82 . . . . . | 430        | 820       | 1,250 | 312            |
| Total . . . . .   | 1,880      | 2,470     | 4,350 | 362            |

Great Britain provided about one-fourth of the total; some estimates say one-third.

The aggregate amount called up in four years, 1879-82, was as follows:—

| Amount in Millions £    |     | Amount in Millions £    |     |
|-------------------------|-----|-------------------------|-----|
| Great Britain . . . . . | 182 | Spain . . . . .         | 25  |
| France . . . . .        | 301 | Portugal . . . . .      | 11  |
| Germany . . . . .       | 38  | Switzerland . . . . .   | 17  |
| Russia . . . . .        | 107 | Belgium . . . . .       | 27  |
| Austria . . . . .       | 75  | Holland . . . . .       | 14  |
| Italy . . . . .         | 40  | United States . . . . . | 210 |

Mr. Neumann Spallart sums up the new capital called up in England, France, Germany, and Austria during fifteen years thus:—

| Period             | Millions £ Sterling |                        |       |
|--------------------|---------------------|------------------------|-------|
|                    | Public Loans        | Railways and Companies | Total |
| 1871-75 . . . . .  | 942                 | 863                    | 1,805 |
| 1876-80 . . . . .  | 702                 | 539                    | 1,241 |
| 1881-85 . . . . .  | 368                 | 605                    | 973   |
| 15 years . . . . . | 2,012               | 2,007                  | 4,019 |

This is an average of 270 millions sterling per annum, or about 40 per cent. of the wealth annually accumulated in the above four countries. One-half of the above went in public loans. If we consider only joint-stock companies Mr. Spallart's figures give an annual average of 135 millions sterling for the four countries, which is in



harmony with a statement published in 1882 regarding the money invested in new companies of Europe, America, &c., in twelve years, viz. :—

| Years           | Millions £      |                |
|-----------------|-----------------|----------------|
|                 | Amount, Capital | Annual Average |
| 1871-74 . . . . | 1,230           | 308            |
| 1875-78 . . . . | 420             | 105            |
| 1879-82 . . . . | 820             | 205            |
| Total . . . .   | 2,470           | 206            |

It may be assumed that, irrespective of public loans, the amount of new capital absorbed by joint-stock companies all over the world reaches 200 millions sterling per annum. The average annual outlay of new capital in the years 1881-85 was approximately as follows :—

|                  | £           |                     | £         |
|------------------|-------------|---------------------|-----------|
| Railways . . . . | 102,000,000 | Mines . . . .       | 7,000,000 |
| Banks . . . .    | 22,000,000  | Electricity . . . . | 6,000,000 |
| Building . . . . | 15,000,000  | Newspapers . . . .  | 5,000,000 |

The new companies formed in 1889 were said to represent 203 millions sterling in the United Kingdom.

*United Kingdom.*—According to the *Investor's Manual*, the new capital called up in London in eleven years was as follows :—

| Years            | Million £ | Per Annum |
|------------------|-----------|-----------|
| 1879-82 . . . .  | 335       | 84        |
| 1883-85 . . . .  | 246       | 82        |
| 1886-89 . . . .  | 507       | 127       |
| 11 years . . . . | 1,088     | 99        |

The number and capital of joint-stock companies registered in the United Kingdom in twenty-four years down to 1885 were as follows :—

| Period          | Number | Capital, Million £ | New Capital per Annum, Million £ |
|-----------------|--------|--------------------|----------------------------------|
| 1862-70 . . . . | 6,179  | 1,010              | 112                              |
| 1871-80 . . . . | 10,862 | 970                | 97                               |
| 1881-85 . . . . | 8,002  | 890                | 178                              |
| Total . . . .   | 25,043 | 2,870              | 120                              |

The amount of new capital in 1881-85, if all these companies had been successfully carried out, would have been in excess of the annual accumulation of wealth.

The new capital called up at Berlin in 1888-89 was :—

|                              | 1888         | 1889         | 1889         |              |
|------------------------------|--------------|--------------|--------------|--------------|
|                              |              |              | Foreign      | German       |
| Public loans . . . .         | £ 55,500,000 | £ 20,800,000 | £ 10,000,000 | £ 10,800,000 |
| Bonds, debentures, &c. . . . | 26,300,000   | 36,400,000   | 22,500,000   | 13,900,000   |
| New companies . . . .        | 10,300,000   | 20,300,000   | 5,000,000    | 15,300,000   |
| Total . . . .                | 92,100,000   | 77,500,000   | 37,500,000   | 40,000,000   |

New companies were as follows :—

| Year         | Capital, £ | No. | Average Capital, £ |
|--------------|------------|-----|--------------------|
| 1888 . . . . | 9,700,000  | 184 | 52,500             |
| 1889 . . . . | 20,100,000 | 260 | 55,000             |

The result of the above companies down to 1885 was as follows :—

|                           | Number | Capital, Million £ |
|---------------------------|--------|--------------------|
| Burst or wound up . . . . | 15,699 | 2,375              |
| Existing in 1885 . . . .  | 9,344  | 495                |
| Total . . . .             | 25,043 | 2,870              |

The actual number of companies existing in the United Kingdom was :—

| Year         | Number | Capital, £  |
|--------------|--------|-------------|
| 1877 . . . . | ...    | 307,200,000 |
| 1887 . . . . | 10,894 | 591,500,000 |

A return published down to March 1889 showed that in twenty-seven years 30,372 companies had been registered, with an aggregate capital of 3443 millions sterling; of these, 1684 had been wound up judicially. The actual number may be taken as 11,000, with a capital of 600 millions.

The *Investor's Guardian* published the following list of new companies registered in the United Kingdom during the year 1889 :—

| New Companies        | Capital, £ | New Companies         | Capital, £ |
|----------------------|------------|-----------------------|------------|
| Banks . . . .        | 57,200,000 | Railways . . . .      | 10,100,000 |
| Mines . . . .        | 37,000,000 | Shipping . . . .      | 5,300,000  |
| Manufactures . . . . | 21,800,000 | Electric . . . .      | 5,300,000  |
| Breweries . . . .    | 17,600,000 | Gas and Water . . . . | 2,700,000  |
| Land . . . .         | 12,900,000 | Various . . . .       | 52,100,000 |

making a total of 222 millions sterling; but nearly half of these companies died still-born, Messrs. Spackmann showing that the total subscribed was only £125,400,000, and the amount actually paid on calls £39,300,000.

*France.*—New capital called up at Paris in 1889 was :—

|                         |               |
|-------------------------|---------------|
| Public loans . . . .    | £ 123,500,000 |
| Railways . . . .        | 8,100,000     |
| Banks, mines, &c. . . . | 19,800,000    |

Total . . . . 151,400,000

*Prussia.*—Engel gives the joint-stock companies established in seventy-five years thus :—

| Period                   | Number | Capital, Millions £ |
|--------------------------|--------|---------------------|
| 1801-70 . . . .          | 418    | 171                 |
| 1871-75 . . . .          | 857    | 238                 |
| 75 years . . . .         | 1,275  | 409                 |
| Liquidated . . . .       | 143    | 30                  |
| Existing in 1875 . . . . | 1,132  | 379                 |

Wenzel adds that from 1875 to 1883 there were established 567 new companies, with an aggregate capital of 28 millions sterling.

*Austria.*—The number of joint-stock companies existing at Vienna was as follows :—

| Year         | No. | Year         | No.   |
|--------------|-----|--------------|-------|
| 1840 . . . . | 23  | 1867 . . . . | 154   |
| 1850 . . . . | 35  | 1873 . . . . | 1,159 |

In the last-mentioned year the aggregate capital was 400 millions sterling. The new companies formed from 1871 to 1880 in Austria-Hungary had an aggregate capital of 393 millions sterling.

An official return in 1887 showed the average profits on capital in Austria as follows :—

|                         | Per Cent. |                       | Per Cent. |
|-------------------------|-----------|-----------------------|-----------|
| Gas . . . . .           | 12.4      | Foundries . . . . .   | 6.5       |
| Insurance . . . . .     | 10.5      | Banks . . . . .       | 6.4       |
| Sugar . . . . .         | 8.8       | Paper-mills . . . . . | 5.6       |
| Breweries . . . . .     | 8.3       | Mines . . . . .       | 4.8       |
| Textile mills . . . . . | 6.6       | Steamboats . . . . .  | 2.0       |

The general average on all companies was as follows :—

1878-83 . . . . . 7.1 | 1885-87 . . . . . 6.5

The average was only 6.2 for the year 1887.

*Italy.*—Official returns of the existing joint-stock companies showed :—

| Year           | Number | Capital, Millions £ |
|----------------|--------|---------------------|
| 1870 . . . . . | 413    | 68                  |
| 1880 . . . . . | 644    | 80                  |
| 1884 . . . . . | 1,037  | 110                 |

*India.*—In 1888 there were 910 joint-stock companies, with an aggregate paid-up capital of 22 millions sterling; this included 97 started during the year with a capital of

£1,800,000 in the aggregate. The existing companies were :—

|                                      |             |
|--------------------------------------|-------------|
| Cotton-mills . . . . .               | £ 8,700,000 |
| Banks . . . . .                      | 3,500,000   |
| Tea and coffee plantations . . . . . | 3,600,000   |
| Sundries . . . . .                   | 6,200,000   |
| Total . . . . .                      | 22,000,000  |

### CARRIAGES

The number used in Great Britain has increased since 1812 faster than wealth, as appears on comparing the licenses with the number of persons paying income-tax on more than £200 a year :—

| Year | Carriages | Over £200 Income | Ratio of Carriages | Carriages per 1000 Inhabitants |
|------|-----------|------------------|--------------------|--------------------------------|
| 1812 | 63,130    | 39,765           | 158-100            | 5                              |
| 1830 | 85,060    | ...              | ...                | 5                              |
| 1860 | 245,000   | 85,530           | 287-100            | 11                             |
| 1870 | 325,000   | 130,375          | 250-100            | 12                             |
| 1880 | 463,000   | 210,430          | 221-100            | 15                             |

### CATTLE

In the last 60 years there has been a very great increase of the various kinds of live-stock : thus horses have increased 104 per cent., cattle 127, sheep 139, pigs 55 per cent. This is much greater (except as regards pigs) than the increase of population in Europe, United States, and Colonies, which has been just 70 per cent.

The following table shows approximately the numbers of each class of live-stock in all countries at various dates :—

#### HORSES

|                            | 1830       | 1850       | 1870       | 1887       |
|----------------------------|------------|------------|------------|------------|
| United Kingdom . . . . .   | 1,500,000  | 2,000,000  | 1,900,000  | 1,940,000  |
| Continent . . . . .        | 24,020,000 | 27,450,000 | 31,080,000 | 36,710,000 |
| United States . . . . .    | 2,500,000  | 4,900,000  | 9,400,000  | 15,400,000 |
| British Colonies . . . . . | 300,000    | 800,000    | 1,900,000  | 2,900,000  |
| River Plate . . . . .      | 2,400,000  | 3,400,000  | 4,600,000  | 5,100,000  |
| Total . . . . .            | 30,720,000 | 38,550,000 | 48,880,000 | 62,050,000 |

#### CATTLE

|                            | 1830       | 1850        | 1870        | 1887        |
|----------------------------|------------|-------------|-------------|-------------|
| United Kingdom . . . . .   | 5,200,000  | 7,950,000   | 8,700,000   | 10,300,000  |
| Continent . . . . .        | 62,170,000 | 72,170,000  | 81,100,000  | 91,550,000  |
| United States . . . . .    | 8,100,000  | 17,800,000  | 25,500,000  | 49,200,000  |
| British Colonies . . . . . | 1,400,000  | 3,800,000   | 8,400,000   | 14,400,000  |
| River Plate . . . . .      | 9,200,000  | 14,400,000  | 18,300,000  | 29,700,000  |
| Total . . . . .            | 86,070,000 | 116,120,000 | 142,000,000 | 195,150,000 |

#### SHEEP

|                            | 1830        | 1850        | 1870        | 1887        |
|----------------------------|-------------|-------------|-------------|-------------|
| United Kingdom . . . . .   | 25,000,000  | 27,970,000  | 33,800,000  | 28,000,000  |
| Continent . . . . .        | 144,040,000 | 155,980,000 | 175,600,000 | 168,800,000 |
| United States . . . . .    | 6,500,000   | 21,700,000  | 40,850,000  | 43,500,000  |
| British Colonies . . . . . | 4,400,000   | 17,200,000  | 64,300,000  | 112,300,000 |
| River Plate . . . . .      | 3,400,000   | 7,300,000   | 47,500,000  | 81,000,000  |
| Total . . . . .            | 183,340,000 | 230,150,000 | 362,050,000 | 434,500,000 |

## PIGS

|                            | 1830       | 1850       | 1870       | 1887       |
|----------------------------|------------|------------|------------|------------|
| United Kingdom . . . . .   | 4,000,000  | 3,680,000  | 4,200,000  | 3,800,000  |
| Continent . . . . .        | 40,460,000 | 34,750,000 | 39,700,000 | 44,500,000 |
| United States . . . . .    | 16,000,000 | 30,400,000 | 26,700,000 | 44,400,000 |
| British Colonies . . . . . | 1,100,000  | 1,400,000  | 2,200,000  | 2,400,000  |
| River Plate . . . . .      | 200,000    | 200,000    | 300,000    | 400,000    |
| Total . . . . .            | 61,760,000 | 70,430,000 | 73,100,000 | 95,500,000 |

## VALUE OF ALL LIVE-STOCK, MILLIONS STERLING.

| Year | Europe | U. States | Colonies, &c. | Total |
|------|--------|-----------|---------------|-------|
| 1830 | 730    | 70        | 23            | 823   |
| 1850 | 1,018  | 114       | 48            | 1,180 |
| 1870 | 1,496  | 274       | 130           | 1,900 |
| 1887 | 1,900  | 501       | 215           | 2,616 |

The number of live-stock, as we have seen, has a little more than doubled in sixty years: the value, meantime, has more than trebled. It must be borne in mind that the foregoing tables include only Europe, the United States, British colonies (without India), and the River Plate, and in these the value of all descriptions of cattle has risen more than 700 millions sterling since 1870. In that interval the value in the United States and Colonies has almost doubled.

Mr. Simmonds has taken great pains to ascertain the number of each class of live stock in the several parts of the world in 1890, and sums up the result as follows:—

|                       | Horses     | Asses and Mules | Cattle      | Sheep       | Pigs        | Goats      |
|-----------------------|------------|-----------------|-------------|-------------|-------------|------------|
| Europe . . . . .      | 34,865,000 | 4,900,000       | 104,166,000 | 214,499,000 | 46,152,000  | 21,546,000 |
| Asia . . . . .        | 4,443,000  | 1,061,000       | 70,850,000  | 71,669,000  | 840,000     | 24,055,000 |
| Africa . . . . .      | 721,000    | 1,068,000       | 8,203,000   | 60,820,000  | 417,000     | 9,220,000  |
| America . . . . .     | 21,920,000 | 3,286,000       | 117,249,000 | 143,581,000 | 53,974,000  | 4,851,000  |
| Australasia . . . . . | 1,520,000  | 3,000           | 9,339,000   | 98,366,000  | 1,143,000   | 299,000    |
| Total . . . . .       | 63,469,000 | 10,318,000      | 309,807,000 | 588,935,000 | 102,526,000 | 59,971,000 |

In 1830 the live-stock of various countries in Europe was estimated approximately as follows:—

|                               | Horses     | Cattle     | Sheep       | Pigs       | Value, Million £ |
|-------------------------------|------------|------------|-------------|------------|------------------|
| United Kingdom . . . . .      | 1,500,000  | 5,200,000  | 25,000,000  | 4,000,000  | 84               |
| France . . . . .              | 2,600,000  | 6,700,000  | 35,200,000  | 4,500,000  | 96               |
| Germany . . . . .             | 2,500,000  | 9,770,000  | 17,300,000  | 4,500,000  | 88               |
| Russia . . . . .              | 12,000,000 | 19,000,000 | 36,000,000  | 15,800,000 | ...              |
| Austria . . . . .             | 2,500,000  | 10,500,000 | 12,000,000  | 5,500,000  | 80               |
| Italy . . . . .               | 800,000    | 3,500,000  | 6,500,000   | 2,500,000  | 30               |
| Spain . . . . .               | 1,400,000  | 2,950,000  | 18,700,000  | 2,730,000  | 38               |
| Portugal . . . . .            | 100,000    | 650,000    | 1,200,000   | 700,000    | 8                |
| Sweden and Norway . . . . .   | 490,000    | 2,300,000  | 2,440,000   | 580,000    | 19               |
| Denmark . . . . .             | 250,000    | 800,000    | 1,000,000   | 200,000    | 16               |
| Holland and Belgium . . . . . | 500,000    | 2,000,000  | 1,200,000   | 1,200,000  | 26               |
| Switzerland . . . . .         | 80,000     | 800,000    | 500,000     | 250,000    | 6                |
| Turkey, &c. . . . .           | 800,000    | 3,200,000  | 12,000,000  | 2,000,000  | 63               |
| Europe . . . . .              | 25,520,000 | 67,370,000 | 169,040,000 | 44,460,000 | ...              |

In 1850 the numbers were approximately as follows:—

|                          | Horses     | Cattle     | Sheep       | Pigs       | Value, Million £ |
|--------------------------|------------|------------|-------------|------------|------------------|
| United Kingdom . . . . . | 2,000,000  | 7,950,000  | 27,970,000  | 3,680,000  | 104              |
| France . . . . .         | 3,130,000  | 12,150,000 | 33,300,000  | 5,250,000  | 166              |
| Germany . . . . .        | 2,500,000  | 11,270,000 | 21,330,000  | 3,920,000  | 138              |
| Russia . . . . .         | 13,500,000 | 20,960,000 | 37,530,000  | 8,890,000  | ...              |
| Austria . . . . .        | 3,240,000  | 10,460,000 | 17,080,000  | 7,410,000  | 120              |
| Italy . . . . .          | 800,000    | 3,660,000  | 7,000,000   | 2,000,000  | 36               |
| Spain . . . . .          | 1,500,000  | 1,400,000  | 13,800,000  | 1,300,000  | 40               |
| Portugal . . . . .       | 120,000    | 750,000    | 1,980,000   | 750,000    | 10               |
| Sweden . . . . .         | 400,000    | 1,630,000  | 1,470,000   | 500,000    | 20               |
| Norway . . . . .         | 140,000    | 900,000    | 1,500,000   | 100,000    | 10               |
| Denmark . . . . .        | 300,000    | 880,000    | 1,160,000   | 200,000    | 17               |
| Holland . . . . .        | 270,000    | 1,260,000  | 620,000     | 500,000    | 20               |
| Belgium . . . . .        | 260,000    | 1,100,000  | 660,000     | 650,000    | 16               |
| Switzerland . . . . .    | 90,000     | 950,000    | 550,000     | 280,000    | 8                |
| Turkey, &c. . . . .      | 1,200,000  | 4,800,000  | 18,000,000  | 3,000,000  | 90               |
| Europe . . . . .         | 29,450,000 | 80,120,000 | 183,950,000 | 38,430,000 | ...              |

## CATTLE

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## CATTLE

In 1870 the numbers were approximately :—

|                          | Horses     | Cattle     | Sheep       | Pigs       | Value,<br>Million £ |
|--------------------------|------------|------------|-------------|------------|---------------------|
| United Kingdom . . . . . | 1,900,000  | 8,700,000  | 33,800,000  | 4,200,000  | 170                 |
| France . . . . .         | 2,990,000  | 11,720,000 | 25,900,000  | 5,760,000  | 205                 |
| Germany . . . . .        | 3,200,000  | 15,400,000 | 26,500,000  | 6,800,000  | 212                 |
| Russia . . . . .         | 15,600,000 | 21,400,000 | 45,300,000  | 9,100,000  | ...                 |
| Austria . . . . .        | 3,540,000  | 12,630,000 | 20,100,000  | 6,990,000  | 178                 |
| Italy . . . . .          | 1,020,000  | 3,450,000  | 6,980,000   | 1,550,000  | 45                  |
| Spain . . . . .          | 1,610,000  | 2,450,000  | 20,200,000  | 3,000,000  | 64                  |
| Portugal . . . . .       | 130,000    | 520,000    | 2,420,000   | 860,000    | 10                  |
| Sweden . . . . .         | 430,000    | 1,970,000  | 1,600,000   | 350,000    | 25                  |
| Norway . . . . .         | 150,000    | 980,000    | 1,700,000   | 100,000    | 14                  |
| Denmark . . . . .        | 350,000    | 1,300,000  | 1,800,000   | 440,000    | 20                  |
| Holland . . . . .        | 250,000    | 1,410,000  | 900,000     | 330,000    | 24                  |
| Belgium . . . . .        | 280,000    | 1,240,000  | 600,000     | 630,000    | 20                  |
| Switzerland . . . . .    | 100,000    | 1,010,000  | 570,000     | 340,000    | 10                  |
| Turkey, &c. . . . .      | 1,430,000  | 5,600,000  | 21,000,000  | 3,500,000  | 90                  |
| Europe . . . . .         | 32,980,000 | 89,820,000 | 209,370,000 | 43,950,000 | ...                 |

The returns for 1887 for the various countries show :—

|                          | Horses     | Cattle      | Sheep       | Pigs       | Goats      | Value,<br>Million £ |
|--------------------------|------------|-------------|-------------|------------|------------|---------------------|
| England . . . . .        | 1,240,000  | 5,060,000   | 18,580,000  | 2,270,000  | 305,000    | 104                 |
| Scotland . . . . .       | 190,000    | 1,110,000   | 6,730,000   | 150,000    |            |                     |
| Ireland . . . . .        | 510,000    | 4,100,000   | 3,630,000   | 1,400,000  |            |                     |
| United Kingdom . . . . . | 1,940,000  | 10,270,000  | 28,940,000  | 3,820,000  | 600,000    | 185                 |
| France . . . . .         | 3,200,000  | 13,380,000  | 22,600,000  | 5,850,000  | 1,550,000  | 218                 |
| Germany . . . . .        | 3,520,000  | 15,790,000  | 19,200,000  | 9,210,000  | 2,640,000  | 262                 |
| Russia . . . . .         | 20,020,000 | 23,840,000  | 47,510,000  | 9,200,000  | 1,370,000  | ...                 |
| Austria . . . . .        | 1,480,000  | 8,580,000   | 3,840,000   | 2,720,000  | 1,010,000  | 106                 |
| Hungary . . . . .        | 2,080,000  | 5,310,000   | 9,840,000   | 4,160,000  | 330,000    | 96                  |
| Italy . . . . .          | 1,120,000  | 4,780,000   | 8,590,000   | 1,160,000  | 2,020,000  | 83                  |
| Spain . . . . .          | 1,840,000  | 3,090,000   | 22,800,000  | 4,470,000  | 4,530,000  | ...                 |
| Portugal . . . . .       | 140,000    | 630,000     | 3,000,000   | 970,000    | 940,000    | 13                  |
| Sweden . . . . .         | 490,000    | 2,380,000   | 1,440,000   | 550,000    | 90,000     | 36                  |
| Norway . . . . .         | 150,000    | 1,020,000   | 1,690,000   | 100,000    | 320,000    | 15                  |
| Denmark . . . . .        | 350,000    | 1,470,000   | 1,550,000   | 530,000    | 140,000    | 30                  |
| Holland . . . . .        | 270,000    | 1,480,000   | 750,000     | 430,000    | 160,000    | 28                  |
| Belgium . . . . .        | 270,000    | 1,380,000   | 370,000     | 650,000    | 250,000    | 24                  |
| Switzerland . . . . .    | 110,000    | 1,100,000   | 700,000     | 340,000    | 370,000    | ...                 |
| Finland . . . . .        | ...        | 1,030,000   | 1,030,000   | 150,000    | ...        | 11                  |
| Greece . . . . .         | 100,000    | 260,000     | 2,300,000   | 30,000     | 1,860,000  | ...                 |
| Bosnia . . . . .         | 210,000    | 505,000     | 1,310,000   | ...        | ...        | 9                   |
| Roumania . . . . .       | 600,000    | 3,600,000   | 6,180,000   | 2,310,000  | 190,000    | 37                  |
| Servia . . . . .         | 160,000    | 960,000     | 3,600,000   | 1,700,000  | ...        | 16                  |
| Turkey . . . . .         | 600,000    | 1,000,000   | 10,500,000  | ...        | 720,000    | 26                  |
| Europe . . . . .         | 38,650,000 | 101,855,000 | 197,740,000 | 48,350,000 | 19,090,000 | ...                 |
| United States . . . . .  | 15,400,000 | 49,200,000  | 43,540,000  | 44,350,000 | ...        | 501                 |
| Canada . . . . .         | 1,160,000  | 4,005,000   | 2,600,000   | 1,220,000  | ...        | 44                  |
| Australia . . . . .      | 1,480,000  | 9,140,000   | 96,600,000  | 1,100,000  | ...        | 67                  |
| Cape Colony . . . . .    | 260,000    | 1,270,000   | 13,070,000  | 140,000    | 2,790,000  | 13                  |
| Algeria . . . . .        | 350,000    | 1,210,000   | 8,790,000   | 300,000    | ...        | 28                  |
| Argentina . . . . .      | 4,400,000  | 22,870,000  | 70,450,000  | 300,000    | ...        | 49                  |
| Uruguay . . . . .        | 670,000    | 6,830,000   | 10,540,000  | 100,000    | ...        | 14                  |
| Total . . . . .          | 62,370,000 | 196,380,000 | 443,330,000 | 95,860,000 | 21,880,000 | ...                 |

If we compare the various kinds of cattle with population in Europe at various dates, we find as follows :—

| Year           | Numbers    |             |             |            | Per 1000 Inhabitants |        |       |      |
|----------------|------------|-------------|-------------|------------|----------------------|--------|-------|------|
|                | Horses     | Cattle      | Sheep       | Pigs       | Horses               | Cattle | Sheep | Pigs |
| 1830 . . . . . | 25,520,000 | 67,370,000  | 169,000,000 | 44,460,000 | 11                   | 31     | 77    | 20   |
| 1850 . . . . . | 29,450,000 | 80,100,000  | 183,900,000 | 38,400,000 | 11                   | 32     | 72    | 15   |
| 1870 . . . . . | 32,980,000 | 89,800,000  | 209,400,000 | 43,900,000 | 11                   | 30     | 70    | 15   |
| 1880 . . . . . | 36,100,000 | 96,200,000  | 200,000,000 | 47,000,000 | 11                   | 30     | 63    | 15   |
| 1887 . . . . . | 38,600,000 | 101,800,000 | 197,700,000 | 48,400,000 | 11                   | 30     | 58    | 15   |

# CATTLE

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# CHARITIES

The following table shows the relative figures in Europe for population, horses, cattle, sheep, and pigs at various dates, taking 1830 at 100:—

|                      | 1830 | 1860 | 1870 | 1880 | 1887 |
|----------------------|------|------|------|------|------|
| Population . . . . . | 100  | 118  | 134  | 142  | 150  |
| Horses . . . . .     | 100  | 116  | 130  | 144  | 151  |
| Cattle . . . . .     | 100  | 120  | 135  | 144  | 152  |
| Sheep . . . . .      | 100  | 108  | 123  | 118  | 117  |
| Pigs . . . . .       | 100  | 86   | 99   | 107  | 109  |

It appears, therefore, that the increase of horses and cattle kept pace with that of population. The value of all kinds of cattle at different dates compared with population thus, in Europe:—

| Year           | Population  | Value of Cattle, Millions £ | Ratio per Inhabitant |
|----------------|-------------|-----------------------------|----------------------|
| 1840 . . . . . | 236,200,000 | 875                         | £ s. d.<br>3 14 0    |
| 1860 . . . . . | 275,900,000 | 1,260                       | 4 9 0                |
| 1887 . . . . . | 333,000,000 | 1,900                       | 5 14 0               |

The following table shows the number of each kind of cattle to every 100 inhabitants in each country in 1850 and in 1887:—

| PER 100 INHABITANTS |        |      |        |       |       |       |      |      |
|---------------------|--------|------|--------|-------|-------|-------|------|------|
|                     | Horses |      | Cattle |       | Sheep |       | Pigs |      |
|                     | 1850   | 1887 | 1850   | 1887  | 1850  | 1887  | 1850 | 1887 |
| U. Kingdom          | 6      | 5    | 28     | 28    | 135   | 76    | 15   | 10   |
| France . . .        | 9      | 8    | 40     | 36    | 94    | 60    | 15   | 15   |
| Germany . .         | 7      | 8    | 48     | 35    | 70    | 42    | 16   | 20   |
| Russia . . .        | 22     | 20   | 35     | 28    | 62    | 55    | 15   | 11   |
| Austria . . .       | 11     | 9    | 35     | 37    | 57    | 36    | 25   | 18   |
| Italy . . . .       | 4      | 4    | 17     | 16    | 33    | 28    | 10   | 4    |
| Spain . . . .       | 10     | 11   | 16     | 18    | 110   | 140   | 9    | 28   |
| Portugal . .        | 3      | 3    | 19     | 14    | 50    | 70    | 19   | 22   |
| Sweden . . .        | 11     | 10   | 50     | 52    | 45    | 31    | 11   | 12   |
| Norway . . .        | 10     | 8    | 60     | 50    | 110   | 84    | 7    | 5    |
| Denmark . .         | 40     | 18   | 112    | 74    | 135   | 80    | 33   | 27   |
| Holland . . .       | 8      | 7    | 36     | 35    | 25    | 17    | 7    | 10   |
| Belgium . . .       | 6      | 5    | 27     | 25    | 15    | 7     | 11   | 12   |
| Switzerland .       | 4      | 4    | 38     | 40    | 18    | 25    | 13   | 12   |
| Greece . . .        | 5      | 6    | 20     | 15    | 170   | 130   | 14   | 3    |
| Roumania . .        | ...    | 12   | 40     | 70    | 80    | 115   | 19   | 40   |
| Servia . . . .      | ...    | 8    | 60     | 50    | 215   | 185   | 102  | 90   |
| Europe . . . .      | 11     | 11   | 34     | 30    | 78    | 58    | 16   | 15   |
| United States       | 20     | 25   | 75     | 75    | 97    | 68    | 130  | 69   |
| Canada . . .        | 25     | 23   | 90     | 80    | 100   | 54    | 50   | 25   |
| Australia . .       | 10     | 40   | 160    | 250   | 1,100 | 2,600 | 30   | 30   |
| Cape Colony .       | 33     | 25   | 140    | 120   | 1,800 | 1,300 | 20   | 14   |
| Arg. Republic       | 280    | 120  | 820    | 605   | 1,200 | 1,860 | 10   | 11   |
| Uruguay . . .       | 210    | 110  | 1,340  | 1,140 | 680   | 1,800 | 5    | 5    |

The countries relatively richest in horses and horned cattle are the Argentine Republic and Uruguay, while Australia leads in sheep, and pigs are most numerous in Servia and Roumania. Those poorest in horses are Italy and Spain; in cattle, Portugal; in sheep, Belgium; and in pigs, Greece. The highest prices for animals have

The following table shows the number of beds in various cities and countries:—

| Year | Place                 | Beds  | Beds per 10,000 Inhabitants | Year | Country                  | Beds   | Beds per 10,000 Inhabitants |
|------|-----------------------|-------|-----------------------------|------|--------------------------|--------|-----------------------------|
| 1889 | London . . . . .      | 7,100 | 18                          | 1882 | U. Kingdom . . . . .     | 16,400 | 5                           |
| "    | Dublin . . . . .      | 800   | 21                          | 1885 | France . . . . .         | 73,900 | 19                          |
| 1880 | Paris . . . . .       | 9,000 | 41                          | 1886 | Austria proper . . . . . | 32,500 | 16                          |
| "    | New York . . . . .    | 1,100 | 9                           | "    | Wurttemberg . . . . .    | 8,800  | 47                          |
| 1876 | Rome . . . . .        | 1,500 | 50                          | 1880 | Spain . . . . .          | 18,200 | 10                          |
| 1872 | Rio Janeiro . . . . . | 1,100 | 48                          | 1849 | Prussia . . . . .        | 8,800  | 4                           |

been recorded in England, a cow called Ouida fetching £6200 in 1880, and a horse called Ormond £14,000 in 1889.

## CEMENT

The exportation from the United Kingdom showed thus:—

| Year           | Tons    | Value, £  | Per Ton, £ |
|----------------|---------|-----------|------------|
| 1853 . . . . . | 21,000  | 64,000    | 3.0        |
| 1860 . . . . . | 79,000  | 215,000   | 2.9        |
| 1870 . . . . . | 150,000 | 366,000   | 2.4        |
| 1880 . . . . . | 277,000 | 690,000   | 2.5        |
| 1888 . . . . . | 613,000 | 1,160,000 | 1.9        |

## CHARITIES

The approximate value of property held for charitable purposes in 1880 was:—

|                   | £          | Per Inhabitant |
|-------------------|------------|----------------|
|                   |            | £ s. d.        |
| England . . . . . | 51,300,000 | 2 1 0          |
| France . . . . .  | 70,000,000 | 1 17 0         |
| Italy . . . . .   | 65,300,000 | 2 8 0          |

The supposed expenditure for charitable purposes and sources of income are shown thus:—

|                           | United Kingdom | France    | Italy     |
|---------------------------|----------------|-----------|-----------|
|                           | £              | £         | £         |
| Endowment . . . . .       | 2,490,000      | 2,400,000 | 1,880,000 |
| Annual bequests . . . . . | 650,000        | 1,194,000 | 400,000   |
| Subscription . . . . .    | 6,900,000      | 1,500,000 |           |
| State subsidy . . . . .   | ...            | 460,000   | ...       |
| Total . . . . .           | 10,040,000     | 5,554,000 | 2,280,000 |

In 1889 charitable bequests of the United Kingdom amounted to one million sterling, of which £250,000 fell to London, irrespective of donations by living persons.

Hospitals constitute the principal element of charitable institutions.

Continental hospitals usually receive large municipal subsidies, viz:—

| City                    | Subsidy | Pence per Inhab. | City                  | Subsidy | Pence per Inhab. |
|-------------------------|---------|------------------|-----------------------|---------|------------------|
|                         | £       |                  |                       | £       |                  |
| Paris . . . . .         | 358,000 | 42               | Nantes . . . . .      | 15,000  | 30               |
| Berlin . . . . .        | 70,000  | 16               | Florence . . . . .    | 14,000  | 21               |
| New York . . . . .      | 34,000  | 7                | Venice . . . . .      | 14,000  | 25               |
| Copenhagen . . . . .    | 32,000  | 36               | Stockholm . . . . .   | 11,000  | 16               |
| Leipsic . . . . .       | 31,000  | 55               | Toulouse . . . . .    | 10,000  | 18               |
| Marseilles . . . . .    | 24,000  | 16               | Turin . . . . .       | 10,000  | 13               |
| Vienna . . . . .        | 23,000  | 5                | Buda . . . . .        | 9,000   | 6                |
| Genoa . . . . .         | 23,000  | 27               | Christiania . . . . . | 8,000   | 22               |
| San Francisco . . . . . | 20,000  | 21               | Rennes . . . . .      | 8,000   | 21               |
| Rouen . . . . .         | 19,000  | 44               | Havre . . . . .       | 5,000   | 11               |
| Bordeaux . . . . .      | 17,000  | 18               | Frankfort . . . . .   | 4,000   | 8                |

In the hospitals of the United Kingdom, New York, and France the average of days to each patient are :—

|                   |    |                       |    |
|-------------------|----|-----------------------|----|
| Dublin . . . . .  | 27 | New York . . . . .    | 40 |
| Paris . . . . .   | 28 | All England . . . . . | 31 |
| Glasgow . . . . . | 30 | All France . . . . .  | 35 |

The death-rate of hospitals in various countries is shown thus :—

|                    | Per Cent. |                   | Per Cent. |
|--------------------|-----------|-------------------|-----------|
| England . . . . .  | 8.0       | Austria . . . . . | 8.0       |
| Scotland . . . . . | 9.5       | Rome . . . . .    | 7.1       |
| Ireland . . . . .  | 6.5       | Lisbon . . . . .  | 13.4      |
| France . . . . .   | 9.5       | Norway . . . . .  | 12.0      |

Next in importance after hospitals are asylums for the aged and infirm or for orphans. Those of the United Kingdom and France are shown thus :—

|                          | United Kingdom | France    |
|--------------------------|----------------|-----------|
| Number of beds . . . . . | 104,000        | 120,300   |
| Cost yearly . . . . .    | £2,600,000     | 2,760,000 |

In New York the Children's Aid Society picks up 10,000 yearly, and gives them trades. The orphan asylums of France in 1882 had 61,000 children under training. There are founding hospitals in France (of which later on), that of Paris receiving 3000 infants yearly, of whom 60 per cent. die under 12 months. At Moscow a similar institute receives 12,000 per annum, the boys being brought up for the navy.

For founders of hospitals and asylums see *Munificence*.

#### UNITED KINGDOM

The expenditure for charities is estimated thus :—

|                             | £         |
|-----------------------------|-----------|
| Charity schools . . . . .   | 4,200,000 |
| Asylums and homes . . . . . | 2,600,000 |
| Bible societies . . . . .   | 2,040,000 |
| Hospitals . . . . .         | 1,200,000 |

Total . . . . . 10,040,000

London charities stand for 46 per cent. of the total. They were :—

|                             | Number |       | Expenditure, £ |           |
|-----------------------------|--------|-------|----------------|-----------|
|                             | 1859   | 1889  | 1859           | 1889      |
| Asylums for old, blind, &c. | 135    | 205   | 113,000        | 641,000   |
| Orphanages and homes . .    | 181    | 318   | 409,000        | 835,000   |
| Hospitals and dispensaries  | 92     | 209   | 301,000        | 655,000   |
| Bible missions . . . . .    | 14     | 112   | 460,000        | 1,980,000 |
| Sundry institutions . . . . | 60     | 180   | 400,000        | 570,000   |
| Total . . . . .             | 482    | 1,024 | 1,683,000      | 4,681,000 |

London charities averaged 12s. per inhabitant in 1859, and 22s. in 1889. It is to be observed, however, that in 1889 almost half the total was devoted to Bible missions, most of which had no connection with London charities. The collections on Hospital Sunday in 1889 reached £38,700, those of Hospital Saturday average £5000 a year. These collections were distributed in 1889 among 86 hospitals and 35 dispensaries (the total number in London being 93 and 116 respectively), and the report published showed that in the year 1888 the said 121 institutions received and treated 76,900 indoor and 1,470,000 outdoor patients, at an outlay of £723,000, being £27,000 over income. The London hospitals had altogether nominally 9700 beds, but only 7100 in use, the remaining 2600 being kept vacant for want of funds.\*

\* There were also 27 poor-law infirmaries with 11,900 beds, which cost in the year £336,000, say £28 each. London has in the aggregate 239 institutions for sick relief, which in the year 1887 treated 122,050 indoor and 1,855,000 outdoor patients.

The cost per bed varied from £19 in larger to £42 in smaller hospitals.

The principal hospitals of the United Kingdom in 1882 were :—

| Hospitals             | Founded A.D. | Beds | Annual Patients | Death-Rate |
|-----------------------|--------------|------|-----------------|------------|
| St. Bartholomew's     | 1547         | 600  | 5,500           | 6.0        |
| St. Thomas's . . .    | 1548         | 360  | 3,200           | 12.0       |
| Guy's . . . . .       | 1722         | 620  | 5,600           | 9.7        |
| Bristol . . . . .     | 1735         | 270  | 2,600           | 7.0        |
| Leicester . . . . .   | ...          | 220  | 2,000           | 5.0        |
| Edinburgh . . . .     | 1736         | 500  | 4,500           | 10.5       |
| Aberdeen . . . . .    | 1739         | 240  | 2,100           | 6.5        |
| Manchester . . . .    | 1753         | 330  | 3,000           | 10.8       |
| Liverpool . . . . .   | ...          | 330  | 3,000           | 7.2        |
| Leeds . . . . .       | 1767         | 330  | 3,000           | 7.0        |
| Birmingham . . .      | 1778         | 300  | 2,700           | 8.0        |
| Glasgow . . . . .     | 1794         | 630  | 5,700           | 10.7       |
| Misericordia (Dublin) | 1855         | 230  | 2,100           | 6.5        |
| London (White-chapel) | ...          | 790  | 7,170           | ...        |

There are in the United Kingdom 496 hospitals, with 16,400 beds, relieving 145,000 sick yearly, who are attended by 820 physicians. Total expenditure, £1,200,000, or £8 per patient, equal to 5s. a day for each bed occupied. Death-rate is lowest in small hospitals, viz. :—

|                              |     |
|------------------------------|-----|
| Less than 100 beds . . . . . | 6.5 |
| 100 to 200 beds . . . . .    | 7.1 |
| Over 200 beds . . . . .      | 8.0 |

In the year 1800 there were but 51 hospitals in Great Britain and Ireland.

Charitable endowments have not increased much in the last fifty years. The amounts in 1837 and 1876 compare as follows :—

| Year           | Endowments | Wealth of U. Kingdom in Millions £ | Endowed Sums, per £1000 of Wealth |
|----------------|------------|------------------------------------|-----------------------------------|
| 1837 . . . . . | 42,600,000 | 4,100                              | £ 5. 8. 0                         |
| 1876 . . . . . | 51,300,000 | 8,050                              | £ 6. 8. 0                         |

The income of endowed charities has actually declined since 1876, viz. :—

|                |           |
|----------------|-----------|
| 1837 . . . . . | 1,940,000 |
| 1876 . . . . . | 2,108,000 |
| 1888 . . . . . | 2,052,000 |

The endowments on which income-tax was refunded in 1888 were :—

|                            |           |
|----------------------------|-----------|
| Hospitals . . . . .        | 535,000   |
| Almshouses, &c. . . . .    | 588,000   |
| Schools . . . . .          | 779,000   |
| Religious purposes . . . . | 150,000   |
| Total . . . . .            | 2,052,000 |

The investment and income of endowments in 1876 showed :—

|                       | Capital, £ | Income, £ |
|-----------------------|------------|-----------|
| Real estate . . . . . | 31,100,000 | 1,558,000 |
| Stocks . . . . .      | 20,200,000 | 640,000   |
| Total . . . . .       | 51,300,000 | 2,198,000 |

The real estate comprises 154,000 acres of land and some house property.

The above does not include Irish endowed charities, which had in 1876 an income of £270,000 per annum.

## FRANCE

Hospital returns for 1864 and 1885 compare as follows:—

|            | Admitted |         | Average Days |      | Died   |        | Deaths Per 100 |      |
|------------|----------|---------|--------------|------|--------|--------|----------------|------|
|            | 1864     | 1885    | 1864         | 1885 | 1864   | 1885   | 1864           | 1885 |
| Men . . .  | 203,100  | 236,200 | 30           | 32   | 16,480 | 22,700 | 8.1            | 8.7  |
| Women . .  | 81,300   | 124,400 | 35           | 38   | 10,430 | 14,700 | 12.8           | 10.5 |
| Children . | 26,800   | 44,500  | 42           | 58   | 2,780  | 5,500  | 10.4           | 10.8 |
| Total      | 311,200  | 405,100 | 32           | 36   | 29,690 | 42,900 | 9.5            | 9.5  |

The above hospitals in 1864 had a staff as follows:—

|                              |       |
|------------------------------|-------|
| Physicians . . . . .         | 2,348 |
| Sisters of Charity . . . . . | 8,854 |
| Servants, &c. . . . .        | 9,561 |

Total . . . . . 20,763

The expenditure was £2,320,000, say £7. 10s. per patient; the income was £2,480,000, leaving a surplus of £160,000.

In 1845 France had 9244 charitable institutions, with a gross annual outlay of £4,620,000, viz:—

|                               |           |
|-------------------------------|-----------|
| 1,138 hospitals . . . . .     | 2,140,000 |
| 7,600 soup-kitchens . . . . . | 540,000   |
| 506 asylums . . . . .         | 1,940,000 |

Total, 9,244 . . . . . 4,620,000

The summary of such institutions in 1881 and 1885 was as follows:—

|                      | Beds    |         | Finances  |           |
|----------------------|---------|---------|-----------|-----------|
|                      | 1881    | 1885    | 1881      | 1885      |
| Hospitals . . . . .  | 71,900  | 73,900  |           |           |
| Orphanages . . . . . | 17,200  | 16,700  |           |           |
| Asylums, &c. . . . . | 77,300  | 79,400  |           |           |
|                      |         |         | Receipts  |           |
|                      |         |         | Expenses  |           |
| Total . . . . .      | 166,400 | 170,000 | 4,320,000 | 4,360,000 |

Asylums and orphanages in 1885 showed as follows:—

|                      | Asylums |        |          |        | Orphanages |        |        |
|----------------------|---------|--------|----------|--------|------------|--------|--------|
|                      | Men     | Women  | Children | Total  | Boys       | Girls  | Total  |
| Admitted . . . . .   | 28,200  | 30,100 | 7,200    | 65,500 | 34,900     | 31,700 | 66,600 |
| Died . . . . .       | 3,900   | 3,900  | 410      | 8,210  | 1,390      | 1,350  | 2,740  |
| Death-rate . . . . . | 13.8    | 13.0   | 5.7      | 12.5   | 4.0        | 4.5    | 4.2    |

The expenses of the orphanages were £680,000, being a little over £10 per child.

The statistics of soup-kitchens or relief offices showed thus:—

|                            | 1840    | 1881      | 1885      |
|----------------------------|---------|-----------|-----------|
| Number . . . . .           | 7,600   | 14,033    | 14,574    |
| Persons assisted . . . . . | 696,000 | 1,449,000 | 1,778,000 |
| Expenditure, £ . . . . .   | 540,000 | 1,240,000 | 1,360,000 |

The sums received for soup-kitchens were £1,920,000 in 1881, and £2,080,000 in 1885. In the latter year £840,000 was distributed in food, £320,000 in money, and the management cost £200,000, or 15 per cent. of the annual outlay.

The number of hospitals and asylums in 1791 was 1224, and rose in 1869 to 1557, viz:—

|                             |     |
|-----------------------------|-----|
| For sick . . . . .          | 415 |
| For aged . . . . .          | 291 |
| For sick and aged . . . . . | 851 |

Total . . . . . 1,557

In 1876 the above institutions admitted 438,000 persons. A statement published in 1845 showed the amount of charitable bequests as follows:—

| Period             | To Hospitals | To Clergy | To Convents, &c. | Total     |
|--------------------|--------------|-----------|------------------|-----------|
| 1801-14 . . . . .  | 600,000      | 7,000     | 8,000            | 615,000   |
| 1815-29 . . . . .  | 2,040,000    | 72,000    | 780,000          | 2,892,000 |
| 1830-45 . . . . .  | 2,260,000    | 112,000   | 232,000          | 2,604,000 |
| 45 years . . . . . | 4,900,000    | 191,000   | 1,020,000        | 6,111,000 |

In 1881 it was stated that the average number of charitable bequests yearly of all descriptions was 4200, averaging £290 each, say £1,220,000. Foundling hospitals were established at Paris by St. Vincent de Paul in 1642, the Government giving a subsidy of £120, which was raised in 1657 to 40,000 livres, or £1600 per annum. There was, however, a foundling hospital established at Lyons in 1526, which received in the eighteenth century about 1700 infants yearly. The statistics of the Paris Foundling House were:—

| Admitted                       | 1760  | 1860  |
|--------------------------------|-------|-------|
| Legitimate infants . . . . .   | 735   | 594   |
| Illegitimate infants . . . . . | 4,297 | 3,205 |
| Total . . . . .                | 5,032 | 3,799 |

The statistics of Night Refuges and Foundling Asylums at Paris from 1876 to 1883 showed thus:—

| Period            | Annual Average |            |
|-------------------|----------------|------------|
|                   | Night Refuge   | Foundlings |
| 1876-79 . . . . . | 3,965          | 2,545      |
| 1880-83 . . . . . | 6,660          | 2,865      |

Among the French charities are lying-in hospitals, where 68,000 confinements took place in 1876, at a cost to the State of only £17,000; besides dispensaries, which gave medicine the same year to 660,000 persons, at a cost of £224,000 for the year.

The hospitals of Paris, which admitted in 1813 only 32,000 patients, now admit 110,000 sick yearly, the deaths averaging 11,600 per annum, or 10½ per cent., against 12½ per cent. in the years 1861-62. Paris has at present:—

21 hospitals with 9,000 beds  
13 asylums „ 10,000 „

This is, of course, exclusive of lunatic asylums. The principal hospital is the Hotel Dieu, with 514 beds, which cost for building £1,600,000, say £3000 per bed, or ten times the ordinary cost.

## ITALY

The endowed capital of charitable institutions in 1878 amounted to £65,040,000, belonging to 17,870 institutions, and yielding a gross revenue of £3,640,000, but a net income of only £1,880,000, distributed as follows:—

|                                 |         |
|---------------------------------|---------|
| Orphanages . . . . .            | 229,000 |
| Marriage-portions . . . . .     | 192,000 |
| Alms to indigent . . . . .      | 440,000 |
| Alms to sick poor . . . . .     | 120,000 |
| Hospitals, prisons, &c. . . . . | 899,000 |

Total . . . . . 1,880,000

Charitable bequests average £124,000 per annum. The principal hospital at Rome is Santo Spirito, which admitted in 1871-76 an average of 22,600 patients yearly, of whom only 6 per cent. died. The death-rate from July to October was only  $\frac{3}{4}$  per cent. of patients admitted, but in the rest of the year over 9 per cent. The annual death-rate from 1861-70 averaged  $\frac{8}{10}$  per cent. In 1878 there were 102 foundling asylums, with endowed property yielding £65,000 yearly; they admit 40,000 infants yearly.

## AUSTRIA

The hospitals of Austria proper in 1886 were as follows:—

|                   | No. | Beds   | Admitted | Died   | Death-Rate | Average Days |
|-------------------|-----|--------|----------|--------|------------|--------------|
| Public . . . . .  | 176 | 21,830 | 220,000  | 21,980 | 10.0       | 26           |
| Private . . . . . | 381 | 10,660 | 75,000   | 7,370  | 9.8        | 25           |
| Total . . . . .   | 557 | 32,490 | 295,000  | 29,350 | 9.9        | 26           |

The public charitable institutions in 1886 summed up thus:—

|                              | Admitted | Cost, £ | Per Patient, £ |
|------------------------------|----------|---------|----------------|
| Hospitals . . . . .          | 220,000  | 360,000 | 1.6            |
| Lying-in hospitals . . . . . | 16,000   | 32,000  | 2.0            |
| Foundling houses . . . . .   | 43,000   | 160,000 | 3.9            |
| Asylums for old . . . . .    | 37,690   | 205,000 | 5.2            |
| Soup-kitchens . . . . .      | 228,950  | 360,000 | 1.6            |
| Orphanages . . . . .         | 124,030  | ...     | ...            |

The following table shows the number of these institutions, and the numbers admitted according to sex:—

|                         | Institutes | Males   | Females | Total Entries |
|-------------------------|------------|---------|---------|---------------|
| Orphanages . . . . .    | 1,024      | 64,850  | 59,180  | 124,030       |
| Aged persons . . . . .  | 1,579      | 16,460  | 21,230  | 37,690        |
| Soup-kitchens . . . . . | 10,645     | 111,940 | 117,010 | 228,950       |

The lying-in hospitals had 1557 beds, and admitted 16,605 women for confinement, who gave birth to 15,015 infants; average of days for each woman under treatment, 18; average number of beds occupied, 820; average cost, 27 pence daily per mother. The number of deaths was:—

|                   | Per 100 |
|-------------------|---------|
| Mothers . . . . . | 0.9     |
| Infants . . . . . | 6.1     |

The foundling houses admitted during the year 42,870 children, three-fourths being at once put out to nurse. The year's returns showed:—

|                    | Infants | Died  | Death-Rate |
|--------------------|---------|-------|------------|
| In-door . . . . .  | 9,740   | 653   | 6.7        |
| Out-door . . . . . | 33,130  | 4,962 | 15.0       |
| Total . . . . .    | 42,870  | 5,615 | 13.5       |

The asylums for aged and infirm showed an average expenditure of sevenpence per head daily.

The only returns published for Hungary are those of orphanages and asylums for 1886, viz.:—

|                      | Males | Females | Total | Cost, £ | Per Head, £ |
|----------------------|-------|---------|-------|---------|-------------|
| Orphanages . . . . . | 1,015 | 1,581   | 2,596 | 23,000  | 9.0         |
| Asylums . . . . .    | 1,443 | 2,060   | 3,503 | 31,000  | 9.0         |
| Total . . . . .      | 2,458 | 3,641   | 6,099 | 54,000  | 9.0         |

## VARIOUS COUNTRIES

Belgium in 1889 had 190,000 acres of land belonging to hospitals and similar institutions. Charitable bequests were as follows:—

| Year           | No. | Amount, £ |
|----------------|-----|-----------|
| 1882 . . . . . | 603 | 188,000   |
| 1887 . . . . . | 926 | 105,000   |

The orphanages in 1887 contained 490 boys, 1213 girls—in all 1703, against 3473 in 1875, a decline of 50 per cent.

Norway has 44 hospitals, admitting yearly 8400 sick, of whom 12 per cent. die.

Brazil possesses the Misericordia Hospital of Rio Janeiro, one of the largest in the world. The returns for 1861-72 showed per annum:—

|                      | Admitted | Died  | Per Cent. |
|----------------------|----------|-------|-----------|
| Sick . . . . .       | 12,698   | 2,090 | 16.7      |
| Insane . . . . .     | 425      | 53    | 12.7      |
| Foundlings . . . . . | 601      | 296   | 48.5      |
| Total . . . . .      | 13,724   | 2,439 | 17.8      |

The New York hospitals in 1882 showed thus:—

|                        | Revenues | Patients                     |
|------------------------|----------|------------------------------|
| Subsidies . . . . .    | £34,000  | Free . . . . . 6,945         |
| Pay patients . . . . . | 16,000   | Pay . . . . . 2,220          |
| Donations . . . . .    | 38,000   | Total . . . . . 9,165        |
| Receipts . . . . .     | £88,000  | Days free . . . . . 262,000  |
| Expenditure . . . . .  | £92,000  | Total days . . . . . 368,000 |

The average was 37 days to each free, and 48 to each paying, patient, and the cost in general £10 per patient, or 5s. per day.

## CHEESE

Two analyses are given of the various kinds:—

|                    | Chester | Parma | Brie  | Dutch | Gruyère |
|--------------------|---------|-------|-------|-------|---------|
| Water . . . . .    | 30.4    | 30.3  | 34.0  | 41.4  | 32.1    |
| Nitrogen . . . . . | 8.0     | 7.9   | 5.1   | 7.0   | 8.0     |
| Fat . . . . .      | 36.6    | 31.1  | 53.3  | 42.8  | 41.8    |
| Various . . . . .  | 25.0    | 30.7  | 7.6   | 8.8   | 18.1    |
| Total . . . . .    | 100.0   | 100.0 | 100.0 | 100.0 | 100.0   |

|                  | Chester | Parma | Brie  | Dutch | Gruyère | Camembert | Roquefort | Neuchâtel |
|------------------|---------|-------|-------|-------|---------|-----------|-----------|-----------|
| Water . . . . .  | 35.9    | 27.6  | 45.3  | 36.1  | 40.0    | 51.9      | 35.6      | 36.6      |
| Azote . . . . .  | 4.1     | 7.0   | 2.9   | 4.8   | 5.0     | 3.0       | 4.2       | 1.3       |
| Fat . . . . .    | 26.3    | 16.0  | 25.7  | 27.5  | 24.0    | 21.1      | 30.1      | 40.7      |
| Salt . . . . .   | 4.2     | 5.7   | 5.6   | 6.9   | 3.0     | 4.7       | 5.1       | 0.5       |
| Sundry . . . . . | 29.5    | 43.7  | 20.5  | 24.7  | 28.0    | 19.3      | 25.0      | 20.9      |
| Total . . . . .  | 100.0   | 100.0 | 100.0 | 100.0 | 100.0   | 100.0     | 100.0     | 100.0     |

The value of cheese produced yearly by a good cow is estimated in Canada at £7, in Parma at £10, in Neuchâtel at £14, and at Camembert (France) at £36 sterling. The quantity produced annually in the United Kingdom is probably about 40,000 tons, or one-third of the consumption, the importation reaching 82,000 tons yearly. See *Dairy*.



**CHURCH**

The following table shows the number of churches and clergy in various countries (1880-82):—

|                         | Churches | Clergy | Number of Inhabitants to each Clergyman |
|-------------------------|----------|--------|-----------------------------------------|
| England . . . . .       | 35,916   | 41,320 | 610                                     |
| Ireland . . . . .       | 4,540    | 4,110  | 1,270                                   |
| France . . . . .        | 39,314   | 42,543 | 900                                     |
| Germany . . . . .       | 37,720   | 31,910 | 1,420                                   |
| Austria . . . . .       | 36,180   | 55,240 | 700                                     |
| Russia . . . . .        | 42,670   | 49,330 | 1,700                                   |
| Italy . . . . .         | 22,260   | 40,150 | 750                                     |
| Spain . . . . .         | 18,600   | 42,765 | 400                                     |
| United States . . . . . | 92,167   | 77,230 | 630                                     |
| Australia . . . . .     | 6,013    | 2,155  | 1,300                                   |

There are 126 Protestant bishops in the British Empire, viz:—

|                        | Arch-bishops | Bishops    | Total      |
|------------------------|--------------|------------|------------|
| England . . . . .      | 2            | 32         | 34         |
| Scotland . . . . .     | ...          | 7          | 7          |
| Ireland . . . . .      | 2            | 10         | 12         |
| Colonies . . . . .     | ...          | 73         | 73         |
| <b>Total . . . . .</b> | <b>4</b>     | <b>122</b> | <b>126</b> |

The income of English bishops ranges from £3000 upwards, the Archbishop of Canterbury having £15,000 a year.

Since the report published in 1835, the English bishops have been increased from 27 to 34, the Irish reduced from 16 to 12.

There are 1263 bishops of the Roman Catholic Church, of whom 130 hold sees in the British Empire:—

|                               | Arch-bishops | Bishops      | Total        |
|-------------------------------|--------------|--------------|--------------|
| United Kingdom . . . . .      | 7            | 42           | 49           |
| France . . . . .              | 17           | 69           | 86           |
| Germany . . . . .             | 5            | 23           | 28           |
| Russia . . . . .              | 2            | 13           | 15           |
| Austria . . . . .             | 19           | 51           | 70           |
| Italy . . . . .               | 50           | 218          | 268          |
| Spain . . . . .               | 9            | 45           | 54           |
| Portugal . . . . .            | 3            | 15           | 18           |
| Belgium and Holland . . . . . | 2            | 10           | 12           |
| Switzerland . . . . .         | ...          | 6            | 6            |
| Greece . . . . .              | 3            | 6            | 9            |
| Turkey . . . . .              | 3            | 12           | 15           |
| <b>Europe . . . . .</b>       | <b>120</b>   | <b>510</b>   | <b>630</b>   |
| United States . . . . .       | 12           | 52           | 64           |
| Spanish America . . . . .     | 16           | 79           | 95           |
| British America . . . . .     | 5            | 25           | 30           |
| Australia . . . . .           | 2            | 16           | 18           |
| India . . . . .               | 2            | 22           | 24           |
| Armenia, Persia, &c. . . . .  | 27           | 47           | 74           |
| Various missions . . . . .    | ...          | 328          | 328          |
| <b>Total . . . . .</b>        | <b>184</b>   | <b>1,079</b> | <b>1,263</b> |

There are 901 bishops holding Sees in communion with Rome, besides 362 acting as vicars-apostolic on missions.

| Rite                         | Archbishops | Bishops    | Total      |
|------------------------------|-------------|------------|------------|
| Latin . . . . .              | 151         | 674        | 825        |
| Greek, Armenian, &c. . . . . | 33          | 43         | 76         |
| <b>Total . . . . .</b>       | <b>184</b>  | <b>717</b> | <b>901</b> |

**UNITED KINGDOM**

The report of 1835 regarding the Established Church was as follows:—

|                        | Clergy, Number |              |               | Net Tithes, £    |                |                  |
|------------------------|----------------|--------------|---------------|------------------|----------------|------------------|
|                        | England        | Ireland      | Total         | England          | Ireland        | Total            |
| Rectors . . . . .      | 10,718         | 1,395        | 12,113        | 3,055,000        | 520,000        | 3,575,000        |
| Vicars . . . . .       | 4,813          | 833          | 5,646         |                  |                |                  |
| Canoes . . . . .       | 733            | 426          | 1,159         |                  |                |                  |
| Bishops . . . . .      | 27             | 16           | 43            | 435,000          | 214,000        | 649,000          |
| <b>Total . . . . .</b> | <b>16,291</b>  | <b>2,670</b> | <b>18,961</b> | <b>3,490,000</b> | <b>734,000</b> | <b>4,224,000</b> |

The patronage of the various livings was as follows:—

| Nominated by           | England       | Ireland      | Total         |
|------------------------|---------------|--------------|---------------|
| Crown . . . . .        | 952           | 131          | 1,083         |
| Noblemen . . . . .     | 5,096         | 340          | 5,436         |
| Bishops, &c. . . . .   | 4,694         | 924          | 5,618         |
| <b>Total . . . . .</b> | <b>10,742</b> | <b>1,395</b> | <b>12,137</b> |

In 1850 the income of the Established Church of England and Wales was as follows:—

|                        | Number     | Income           | Average    |
|------------------------|------------|------------------|------------|
| Clergy . . . . .       | 10,478     | £3,005,000       | £285       |
| Bishops . . . . .      | 27         | 160,000          | 6,000      |
| Chapels . . . . .      | ...        | 253,000          | ...        |
| <b>Total . . . . .</b> | <b>...</b> | <b>3,418,000</b> | <b>...</b> |

| Income                 | Clergy, No.   |
|------------------------|---------------|
| Under £100 . . . . .   | 1,926         |
| 100-200 . . . . .      | 2,956         |
| 200-500 . . . . .      | 4,135         |
| Over 500 . . . . .     | 1,461         |
| <b>Total . . . . .</b> | <b>10,478</b> |

A report published in 1880 upon the income of the Established Church in England and Wales, was as follows:—

|                            | £                |
|----------------------------|------------------|
| Tithes . . . . .           | 4,054,000        |
| Committee grants . . . . . | 776,000          |
| Other sources . . . . .    | 973,000          |
| <b>Total . . . . .</b>     | <b>5,803,000</b> |

The above, however, includes £962,000 of tithes that go to laymen, which leaves the real church income at £4,841,000, distributed as follows:—

| Clergy        | Number | Income    | Per Head |
|---------------|--------|-----------|----------|
| Bishops . . . | 33     | 168,000   | 5,100    |
| Canons . . .  | 166    | 240,000   | 1,440    |
| Rectors . . . | 11,780 | 3,830,000 | 330      |
| Curates . . . | 5,050  | 565,000   | 120      |
| Total . . .   | 17,029 | 4,803,000 | ...      |

Besides the above there is an offertory which has been found to range from £100 to £240 a year, and is supposed to average £120, that is £2,220,000.

At the same time the patronage of livings was as follows :—

| Proprietor         | No.    |
|--------------------|--------|
| Crown . . . . .    | 967    |
| Noblemen . . . . . | 5,357  |
| Bishops . . . . .  | 2,088  |
| Various . . . . .  | 4,476  |
| Total . . . . .    | 12,888 |

The Ecclesiastical Report for 1880 shows that in 40 years the Commissioners expended 22½ millions in creating new endowments to an annual value of £746,000 in aid of 4700 distressed parishes, say £160 each. The Commissioners distribute about £700,000 a year in creating new benefices, to an average amount of £23,000 per annum. Balance still in hand, £8,200,000. The above tables do not include collegiate endowments, worth £550,000 a year. Total clergy of Church of England, 19,000, including 2000 schoolmasters. The Church of England has, moreover, 232 clergymen in Scotland, 820 in Ireland, and 2700 in colonies and foreign countries, making a grand total of 22,752.

The official statement of the Anglican Church in Ireland in 1880 was :—

|                               |                            |
|-------------------------------|----------------------------|
| Number of clergy . . . 820    | Donations . . . £118,000   |
| Number of laity . . . 635,100 | Total income . . £248,000  |
| Endowment . . . £130,000      | Endowed capital £3,260,000 |

There are 12 bishops who receive £41,500 per annum, average £3600 each.

In November 1880 the residue of property formerly belonging to the Protestant Church in Ireland was valued at 12 millions, producing a revenue of £574,000, to be devoted to purposes of general utility or beneficence. In 1889 all had been disposed of, except a surplus of £27,000 per annum.

The Presbyterian Church in Ireland comprises 553 chapels, with an income of £168,000, of which £102,000 goes to the pastors.

In a report on the Established Church of Scotland in 1890, the annual income was shown as follows :—

| Period        | £       | Period        | £       |
|---------------|---------|---------------|---------|
| 1851-60 . . . | 208,000 | 1871-80 . . . | 515,000 |
| 1861-70 . . . | 371,000 | 1881-90 . . . | 607,000 |

The number of churches in England and Wales in 1883 was :—

|                              |                          |
|------------------------------|--------------------------|
| Church of England . . 14,573 | Quaker . . . . . 375     |
| Methodist . . . . . 11,514   | Presbyterian . . . . 201 |
| Independent . . . . . 2,603  | Jewish . . . . . 60      |
| Baptist . . . . . 2,243      | Various . . . . . 2,628  |
| Calvinist . . . . . 895      |                          |
| Roman Catholic . . . 824     | Total . . . . . 35,916   |

In the above are not included 364 Roman Catholic chapels attached to religious houses, possessing no marriage licence.

In 1882 the Roman Catholic Church in the British Empire stood thus :—

|                    | Bishops | Priests | Churches | Laity     |
|--------------------|---------|---------|----------|-----------|
| England . . . .    | 15      | 2,112   | 1,188    | 1,066,000 |
| Scotland . . . .   | 6       | 306     | 295      | 318,000   |
| Ireland . . . .    | 28      | 3,290   | 2,760    | 3,952,000 |
| Canada . . . .     | 24      | 1,210   | 1,050    | 2,150,000 |
| Australia . . . .  | 16      | 376     | 787      | 584,000   |
| India . . . . .    | 22      | 1,179   | ...      | 1,318,000 |
| Other colonies . . | 20      | 315     | 240      | 466,000   |
| Total . . . . .    | 131     | 8,788   | 6,520    | 9,854,000 |

The average income in the United Kingdom is £400 for a bishop, and £80 for a priest. In India it is £260 per bishop, and £36 per priest. In Canada and Australia it is higher than in England.

#### UNITED STATES

The Census of 1880, and the estimates of numbers of congregations from that of pews, showed as follows :—

|                   | Churches | Ministers | Laity      | Property, 1870 |
|-------------------|----------|-----------|------------|----------------|
| Baptist . . . .   | 24,794   | 15,401    | 8,532,000  | 8,400,000      |
| Methodist . . .   | 28,281   | 16,759    | 10,944,000 | 14,100,000     |
| Presbyterian . .  | 10,474   | 8,026     | 3,564,000  | 10,600,000     |
| Roman Catholic .  | 5,975    | 6,366     | 6,371,000  | 12,200,000     |
| Lutheran . . . .  | 5,556    | 3,102     | 2,740,000  | 1,200,000      |
| Christian Discip. | 4,681    | 3,658     | 2,268,000  | 1,200,000      |
| Congregational .  | 3,689    | 3,589     | 1,334,000  | 5,100,000      |
| Episcopal . . . . | 3,104    | 3,564     | 1,412,000  | 7,200,000      |
| United Brethren . | 2,573    | 2,563     | 1,196,000  | 400,000        |
| Unitarians . . .  | 342      | 394       | 172,000    | 1,200,000      |
| Quakers . . . .   | 621      | 876       | 272,000    | 800,000        |
| Jews . . . . .    | 269      | 202       | 70,000     | 1,000,000      |
| Mormons . . . .   | 654      | 3,906     | 440,000    | 200,000        |
| Various . . . .   | 1,154    | 8,824     | 10,841,000 | 7,200,000      |
| Total . . . . .   | 92,167   | 77,230    | 50,156,000 | 70,800,000     |

At the opening of the Washington Catholic University in October 1889, Cardinal Gibbons stated that in 1789 (when Dr. O'Carroll was consecrated first bishop) the total number of Catholics was only 40,000, and that they are now about 9,000,000, with 84 bishops, 8000 priests, 10,500 churches, 520 hospitals and orphan asylums, 677 colleges, and 3100 schools.

#### FRANCE

The official statistics in 1880 were as follows :—

|                                    |          |
|------------------------------------|----------|
| Clergy of all ranks . . . . .      | 55,400   |
| Sisters of charity, &c. . . . .    | 125,400  |
| Church endowed incomes . . . .     | £190,000 |
| Schools, convents, asylums . . . . | £800,000 |

The capital value of endowments for churches, schools, convents, and asylums amounted in 1880 to £23,300,000. The annual State subsidy is £1,740,000, equal to 1s. per inhabitant, or £40 a year for each priest. The ordinary income of a curé is £80.

Official returns show the number of clergy and of young men ordained priests yearly as follows :—

| Year           | Clergy | Ordained during Year |
|----------------|--------|----------------------|
| 1861 . . . . . | 54,400 | 1,206                |
| 1880 . . . . . | 55,400 | 1,541                |
| 1885 . . . . . | 54,500 | 1,527                |

This would show that a priest's life averages 36 years from ordination, or a life span of about 63 years.

## ITALY

The Italian Government confiscated properties worth 55 millions sterling, of which nearly half has been sold, viz.:-

|                      | Capital, £ | Income, £ |
|----------------------|------------|-----------|
| Sold (1868-80) . . . | 21,200,000 | 1,450,000 |
| Held by State . . .  | 33,900,000 | 1,240,000 |

Total . . . 55,100,000      2,690,000

Out of the above income the Italian Government pays £428,000 per annum to 32,590 monks and nuns, say £13 each. The Pope has always refused the allowance of £120,000 a year offered him, and is maintained by Peter's pence from all nations.

The amount of Peter's pence in 1889 was said to be as follows :-

|                     |        |                   |       |
|---------------------|--------|-------------------|-------|
| Austria . . .       | 16,000 | Ireland . . .     | 6,000 |
| Italy . . .         | 14,200 | Portugal . . .    | 6,000 |
| France . . .        | 12,800 | Asia . . .        | 4,000 |
| South America . . . | 12,400 | Roumania . . .    | 4,000 |
| Spain . . .         | 8,000  | England . . .     | 3,800 |
| North America . . . | 7,400  | Africa . . .      | 3,800 |
| Germany . . .       | 7,200  | Poland . . .      | 3,400 |
| Belgium . . .       | 6,200  | Switzerland . . . | 2,200 |

Besides other countries, the whole amounting to £120,000 sterling.

The Vatican records show that there have been 257 Popes, the longest reign being that of Pius IX., who sat for 32 years, the average being 7½ years. The table of duration shows thus :-

|                     |    |                     |     |
|---------------------|----|---------------------|-----|
| Over 20 years . . . | 11 | 5-10 years . . .    | 57  |
| 10-20 " . . .       | 69 | Under 5 years . . . | 120 |

The nationality of the various Popes has been as follows :-

|                  |   |               |     |
|------------------|---|---------------|-----|
| English . . .    | 1 | Spanish . . . | 5   |
| Dutch . . .      | 1 | German . . .  | 6   |
| Swiss . . .      | 1 | Syrian . . .  | 8   |
| Portuguese . . . | 1 | Greek . . .   | 14  |
| African . . .    | 2 | French . . .  | 15  |
| Austrian . . .   | 2 | Italian . . . | 201 |

The number of parochial clergy in Italy is 20,067, of whom 2236 have less than £30 a year income.

## AUSTRIA.

There are 98 Roman Catholic bishops, and the Church forests and other properties are valued at 19 millions sterling. Total Church revenue, £1,890,100, the highest income being £30,000 per annum to the Archbishop of Olmutz. Priests average £30 a year.

The latest returns of the clergy show thus :-

|                                    | Austria | Hungary | Total  |
|------------------------------------|---------|---------|--------|
| Latin priests . . .                | 15,026  | 4,206   | 19,232 |
| Roman Catholic Greek priests . . . | 2,110   | 2,128   | 4,238  |
| Russian Greek priests . . .        | 446     | 2,900   | 3,346  |
| Protestant clergy . . .            | 232     | 3,602   | 3,834  |
| Jewish pastors . . .               | ...     | 740     | ...    |
| Total . . .                        | 17,814  | 13,576  | 31,390 |

## GERMANY.

In 1849 the churches and pastors in Prussia were :-

|                      | Churches | Pastors |
|----------------------|----------|---------|
| Protestant . . .     | 9,001    | 6,139   |
| Roman Catholic . . . | 7,238    | 5,605   |
| Jewish . . .         | 901      | ..      |
| Total . . .          | 17,140   | 11,744  |

In 1880 the Census showed for all Germany as follows :-

|                |        |
|----------------|--------|
| Churches . . . | 37,720 |
| Clergy . . .   | 31,910 |

The Protestant Church will probably stand for about 18,000 clergy and 20,000 churches, the Roman Catholic about 12,000 clergy and 15,000 churches: there are 28 Catholic bishops, including 5 archbishops.

## RUSSIA

According to Government reports published in 1880, we find :-

|                          |        |                    |        |
|--------------------------|--------|--------------------|--------|
| Bishops . . . . .        | 40     | Convents . . . . . | 550    |
| Parish priests . . . . . | 49,200 | Churches . . . . . | 35,400 |

The State subsidy is £800,000 per annum, besides which the Church lands give a revenue of £17 to each priest.

In 1801 Russia had 18,300 parish churches, 67,700 clergy, and 554 convents and monasteries, containing 7300 monks and 1300 nuns.

In 1839 there were 29,500 churches of all denominations, with :-

|                          | Clergy |
|--------------------------|--------|
| Greek . . . . .          | 52,300 |
| Roman Catholic . . . . . | 10,330 |
| Protestant . . . . .     | 1,050  |

Total . . . . . 63,680

Besides 63,000 deacons and assistants of the Greek Church.

## BELGIUM

Church properties cover 60,000 acres; there are 6 bishops, and 5428 churches, being a church for 1100 inhabitants, besides 1560 convents.

## HOLLAND

The latest returns show as follows :-

|                          | Churches | Clergy |
|--------------------------|----------|--------|
| Protestant . . . . .     | 2,001    | 2,125  |
| Roman Catholic . . . . . | 1,022    | 2,371  |
| Jews . . . . .           | 182      | 137    |
| Total . . . . .          | 3,205    | 4,633  |

## SPAIN.

There are 54 bishops, 32,400 priests, 1680 monks, 14,600 nuns, 18,600 churches, including 65 cathedrals.

## AUSTRALIA

The condition of the various creeds in 1881 was as follows :-

|                         | Churches | Ministers | Lality    | Churches per 100,000 inhabitants |
|-------------------------|----------|-----------|-----------|----------------------------------|
| Church of England . . . | 1,398    | 659       | 1,070,000 | 142                              |
| Roman Catholics . . .   | 791      | 378       | 615,000   | 136                              |
| Methodists . . . . .    | 1,608    | 359       | 301,000   | 402                              |
| Presbyterians . . . . . | 1,046    | 370       | 374,000   | 285                              |
| Various . . . . .       | 1,170    | 389       | 382,000   | 218                              |
| Total . . . . .         | 6,013    | 2,155     | 2,742,000 | 210                              |

|                        | Churches | Ministers | Sunday Schools |
|------------------------|----------|-----------|----------------|
| New South Wales . . .  | 1,330    | 706       | 1,285          |
| Victoria . . . . .     | 2,843    | 759       | 1,557          |
| South Australia . . .  | 725      | 165       | 570            |
| New Zealand . . . . .  | 553      | 277       | 360            |
| Queensland . . . . .   | 172      | 76        | 100            |
| Tasmania . . . . .     | 319      | 139       | 112            |
| West Australia . . . . | 71       | 33        | 40             |
| Total . . . . .        | 6,013    | 2,155     | 4,024          |

## CITIES

|                          | Population<br>(1000) | Per 1000 Inhabitants |        |          | Mean<br>Annual<br>Temperature |                          | Population<br>(1000) | Per 1000 Inhabitants |        |          | Mean<br>Annual<br>Temperature |
|--------------------------|----------------------|----------------------|--------|----------|-------------------------------|--------------------------|----------------------|----------------------|--------|----------|-------------------------------|
|                          |                      | Births               | Deaths | Increase |                               |                          |                      | Births               | Deaths | Increase |                               |
| Alexandria . . . . .     | 232                  | 45.0                 | 34.2   | 10.8     | 69.0                          | Lisbon . . . . .         | 244                  | ...                  | ...    | ...      | 60.4                          |
| Algiers . . . . .        | 62                   | ...                  | 30.1   | ...      | 64.3                          | Liverpool . . . . .      | 600                  | 37.6                 | 26.7   | 10.9     | 50.8                          |
| Amsterdam . . . . .      | 372                  | 36.7                 | 23.7   | 13.0     | 49.9                          | London . . . . .         | 4,280                | 34.7                 | 21.2   | 13.5     | 50.8                          |
| Antwerp . . . . .        | 205                  | ...                  | 24.7   | ...      | ...                           | Lyons . . . . .          | 402                  | 26.0                 | 24.7   | 1.3      | 53.0                          |
| Baltimore . . . . .      | 332                  | ...                  | 21.1   | ...      | 54.9                          | Madras . . . . .         | 398                  | 39.0                 | 38.8   | 0.2      | 81.9                          |
| Barcelona . . . . .      | 260                  | 29.2                 | ...    | ...      | 61.0                          | Madrid . . . . .         | 396                  | 37.5                 | 37.4   | 0.1      | 56.2                          |
| Belfast . . . . .        | 185                  | ...                  | 28.2   | ...      | 52.1                          | Manchester . . . . .     | 604                  | 36.9                 | 25.5   | 11.4     | 48.8                          |
| Berlin . . . . .         | 1,438                | 37.5                 | 27.6   | 9.9      | 48.2                          | Manilla . . . . .        | 270                  | ...                  | ...    | ...      | 78.4                          |
| Birmingham . . . . .     | 448                  | 37.6                 | 19.8   | 17.8     | 48.2                          | Marseilles . . . . .     | 360                  | ...                  | 28.0   | ...      | 57.3                          |
| Bombay . . . . .         | 773                  | 25.6                 | 33.7   | ...      | 80.3                          | Melbourne . . . . .      | 458                  | ...                  | ...    | ...      | 58.0                          |
| Bordeaux . . . . .       | 241                  | ...                  | 26.7   | ...      | 57.0                          | Mexico . . . . .         | 212                  | ...                  | 30.9   | ...      | 60.9                          |
| Boston . . . . .         | 363                  | 30.0                 | 23.5   | 6.5      | 48.4                          | Milan . . . . .          | 321                  | ...                  | 30.6   | ...      | 55.1                          |
| Boulogne . . . . .       | 123                  | ...                  | ...    | ...      | 54.4                          | Montreal . . . . .       | 177                  | ...                  | 37.0   | ...      | 44.6                          |
| Bradford . . . . .       | 184                  | 33.1                 | 21.1   | 12.0     | ...                           | Moscow . . . . .         | 753                  | ...                  | ...    | ...      | 41.0                          |
| Breslau . . . . .        | 273                  | 37.7                 | 32.5   | 5.2      | 46.7                          | Munich . . . . .         | 280                  | 39.5                 | 32.8   | 6.7      | 48.4                          |
| Brighton . . . . .       | 108                  | 30.6                 | 19.0   | 11.6     | ...                           | Naples . . . . .         | 491                  | 32.0                 | 33.1   | ...      | 60.3                          |
| Bristol . . . . .        | 207                  | 34.5                 | 19.6   | 14.9     | 51.7                          | Newcastle . . . . .      | 145                  | 36.8                 | 21.8   | 15.0     | ...                           |
| Brussels . . . . .       | 403                  | 34.7                 | 23.9   | 10.8     | 50.7                          | New Orleans . . . . .    | 216                  | ...                  | 22.7   | ...      | 69.1                          |
| Bucharest . . . . .      | 222                  | 29.5                 | 24.5   | 5.0      | 46.4                          | New York . . . . .       | 1,443                | 34.6                 | 26.2   | 8.4      | 51.8                          |
| Buda-Pesth . . . . .     | 443                  | 35.8                 | 35.2   | 0.6      | 51.0                          | Nottingham . . . . .     | 187                  | 36.7                 | 22.4   | 14.3     | ...                           |
| Buenos Ayres . . . . .   | 455                  | 31.7                 | 30.1   | 1.6      | 62.8                          | Oldham . . . . .         | 115                  | 35.4                 | 22.8   | 12.6     | ...                           |
| Cairo . . . . .          | 375                  | ...                  | ...    | ...      | 71.2                          | Palermo . . . . .        | 245                  | ...                  | 28.5   | ...      | 63.1                          |
| Calcutta . . . . .       | 429                  | ...                  | 31.1   | ...      | 78.4                          | Paris . . . . .          | 2,269                | 30.5                 | 28.6   | 1.9      | 51.3                          |
| Chicago . . . . .        | 503                  | ...                  | 20.2   | ...      | 45.9                          | Philadelphia . . . . .   | 1,012                | 30.0                 | 20.5   | 9.5      | 52.1                          |
| Christiania . . . . .    | 136                  | 34.5                 | 18.8   | 15.7     | 41.5                          | Portsmouth . . . . .     | 128                  | 34.4                 | 19.7   | 14.7     | ...                           |
| Cincinnati . . . . .     | 256                  | ...                  | 20.2   | ...      | 54.7                          | Quebec . . . . .         | 70                   | ...                  | 22.9   | ...      | 40.3                          |
| Constantinople . . . . . | 819                  | ...                  | ...    | ...      | 56.5                          | Quito . . . . .          | 84                   | ...                  | ...    | ...      | 60.9                          |
| Copenhagen . . . . .     | 235                  | 39.1                 | 22.1   | 17.0     | 46.6                          | Rio Janeiro . . . . .    | 356                  | 35.5                 | 39.4   | ...      | 74.2                          |
| Dresden . . . . .        | 259                  | 35.4                 | 25.4   | 10.0     | 49.1                          | Rome . . . . .           | 388                  | 27.2                 | 26.8   | 0.4      | 60.5                          |
| Dublin . . . . .         | 350                  | 29.1                 | 27.1   | 2.0      | 50.1                          | Rotterdam . . . . .      | 194                  | 38.8                 | 23.3   | 15.5     | 51.0                          |
| Edinburgh . . . . .      | 263                  | 32.2                 | 20.2   | 12.0     | 47.1                          | Rouen . . . . .          | 106                  | ...                  | 31.3   | ...      | ...                           |
| Florence . . . . .       | 168                  | ...                  | ...    | ...      | 59.2                          | St. Louis . . . . .      | 351                  | 30.0                 | 19.3   | 10.7     | 55.0                          |
| Frankfort . . . . .      | 138                  | ...                  | ...    | ...      | 49.6                          | St. Petersburg . . . . . | 843                  | 37.8                 | 51.4   | ...      | 39.6                          |
| Geneva . . . . .         | 69                   | 24.3                 | 21.2   | 3.1      | 47.7                          | San Francisco . . . . .  | 234                  | ...                  | 18.1   | ...      | 55.2                          |
| Genoa . . . . .          | 179                  | ...                  | ...    | ...      | 61.1                          | Sheffield . . . . .      | 281                  | 38.0                 | 21.6   | 16.4     | ...                           |
| Glasgow . . . . .        | 512                  | 37.4                 | 25.3   | 12.1     | 49.8                          | Stockholm . . . . .      | 222                  | 33.0                 | 24.7   | 8.3      | 42.3                          |
| Hague . . . . .          | 118                  | 39.7                 | 23.3   | 16.4     | 52.0                          | Sunderland . . . . .     | 117                  | 39.3                 | 20.9   | 18.4     | ...                           |
| Hamburg . . . . .        | 454                  | 37.5                 | 24.5   | 13.0     | 47.0                          | Sydney . . . . .         | 382                  | ...                  | ...    | ...      | 62.8                          |
| Havanna . . . . .        | 230                  | 25.4                 | 45.7   | ...      | 78.1                          | Tunis . . . . .          | 210                  | ...                  | ...    | ...      | 68.8                          |
| Hull . . . . .           | 155                  | 36.4                 | 23.8   | 12.6     | ...                           | Turin . . . . .          | 241                  | 31.5                 | 25.6   | 5.9      | 53.1                          |
| Jerusalem . . . . .      | 28                   | ...                  | ...    | ...      | 62.6                          | Valparaiso . . . . .     | 101                  | ...                  | 64.6   | ...      | 58.0                          |
| Leeds . . . . .          | 370                  | 36.8                 | 21.6   | 15.2     | ...                           | Venice . . . . .         | 152                  | 30.2                 | 22.7   | 7.5      | 55.4                          |
| Leicester . . . . .      | 123                  | 38.4                 | 21.8   | 16.6     | ...                           | Vienna . . . . .         | 801                  | 39.2                 | 29.0   | ...      | 51.0                          |
| Lipsic . . . . .         | 169                  | ...                  | 26.1   | ...      | 46.4                          | Warsaw . . . . .         | 432                  | ...                  | ...    | ...      | 44.2                          |
| Lima . . . . .           | 130                  | ...                  | ...    | ...      | 73.3                          | Washington . . . . .     | 147                  | ...                  | 22.9   | ...      | 56.2                          |

The density of population of some cities is shown in the following table:—

|                      | Acres, Area | Inhabitants per Acre |
|----------------------|-------------|----------------------|
| London . . . . .     | 76,600      | 51                   |
| Paris . . . . .      | 19,500      | 115                  |
| Berlin . . . . .     | 16,200      | 70                   |
| Vienna . . . . .     | 13,700      | 55                   |
| Florence . . . . .   | 10,500      | 16                   |
| Genoa . . . . .      | 7,900       | 22                   |
| Dresden . . . . .    | 7,200       | 31                   |
| Buda-Pesth . . . . . | 6,500       | 55                   |
| Milan . . . . .      | 5,500       | 60                   |
| Turin . . . . .      | 4,200       | 58                   |

## CIVIL SERVICE

In the United Kingdom there are 29,000 persons, with an aggregate salary of £4,000,000, say £130 each.

## CLANS

For the Pretender in 1715:—

|                        |       |                        |        |
|------------------------|-------|------------------------|--------|
| Appin . . . . .        | 300   | Marshall . . . . .     | 500    |
| Breadalbane . . . . .  | 2,000 | Marr . . . . .         | 1,000  |
| Caithness . . . . .    | 500   | Montrose . . . . .     | 2,000  |
| Cameron . . . . .      | 1,000 | Murray . . . . .       | 300    |
| Carnworth . . . . .    | 300   | Nairn . . . . .        | 1,000  |
| Clanronald . . . . .   | 1,000 | Nithsdale . . . . .    | 300    |
| Glencoe . . . . .      | 300   | Ogilvy . . . . .       | 500    |
| Glengary . . . . .     | 500   | Panmure . . . . .      | 500    |
| Glenmoristan . . . . . | 100   | Perth . . . . .        | 1,500  |
| Gordon . . . . .       | 300   | Robertson . . . . .    | 500    |
| Hume . . . . .         | 500   | Seaforth . . . . .     | 3,000  |
| Kenmore . . . . .      | 300   | Southesk . . . . .     | 300    |
| Keppoch . . . . .      | 300   | Stormont . . . . .     | 300    |
| Linlithgow . . . . .   | 300   | Straglas . . . . .     | 100    |
| Lovat . . . . .        | 800   | Strathmore . . . . .   | 300    |
| M'Donald . . . . .     | 1,000 | Tullibardine . . . . . | 6,000  |
| M'Gregor . . . . .     | 500   | Wigtown . . . . .      | 300    |
| M'Intosh . . . . .     | 1,000 | Wintoun . . . . .      | 300    |
| M'Lean . . . . .       | 1,000 |                        |        |
| M'Pherson . . . . .    | 500   | Total . . . . .        | 31,700 |

## CLANS

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## COAL

For King George :—

|                     |       |                     |       |                      |       |                      |                |
|---------------------|-------|---------------------|-------|----------------------|-------|----------------------|----------------|
| Annandale . . . . . | 500   | Dundonald . . . . . | 300   | Kilmarnock . . . . . | 300   | Ross . . . . .       | 500            |
| Argyle . . . . .    | 4,000 | Eglinton . . . . .  | 300   | Lauderdaie . . . . . | 300   | Roths . . . . .      | 500            |
| Buccleuch . . . . . | 1,000 | Forbes . . . . .    | 500   | M'Leod . . . . .     | 1,000 | Roxburgh . . . . .   | 500            |
| Cassils . . . . .   | 500   | Glencairn . . . . . | 300   | M'Neil . . . . .     | 120   | Sutherland . . . . . | 1,000          |
| Douglas . . . . .   | 500   | Grant . . . . .     | 1,000 | Morton . . . . .     | 300   | Weems . . . . .      | 300            |
| Dumfries . . . . .  | 200   | Hamilton . . . . .  | 1,000 | Rae . . . . .        | 500   |                      |                |
|                     |       |                     |       |                      |       |                      | Total . 15,420 |

## COAL

The total production of coal in the nineteenth century has been approximately as follows :—

| Period             | Millions of Tons |        |         |        |         |         |               |       |        |           |       |       |         | Total  |
|--------------------|------------------|--------|---------|--------|---------|---------|---------------|-------|--------|-----------|-------|-------|---------|--------|
|                    | Great Britain    | France | Germany | Russia | Belgium | Austria | United States | Spain | Canada | Australia | India | Japan | Various |        |
| 1801-20 . . . . .  | 210              | 18     | 25      | ...    | 8       | 3       | 5             | ...   | ...    | ...       | ...   | ...   | 8       | 277    |
| 1821-40 . . . . .  | 390              | 41     | 48      | ...    | 47      | 8       | 13            | ...   | ...    | ...       | ...   | ...   | 19      | 566    |
| 1841-50 . . . . .  | 420              | 41     | 47      | ...    | 51      | 14      | 44            | ...   | ...    | ...       | ...   | ...   | 20      | 637    |
| 1851-60 . . . . .  | 650              | 69     | 122     | ...    | 82      | 24      | 110           | ...   | ...    | 2         | 3     | ...   | 30      | 1,093  |
| 1861-70 . . . . .  | 970              | 117    | 277     | 3      | 120     | 70      | 260           | 3     | 5      | 7         | 5     | 1     | 35      | 1,873  |
| 1871-80 . . . . .  | 1,305            | 170    | 481     | 19     | 153     | 135     | 510           | 6     | 10     | 14        | 8     | 7     | 37      | 2,855  |
| 1881-89 . . . . .  | 1,461            | 190    | 662     | 37     | 160     | 184     | 970           | 10    | 17     | 30        | 12    | 12    | 40      | 3,785  |
| 89 years . . . . . | 5,406            | 646    | 1,662   | 59     | 621     | 438     | 1,912         | 20    | 32     | 53        | 28    | 20    | 189     | 11,086 |

| Period             | Value, Million £ Sterling |        |         |        |         |         |               |       |        |           |       |       |         | Total |
|--------------------|---------------------------|--------|---------|--------|---------|---------|---------------|-------|--------|-----------|-------|-------|---------|-------|
|                    | Great Britain             | France | Germany | Russia | Belgium | Austria | United States | Spain | Canada | Australia | India | Japan | Various |       |
| 1801-20 . . . . .  | 105                       | 11     | 10      | ...    | 4       | 1       | 2             | ...   | ...    | ...       | ...   | ...   | 3       | 136   |
| 1821-40 . . . . .  | 175                       | 23     | 18      | ...    | 19      | 3       | 5             | ...   | ...    | ...       | ...   | ...   | 7       | 250   |
| 1841-50 . . . . .  | 168                       | 21     | 16      | ...    | 18      | 5       | 18            | ...   | ...    | ...       | ...   | ...   | 7       | 253   |
| 1851-60 . . . . .  | 228                       | 31     | 34      | ...    | 33      | 7       | 40            | ...   | ...    | 1         | 1     | ...   | 10      | 385   |
| 1861-70 . . . . .  | 370                       | 53     | 75      | 1      | 53      | 18      | 91            | 1     | 2      | 83        | 2     | ...   | 12      | 681   |
| 1871-80 . . . . .  | 600                       | 89     | 121     | 6      | 64      | 27      | 167           | 2     | 3      | 83        | 3     | 2     | 12      | 1,104 |
| 1881-89 . . . . .  | 482                       | 85     | 165     | 12     | 59      | 31      | 333           | 3     | 6      | 13        | 4     | 4     | 12      | 1,209 |
| 89 years . . . . . | 2,128                     | 313    | 439     | 19     | 250     | 92      | 656           | 6     | 11     | 25        | 10    | 6     | 63      | 4,018 |

The following table shows approximately the production and consumption in several countries at various dates :—

| Year           | Production, Tons |            |            |               |            |            |            | The World   |
|----------------|------------------|------------|------------|---------------|------------|------------|------------|-------------|
|                | Great Britain    | France     | Germany    | United States | Belgium    | Austria    | Various    |             |
| 1800 . . . . . | 10,100,000       | 800,000    | 300,000    | 200,000       | ...        | ...        | 200,000    | 11,600,000  |
| 1820 . . . . . | 12,500,000       | 1,200,000  | 1,500,000  | 500,000       | 1,000,000  | ...        | 500,000    | 17,200,000  |
| 1840 . . . . . | 30,000,000       | 3,300,000  | 3,400,000  | 1,800,000     | 3,900,000  | 400,000    | 2,000,000  | 44,800,000  |
| 1850 . . . . . | 49,000,000       | 4,400,000  | 6,700,000  | 8,000,000     | 5,800,000  | 2,000,000  | 5,500,000  | 81,400,000  |
| 1860 . . . . . | 82,000,000       | 8,300,000  | 16,700,000 | 15,200,000    | 9,600,000  | 3,500,000  | 7,000,000  | 142,300,000 |
| 1870 . . . . . | 110,000,000      | 13,300,000 | 34,000,000 | 32,900,000    | 13,700,000 | 9,500,000  | 9,000,000  | 213,400,000 |
| 1880 . . . . . | 147,000,000      | 19,400,000 | 59,100,000 | 70,500,000    | 16,900,000 | 16,100,000 | 11,000,000 | 340,000,000 |
| 1889 . . . . . | 177,000,000      | 24,600,000 | 84,900,000 | 142,000,000   | 19,800,000 | 24,000,000 | 12,700,000 | 485,000,000 |

| Year           | Consumption, Tons |            |            |               |            |            |
|----------------|-------------------|------------|------------|---------------|------------|------------|
|                | Great Britain     | France     | Germany    | United States | Belgium    | Austria    |
| 1830 . . . . . | 15,500,000        | 2,700,000  | 2,500,000  | 1,300,000     | 2,000,000  | 300,000    |
| 1840 . . . . . | 29,000,000        | 4,800,000  | 3,400,000  | 1,800,000     | 3,500,000  | 400,000    |
| 1850 . . . . . | 46,000,000        | 9,300,000  | 6,000,000  | 8,000,000     | 4,500,000  | 2,000,000  |
| 1860 . . . . . | 75,000,000        | 14,300,000 | 15,000,000 | 15,500,000    | 6,100,000  | 3,700,000  |
| 1870 . . . . . | 98,000,000        | 18,800,000 | 30,000,000 | 33,000,000    | 10,500,000 | 10,000,000 |
| 1880 . . . . . | 128,000,000       | 28,800,000 | 52,000,000 | 72,000,000    | 11,500,000 | 14,500,000 |
| 1889 . . . . . | 148,000,000       | 34,600,000 | 75,000,000 | 143,000,000   | 14,300,000 | 22,000,000 |

The average consumption yearly per inhabitant was approximately as follows :—

|                      | Cwts. per Inhabitant |      |      |
|----------------------|----------------------|------|------|
|                      | 1830                 | 1850 | 1888 |
| United Kingdom . . . | 13                   | 33   | 72   |
| United States . . .  | 2                    | 7    | 40   |
| Germany . . .        | 1                    | 4    | 28   |
| France . . .         | 2                    | 5    | 16   |
| Belgium . . .        | 10                   | 18   | 48   |
| Russia . . .         | ...                  | ...  | 2    |
| Austria . . .        | ...                  | 2    | 11   |
| Holland . . .        | ...                  | 5    | 16   |
| Spain . . .          | ...                  | 1    | 2    |
| Italy . . .          | ...                  | 1    | 2    |
| Sweden . . .         | ...                  | 1    | 6    |
| Norway . . .         | ...                  | 1    | 6    |
| Denmark . . .        | ...                  | 1    | 6    |
| Switzerland . . .    | ...                  | 1    | 5    |
| Europe . . .         | 2                    | 5    | 18   |

Since 1830 the consumption in Europe of coal per inhabitant has multiplied ninefold.

This is caused partly by manufactures, partly by railways and steamboats, but it is expected that the use of electric power will in future supersede in some manner that of coal. Meantime the consumption of coal increases year by year.

|                     | 1874    |             |                | 1885    |             |                |
|---------------------|---------|-------------|----------------|---------|-------------|----------------|
|                     | Miners  | Tons Raised | Tons per Miner | Miners  | Tons Raised | Tons per Miner |
| Great Britain . . . | 539,000 | 125,000,000 | 232            | 485,000 | 160,000,000 | 330            |
| Belgium . . .       | 110,000 | 15,000,000  | 136            | 101,000 | 17,000,000  | 168            |
| Austria . . .       | 67,000  | 9,000,000   | 135            | 73,000  | 18,000,000  | 247            |

In 1889 the coal used for making iron was approximately as follows :—

|                     | Tons       |
|---------------------|------------|
| Great Britain . . . | 17,400,000 |
| United States . . . | 16,600,000 |
| Germany . . .       | 10,000,000 |
| France, &c. . .     | 10,300,000 |

Total . . . 54,300,000

In 1885 the coal-mining industry of the world stood approximately as follows :—

|                       | Million Tons Coal | Number of Miners | Tons per Miner | Value of Coal, £ | Product per Miner, £ |
|-----------------------|-------------------|------------------|----------------|------------------|----------------------|
| Great Britain . . .   | 160               | 485,000          | 330            | 53,700,000       | 111                  |
| United States . . .   | 104               | 300,000          | 347            | 41,600,000       | 139                  |
| Germany . . .         | 74                | 220,000          | 336            | 17,200,000       | 78                   |
| France . . .          | 20                | 102,000          | 196            | 9,000,000        | 88                   |
| Belgium . . .         | 17                | 101,000          | 168            | 6,400,000        | 63                   |
| Austria . . .         | 20                | 73,000           | 270            | 4,200,000        | 57                   |
| Other countries . . . | 20                | 100,000          | 200            | 5,000,000        | 50                   |
| Total . . .           | 415               | 1,381,000        | 300            | 137,100,000      | 99                   |

The following table shows the extent and estimated contents of some of the coalfields of the world :—

|                         | Square Miles | Tons            |
|-------------------------|--------------|-----------------|
| Great Britain . . .     | 9,000        | 90,000,000,000  |
| France . . .            | 1,800        | ...             |
| Germany . . .           | 3,600        | 39,000,000,000  |
| Russia . . .            | 27,000       | 10,000,000,000  |
| Belgium, Spain, &c. . . | 1,400        | ...             |
| United States . . .     | 194,000      | ...             |
| India . . .             | 35,000       | 14,000,000,000  |
| China and Japan . . .   | 200,000      | 150,000,000,000 |
| Total . . .             | 471,800      | 303,000,000,000 |

The contents, as estimated above, include nothing beyond a depth of 4000 feet, the deepest colliery at present working being that of Lambert in Belgium, 3500 feet. The deepest in the United Kingdom is the Rose-bridge, 2500 feet. The above five coalfields contain apparently 303,000 millions of tons, which is enough for 700 years, at the present rate of consumption. If to the above be added the contents of coalfields in the United States, Canada, Australia, France, Spain, and Belgium, the supply will be found ample for 1000 years. Improved machinery has greatly increased the yield per miner, and thus produced a fall in price, to the advantage of all industries. The official returns of Great Britain, Belgium, and Austria show as follows :—

The number of tons raised per miner is greater in United States and Germany than in Great Britain. Three English miners, nevertheless, raise as much as five French, and the price of coal in France is always much higher than in England.

Current prices at pit's mouth were :—

| Period        | Pence per Ton |        |         |         |         |               |
|---------------|---------------|--------|---------|---------|---------|---------------|
|               | England       | France | Belgium | Austria | Germany | United States |
| 1871-75 . . . | 87            | 190    | 168     | 78      | 108     | 114           |
| 1876-80 . . . | 88            | 120    | 102     | 66      | 66      | 80            |
| 1881-85 . . . | 72            | 108    | 90      | 60      | 63      | 100           |

It appears that 9 tons of Massachusetts have as much carbon as 10 tons of Newcastle (English) coal. The percentage of coke obtained is as follows :—

|                  |              |                    |              |
|------------------|--------------|--------------------|--------------|
| Westphalia . . . | 36 per cent. | Pennsylvania . . . | 89 per cent. |
| Marseilles . . . | 41 "         | Mayenne . . .      | 90 "         |
| Lancashire . . . | 58 "         | Wales . . .        | 91 "         |

The specific gravity and percentage of carbon in different kinds of coal are shown thus :—

|                        | Weight, Lbs. per Cubic Yd. | Percentage Carbon |                  | Weight, Lbs. per Cubic Yd. | Percentage Carbon |
|------------------------|----------------------------|-------------------|------------------|----------------------------|-------------------|
| Rhode Island . . .     | 3,054                      | 86                | Newcastle . . .  | 2,160                      | 87                |
| Massachusetts . . .    | 2,882                      | 97                | Peat . . .       | 2,160                      | 57                |
| Pennsylvania . . .     | 2,715                      | 89                | Marseilles . . . | 2,080                      | 63                |
| Mayenne (France) . . . | 2,293                      | 91                | Greek . . .      | 2,020                      | 60                |
| Swansea . . .          | 2,266                      | 89                | Westphalia . . . | 1,840                      | 63                |
| Lancashire . . .       | 2,240                      | 83                | Wood . . .       | 1,100                      | 50                |

## UNITED KINGDOM

The production, consumption, and export since 1820 were as follows :—

| Year         | Tons       |             |           | Year         | Tons        |             |            |
|--------------|------------|-------------|-----------|--------------|-------------|-------------|------------|
|              | Production | Consumption | Export    |              | Production  | Consumption | Export     |
| 1820 . . . . | 12,500,000 | 12,250,000  | 250,000   | 1860 . . . . | 82,000,000  | 75,000,000  | 7,000,000  |
| 1830 . . . . | 15,000,000 | 15,500,000  | 500,000   | 1870 . . . . | 110,000,000 | 98,000,000  | 12,000,000 |
| 1840 . . . . | 30,000,000 | 29,000,000  | 1,000,000 | 1880 . . . . | 147,000,000 | 128,000,000 | 19,000,000 |
| 1850 . . . . | 49,000,000 | 46,000,000  | 3,000,000 | 1889 . . . . | 177,000,000 | 148,000,000 | 29,000,000 |

Chisholm's tables of British coal exported in 35 years, ending 1889, show as follows :—

| Period       | Tons Exported to |            |            |            |            |            |             |             |
|--------------|------------------|------------|------------|------------|------------|------------|-------------|-------------|
|              | France           | Germany    | Russia     | Italy      | Spain      | Egypt      | Various     | Total       |
| 1855-60 . .  | 7,500,000        | 7,800,000  | 1,600,000  | ...        | 2,500,000  | 500,000    | 19,100,000  | 39,000,000  |
| 1861-70 . .  | 17,200,000       | 17,400,000 | 5,500,000  | 2,700,000  | 6,600,000  | 3,300,000  | 43,300,000  | 96,000,000  |
| 1871-80 . .  | 28,000,000       | 25,500,000 | 10,200,000 | 10,900,000 | 9,400,000  | 5,500,000  | 59,500,000  | 149,000,000 |
| 1881-89 . .  | 37,300,000       | 27,800,000 | 13,800,000 | 24,000,000 | 14,700,000 | 10,100,000 | 86,300,000  | 214,000,000 |
| 35 years . . | 90,000,000       | 78,500,000 | 31,100,000 | 37,600,000 | 33,200,000 | 19,400,000 | 208,200,000 | 498,000,000 |

In the above table Holland is included with Germany, and Portugal with Spain. About one-sixth of the coal raised in Great Britain is exported.

The existing coal-fields of Great Britain in 1880 were as follows :—

|                  | Million Tons | Contents of Field, Million Tons | Years of Supply |
|------------------|--------------|---------------------------------|-----------------|
| South Wales . .  | 15           | 32,000                          | 2,150           |
| Midland . . . .  | 15           | 18,000                          | 1,200           |
| Northumberland . | 16           | 10,000                          | 620             |
| Stafford . . . . | 15           | 6,000                           | 400             |
| Lancashire . . . | 22           | 5,000                           | 230             |
| Yorkshire, &c. . | 46           | 9,000                           | 196             |
| Scotland . . . . | 18           | 10,000                          | 550             |
| Total . . . .    | 147          | 90,000                          | 612             |

The output in the seventeenth century averaged 2,400,000 tons per annum ; in the eighteenth nearly 5,000,000.

The production in 1889 was 177 million tons, and the uses to which the coal was devoted were more or less thus :—

|                       | Tons        |
|-----------------------|-------------|
| Factories . . . .     | 55,000,000  |
| Domestic use . . .    | 40,000,000  |
| Railways and steamers | 20,000,000  |
| Gas and water works   | 20,000,000  |
| Mines . . . . .       | 13,000,000  |
| Export . . . . .      | 29,000,000  |
| Total . . . . .       | 177,000,000 |

The price of coal in London since 1730 has averaged as follows :—

| Period          | Per Ton | Period          | Per Ton  |
|-----------------|---------|-----------------|----------|
| 1730-50 . . . . | £ 1 7 2 | 1841-50 . . . . | £ 0 19 0 |
| 1751-99 . . . . | 1 14 9  | 1851-60 . . . . | 0 18 6   |
| 1800-20 . . . . | 2 13 3  | 1861-70 . . . . | 0 18 5   |
| 1820-30 . . . . | 1 12 0  | 1871-80 . . . . | 0 18 4   |
| 1831-40 . . . . | 1 4 0   |                 |          |

The price in England since 1782, at port of shipment, has averaged as follows :—

| Period            | P nce | Period            | Pence |
|-------------------|-------|-------------------|-------|
| 1782-1800 . . . . | 180   | 1861-1870 . . . . | 122   |
| 1801-1820 . . . . | 156   | 1871-1875 . . . . | 184   |
| 1821-1850 . . . . | 120   | 1876-1880 . . . . | 116   |
| 1851-1860 . . . . | 115   | 1881-1889 . . . . | 108   |

Loss of life by colliery explosions since 1851 shows thus :—

| Period          | Explosions | Killed | Annual Average |              |                  |
|-----------------|------------|--------|----------------|--------------|------------------|
|                 |            |        | Killed         | Tons, Output | Tons, per Killed |
| 1851-71 . . . . | 1,437      | 4,977  | 238            | 82,000,000   | 344,000          |
| 1872-80 . . . . | 353        | 2,387  | 265            | 131,000,000  | 495,000          |
| 1881-89 . . . . | 211        | 1,361  | 151            | 160,000,000  | 1,060,000        |

## FRANCE

The following table shows the production and consumption, as officially stated :—

| Period          | Tons per Annum |             |             | Cwts. per Inhabitant |
|-----------------|----------------|-------------|-------------|----------------------|
|                 | Production     | Net Imports | Consumption |                      |
| 1787-89 . . . . | 227,000        | 233,000     | 460,000     | 0.4                  |
| 1802 . . . . .  | 844,000        | 91,000      | 935,000     | 0.7                  |
| 1811-20 . . . . | 895,000        | 183,000     | 1,078,000   | 0.7                  |
| 1821-30 . . . . | 1,490,000      | 438,000     | 1,928,000   | 1.3                  |
| 1831-40 . . . . | 2,570,000      | 894,000     | 3,464,000   | 2.0                  |
| 1841-50 . . . . | 4,100,000      | 2,048,000   | 6,148,000   | 3.5                  |
| 1851-60 . . . . | 6,900,000      | 4,550,000   | 11,450,000  | 6.5                  |
| 1861-70 . . . . | 11,700,000     | 6,800,000   | 18,500,000  | 10.0                 |
| 1871-80 . . . . | 17,000,000     | 7,700,000   | 24,700,000  | 13.5                 |
| 1881-86 . . . . | 19,200,000     | 9,800,000   | 29,000,000  | 15.5                 |
| 1889 . . . . .  | 24,600,000     | 10,000,000  | 34,600,000  | 18.0                 |

The first colliery in France was opened in 1722 ; the number working in 1835 was 223, employing 19,000 miners, and steam-engines representing 6000 horse-power.

The French collieries in 1879 gave :—

|                      | Amount      | Per Ton          |
|----------------------|-------------|------------------|
| Wages . . . . .      | £ 4,040,000 | £ s. d.<br>0 4 8 |
| Other expenses . . . | 3,320,000   | 0 3 11           |
| Net profit . . . . . | 1,480,000   | 0 1 9            |
| Value . . . . .      | 8,840,000   | 0 10 4           |

The most productive mines in the returns of 1842 and 1864 were:—

| Mines                  | Tons      |            |
|------------------------|-----------|------------|
|                        | 1842      | 1864       |
| Valenciennes . . . . . | 907,000   | 3,120,000  |
| St. Etienne . . . . .  | 1,290,000 | 2,950,000  |
| Calais . . . . .       | 290,000   | 1,170,000  |
| Creuzot . . . . .      | 230,000   | 680,000    |
| Others . . . . .       | 483,000   | 2,880,000  |
| Total . . . . .        | 3,200,000 | 10,800,000 |

In 1888 there were 100,100 miners, average wages 3s. a day, who raised in twelve months 22,500,000 or 225 tons each, value 9s. a ton. There were 163 collieries that paid dividends, and 129 were worked at a loss. The Pas de Calais mines yielded 12,200,000 tons, or more than half the total.

#### GERMANY

The production of the last forty years may be summed up thus:—

| Period             | Millions of Tons |         |       |
|--------------------|------------------|---------|-------|
|                    | Coal             | Lignite | Total |
| 1850-59 . . . . .  | 88               | 27      | 115   |
| 1860-69 . . . . .  | 200              | 61      | 261   |
| 1870-79 . . . . .  | 356              | 100     | 456   |
| 1880-89 . . . . .  | 570              | 148     | 718   |
| 40 years . . . . . | 1,214            | 336     | 1,550 |

According to "Engineering," Prussia has two coal-beds containing 100,000 millions of tons; other estimates say 39,000 millions, but even the latter would suffice all Germany for 450 years.

#### RUSSIA

The production has grown tenfold in twenty years, viz.:—

| Year           | Tons      |
|----------------|-----------|
| 1866 . . . . . | 390,000   |
| 1876 . . . . . | 2,050,000 |
| 1887 . . . . . | 4,450,000 |

The principal coalfields are:—

|                         | Tons      |
|-------------------------|-----------|
| Don . . . . .           | 2,000,000 |
| Kielo, Poland . . . . . | 2,000,000 |
| Moscow . . . . .        | 450,000   |

Total . . . . . 4,450,000

There are about 32,000 miners employed.

#### INDIA

The coalfields cover 35,000 square miles, or four times the area of those of the United Kingdom, but have less cubic capacity, as they are estimated to contain only 14,000 million of tons, or one-sixth of those of Great Britain. In fact, their contents would only last the British consumption for eighty years. The product of the Indian coalfields is increasing. In 1860 it was 390,000 tons, rising to 760,000 in 1880, and 1,800,000 in 1890.

#### CANADA

The official handbook gives the production thus:—

| Year           | Tons        |                  |           |
|----------------|-------------|------------------|-----------|
|                | Nova Scotia | British Columbia | Total     |
| 1874 . . . . . | 980,000     | 80,000           | 1,060,000 |
| 1880 . . . . . | 1,160,000   | 270,000          | 1,430,000 |
| 1886 . . . . . | 1,680,000   | 330,000          | 2,010,000 |

Canada imports yearly 2,100,000 tons; the consumption therefore reaches 4,100,000 tons, equal to 16 cwt. per inhabitant. Professor Dana says the Nova Scotia coal-bed has an area of 18,000 square miles.

#### AUSTRALIA

Coal was discovered in 1847, and the production has been:—

| Year           | New South Wales | New Zealand | Total     |
|----------------|-----------------|-------------|-----------|
| 1860 . . . . . | 370,000         | ...         | 370,000   |
| 1870 . . . . . | 870,000         | ...         | 870,000   |
| 1880 . . . . . | 1,450,000       | 300,000     | 1,750,000 |
| 1888 . . . . . | 3,200,000       | 620,000     | 3,820,000 |

The total quantity raised has been approximately thus:—

| Period             | New South Wales | New Zealand | Total      |
|--------------------|-----------------|-------------|------------|
| 1847-60 . . . . .  | 2,020,000       | ...         | 2,020,000  |
| 1861-70 . . . . .  | 6,700,000       | ...         | 6,700,000  |
| 1871-80 . . . . .  | 13,100,000      | 700,000     | 13,800,000 |
| 1881-88 . . . . .  | 21,330,000      | 3,900,000   | 25,230,000 |
| 42 years . . . . . | 43,150,000      | 4,600,000   | 47,750,000 |

Small quantities have also been raised in Queensland and Tasmania. The total value of coal raised in forty-two years, according to Mr. Coghlan, was:—

|                           | £          |
|---------------------------|------------|
| New South Wales . . . . . | 22,320,000 |
| New Zealand . . . . .     | 2,670,000  |
| Queensland . . . . .      | 900,000    |
| Tasmania . . . . .        | 180,000    |
| Total . . . . .           | 26,070,000 |

The returns for 1888 were as follows:—

|                         | Miners | Tons Raised | Value, £  | Tons per Miner |
|-------------------------|--------|-------------|-----------|----------------|
| New South Wales         | 9,300  | 3,200,000   | 1,460,000 | 344            |
| New Zealand . . . . .   | 1,750  | 610,000     | 340,000   | 348            |
| Queensland, &c. . . . . | 750    | 360,000     | 140,000   | 480            |
| Total . . . . .         | 11,800 | 4,170,000   | 1,940,000 | 355            |

The average pay per miner in New South Wales was £85 per annum, or 43 pence per ton of coal raised.

#### UNITED STATES

Coal was first discovered in 1768 in Rhode Island and Pennsylvania. Mining was commenced at Pittsburg in 1784, and in Rhode Island in 1808, both seams being anthracite. In the course of a few years the industry became of such importance that by 1850 Pennsylvania had already constructed 7 canals and 27 railways expressly for carrying coal. In 1840 the output was as follows:—

|                           | Tons      |
|---------------------------|-----------|
| Pennsylvania . . . . .    | 1,300,000 |
| Virginia . . . . .        | 400,000   |
| Rhode Island, &c. . . . . | 100,000   |
| Total . . . . .           | 1,800,000 |

In that year the number of miners engaged was 7000, showing an average of 260 tons per man. The production increased very rapidly, but was hardly sufficient for requirements, the Union always importing some coal from



Europe. The production, according to Census returns, compares thus with population :—

| Year           | Tons        | Cwts. per Inhabitant |
|----------------|-------------|----------------------|
| 1840 . . . . . | 1,800,000   | 2.1                  |
| 1850 . . . . . | 8,000,000   | 7.0                  |
| 1860 . . . . . | 15,200,000  | 9.5                  |
| 1870 . . . . . | 32,900,000  | 17.5                 |
| 1880 . . . . . | 70,500,000  | 28.0                 |
| 1888 . . . . . | 142,000,000 | 44.0                 |

The production in 1888 was as follows :—

|                   | Tons       |            |             |
|-------------------|------------|------------|-------------|
|                   | Anthracite | Bituminous | Total       |
| Pennsylvania . .  | 43,900,000 | 33,800,000 | 77,700,000  |
| Illinois . . . .  | ...        | 14,700,000 | 14,700,000  |
| Ohio . . . . .    | ...        | 10,900,000 | 10,900,000  |
| West Virginia . . | ...        | 5,500,000  | 5,500,000   |
| Various . . . . . | ...        | 33,200,000 | 33,200,000  |
| Total . . . . .   | 43,900,000 | 98,100,000 | 142,000,000 |

The estimated area of the principal fields is :—

| Professor Dana   |           | Census Report    |           |
|------------------|-----------|------------------|-----------|
| Bed              | Sq. Miles | Bed              | Sq. Miles |
| Alleghany . . .  | 59,000    | Missouri . . .   | 27,000    |
| Illinois . . . . | 47,000    | Illinois . . . . | 37,000    |
| Missouri . . . . | 78,000    | Kansas . . . .   | 22,000    |
| Michigan . . . . | 7,000     | Various . . . .  | 109,400   |
| Total . . . . .  | 191,000   | Total . . . . .  | 195,400   |

### COCOA

| Consumption in United Kingdom |            |               |                |                             |
|-------------------------------|------------|---------------|----------------|-----------------------------|
| Year                          | Lbs.       | Duty, per Lb. | Price, per Lb. | Consumption, Oz. per Inhab. |
| 1831 . . . . .                | 440,000    | Pence 6       | Pence 9        | 1                           |
| 1841 . . . . .                | 1,220,000  | 2             | 7              | 2                           |
| 1851 . . . . .                | 5,310,000  | 2             | 5              | 3                           |
| 1861 . . . . .                | 4,520,000  | 1             | 6              | 2½                          |
| 1871 . . . . .                | 7,252,000  | 1             | 5½             | 4                           |
| 1881 . . . . .                | 10,885,000 | 1             | 8              | 5                           |
| 1888 . . . . .                | 18,200,000 | 1             | 7½             | 8                           |

### COFFEE

In a little over fifty years the crop has increased nearly eightfold, viz. :—

| Year           | Tons    | Year           | Tons    |
|----------------|---------|----------------|---------|
| 1832 . . . . . | 95,000  | 1865 . . . . . | 422,000 |
| 1844 . . . . . | 255,000 | 1875 . . . . . | 505,000 |
| 1855 . . . . . | 321,000 | 1885 . . . . . | 718,000 |

The production by countries is shown as follows :—

|                    | 1855    | 1880    | 1885    |
|--------------------|---------|---------|---------|
|                    | Tons    | Tons    | Tons    |
| Brazil . . . . .   | 163,000 | 333,000 | 389,000 |
| Java . . . . .     | 70,000  | 90,000  | 92,000  |
| Ceylon . . . . .   | 29,000  | 33,000  | 15,000  |
| West Indies . . .  | 28,000  | 42,000  | 54,000  |
| Spanish America .  | 16,000  | 70,000  | 123,000 |
| Arabia . . . . .   | 5,000   | 5,000   | 5,000   |
| India . . . . .    | 5,000   | 15,000  | 17,000  |
| Manilla, &c. . . . | 5,000   | 20,000  | 23,000  |
| Total . . . . .    | 321,000 | 608,000 | 718,000 |

It has been asserted that the total coffee crop of the world in 1820 did not exceed 50,000 tons.

Consumption for five years ending 1884 compares with five years ending 1864 as follows :—

|                      | Tons, per Annum |         | Oz. yearly, per Inhabitant |         |
|----------------------|-----------------|---------|----------------------------|---------|
|                      | 1860-64         | 1880-84 | 1860-64                    | 1880-84 |
| United Kingdom .     | 16,000          | 15,000  | 19                         | 14      |
| France . . . . .     | 40,000          | 65,000  | 37                         | 62      |
| Germany . . . . .    | 70,000          | 105,000 | 69                         | 81      |
| Russia . . . . .     | 6,000           | 8,000   | 3                          | 3       |
| Austria . . . . .    | 21,000          | 36,000  | 19                         | 32      |
| Italy . . . . .      | 12,000          | 14,000  | 19                         | 17      |
| Spain and Portugal . | 3,000           | 5,000   | 5                          | 9       |
| Scandinavia . . .    | 12,000          | 25,000  | 80                         | 110     |
| Holland . . . . .    | 14,000          | 40,000  | 145                        | 322     |
| Belgium . . . . .    | 18,000          | 25,000  | 131                        | 158     |
| Switzerland . . .    | 7,000           | 9,000   | 98                         | 114     |
| United States . .    | 90,000          | 215,000 | 90                         | 140     |
| Brazil, &c. . . . .  | 81,000          | 78,000  | ...                        | ...     |
| Total . . . . .      | 390,000         | 640,000 | ..                         | ...     |

The coffee fields of Brazil cover 2,200,000 acres, with about 900 million trees—that is, 400 per acre, each tree averaging almost 1 lb. per annum, the industry employing 800,000 hands.

### CONSUMPTION IN UNITED KINGDOM.

| Year           | Millions Lbs. | Oz. per Inhabitant | Duty, per Lb. | Price, per Cwt. |
|----------------|---------------|--------------------|---------------|-----------------|
| 1801 . . . . . | 1             | 1                  | Pence 6       | 87              |
| 1811 . . . . . | 6             | 5                  | 7             | 42              |
| 1821 . . . . . | 7             | 5                  | 12            | 102             |
| 1831 . . . . . | 22            | 14                 | 6             | 56              |
| 1841 . . . . . | 27            | 16                 | 6             | 98              |
| 1851 . . . . . | 30            | 18                 | 6             | 68              |
| 1861 . . . . . | 35            | 21                 | 3             | 69              |
| 1871 . . . . . | 30            | 15                 | 3             | 63              |
| 1881 . . . . . | 31            | 14                 | 2             | 78              |
| 1888 . . . . . | 30            | 13                 | 2             | 76              |

### COLONIES

Those of the different European Powers show as follows :—

|                    | Population  | Square Miles | Commerce, £ | Revenue, £  | Railways, Miles |
|--------------------|-------------|--------------|-------------|-------------|-----------------|
| British . . . . .  | 232,800,000 | 7,946,000    | 448,600,000 | 119,400,000 | 38,050          |
| French . . . . .   | 32,040,000  | 1,080,000    | 35,300,000  | 4,600,000   | 2,290           |
| Spanish . . . . .  | 8,200,000   | 170,000      | 42,500,000  | 10,000,000  | 400             |
| Portuguese . . . . | 2,800,000   | 206,000      | 2,000,000   | 1,000,000   | ...             |
| Dutch . . . . .    | 24,000,000  | 660,000      | 32,000,000  | 12,000,000  | ...             |
| Danish . . . . .   | 130,000     | 75,000       | 1,000,000   | ...         | ...             |
| German . . . . .   | 385,000     | 99,000       | ...         | ...         | ...             |
| Total . . . . .    | 300,355,000 | 10,236,000   | 561,400,000 | 147,000,000 | 40,740          |

## BRITISH

The British colonies are as follows :—

|                        | Population  | Commerce, £ | Revenue, £  | Debt, £     | Railways, Miles | Area, Square Miles |
|------------------------|-------------|-------------|-------------|-------------|-----------------|--------------------|
| Australia . . . . .    | 3,550,000   | 107,800,000 | 24,800,000  | 157,500,000 | 9,620           | 3,160,000          |
| Canada . . . . .       | 5,020,000   | 43,900,000  | 7,600,000   | 47,300,000  | 11,780          | 3,450,000          |
| South Africa . . . . . | 1,860,000   | 17,000,000  | 3,900,000   | 26,500,000  | 1,820           | 230,000            |
| West Africa . . . . .  | 1,560,000   | 2,500,000   | 250,000     | 100,000     | ...             | 33,000             |
| Mauritius . . . . .    | 370,000     | 5,200,000   | 700,000     | 700,000     | 90              | 700                |
| Ceylon . . . . .       | 2,770,000   | 7,200,000   | 1,100,000   | 2,200,000   | 180             | 25,400             |
| Singapore . . . . .    | 540,000     | 47,200,000  | 700,000     | ...         | ...             | 1,500              |
| West Indies . . . . .  | 1,570,000   | 14,900,000  | 2,100,000   | 3,100,000   | 160             | 127,000            |
| Cyprus . . . . .       | 220,000     | 500,000     | 200,000     | ...         | ...             | 3,600              |
| Various . . . . .      | 740,000     | 39,400,000  | 700,000     | 500,000     | 20              | 45,400             |
| Colonies . . . . .     | 18,200,000  | 285,600,000 | 42,050,000  | 237,900,000 | 23,670          | 7,076,600          |
| India . . . . .        | 214,600,000 | 163,000,000 | 77,300,000  | 185,700,000 | 14,380          | 870,000            |
| Total . . . . .        | 232,800,000 | 448,600,000 | 119,350,000 | 423,600,000 | 38,050          | 7,946,600          |

The above statement is to the end of 1887. Commerce includes merchandise and precious metals.

If we exclude Malta, Gibraltar, Cyprus, and Hong-Kong, for which the statistics are imperfect, we find the growth of the colonies (without India) as follows :—

| Year           | Population | Commerce, £ | Revenue, £ | Debt, £     | Railways, Miles |
|----------------|------------|-------------|------------|-------------|-----------------|
| 1840 . . . . . | 5,100,000  | 27,100,000  | 2,400,000  | 5,300,000   | ...             |
| 1860 . . . . . | 9,100,000  | 116,600,000 | 12,500,000 | 64,700,000  | 2,330           |
| 1870 . . . . . | 11,600,000 | 145,700,000 | 19,800,000 | 79,100,000  | 4,360           |
| 1880 . . . . . | 14,700,000 | 214,700,000 | 30,100,000 | 143,400,000 | 13,080          |
| 1887 . . . . . | 17,400,000 | 247,000,000 | 41,300,000 | 237,700,000 | 23,650          |

## INDIA

The official returns show as follows :—

| Year           | Population  | Commerce, £ | Revenue, £ | Debt, £     | Railways, Miles |
|----------------|-------------|-------------|------------|-------------|-----------------|
| 1814 . . . . . | 40,000,000  | 10,500,000  | 13,100,000 | 18,000,000  | ...             |
| 1820 . . . . . | 83,000,000  | 9,050,000   | 15,300,000 | 24,000,000  | ...             |
| 1830 . . . . . | 91,000,000  | 9,800,000   | 17,000,000 | 30,400,000  | ...             |
| 1850 . . . . . | 123,000,000 | 34,100,000  | 27,600,000 | 53,900,000  | ...             |
| 1860 . . . . . | 143,000,000 | 69,500,000  | 39,700,000 | 98,100,000  | 840             |
| 1870 . . . . . | 191,000,000 | 100,400,000 | 50,900,000 | 108,200,000 | 4,830           |
| 1880 . . . . . | 199,000,000 | 122,100,000 | 68,400,000 | 160,400,000 | 9,310           |
| 1887 . . . . . | 214,600,000 | 163,000,000 | 77,300,000 | 185,700,000 | 14,380          |

## AUSTRALIA

This group of seven colonies has made great strides :—

| Year           | Population | Commerce, £ | Revenue, £ | Debt, £     | Railways, Miles |
|----------------|------------|-------------|------------|-------------|-----------------|
| 1800 . . . . . | 10,000     | 200,000     | ...        | ...         | ...             |
| 1820 . . . . . | 90,000     | 800,000     | 70,000     | ...         | ...             |
| 1840 . . . . . | 200,000    | 3,300,000   | 600,000    | ...         | ...             |
| 1850 . . . . . | 240,000    | 6,100,000   | ...        | ...         | ...             |
| 1860 . . . . . | 1,264,000  | 49,900,000  | 6,700,000  | 11,900,000  | 160             |
| 1870 . . . . . | 1,980,000  | 57,300,000  | 11,600,000 | 36,200,000  | 950             |
| 1880 . . . . . | 2,880,000  | 94,300,000  | 17,100,000 | 87,900,000  | 4,880           |
| 1888 . . . . . | 3,680,000  | 121,800,000 | 27,600,000 | 166,000,000 | 10,430          |

In 1888 the several colonies stood thus :—

|                             | Population | Commerce, £ | Revenue, £ | Debt, £     | Railways, Miles |
|-----------------------------|------------|-------------|------------|-------------|-----------------|
| New South Wales . . . . .   | 1,086,000  | 41,700,000  | 8,900,000  | 44,100,000  | 2,200           |
| Victoria . . . . .          | 1,091,000  | 37,800,000  | 7,600,000  | 34,600,000  | 2,191           |
| South Australia . . . . .   | 313,000    | 12,400,000  | 2,500,000  | 19,200,000  | 1,500           |
| New Zealand . . . . .       | 650,000    | 13,700,000  | 4,100,000  | 37,000,000  | 1,861           |
| Queensland . . . . .        | 387,000    | 11,800,000  | 3,500,000  | 25,900,000  | 1,931           |
| Tasmania . . . . .          | 146,000    | 2,900,000   | 600,000    | 4,500,000   | 485             |
| Western Australia . . . . . | 42,000     | 1,500,000   | 400,000    | 1,300,000   | 257             |
| Total . . . . .             | 3,715,000  | 121,800,000 | 27,600,000 | 166,600,000 | 10,431          |

In the above table commerce includes both merchandise and gold.

## CANADA

The official returns of this colony, including Newfoundland, show thus :—

| Year           | Population | Commerce, £ | Revenue, £ | Debt, £    | Railways, Miles |
|----------------|------------|-------------|------------|------------|-----------------|
| 1820 . . . . . | 840,000    | 1,000,000   | 240,000    | ...        | ...             |
| 1830 . . . . . | 910,000    | 3,300,000   | 300,000    | ...        | ...             |
| 1840 . . . . . | 1,690,000  | 6,200,000   | 500,000    | 1,200,000  | ...             |
| 1850 . . . . . | 3,360,000  | 22,700,000  | 2,400,000  | 13,200,000 | 2,170           |
| 1870 . . . . . | 3,830,000  | 33,600,000  | 3,600,000  | 17,000,000 | 3,200           |
| 1880 . . . . . | 4,500,000  | 39,000,000  | 5,100,000  | 32,100,000 | 6,890           |
| 1887 . . . . . | 5,020,000  | 43,900,000  | 7,600,000  | 47,300,000 | 11,788          |

## SOUTH AFRICA

Official and other statements give us the following :—

| Year           | Population | Commerce, £ | Revenue, £ | Debt, £    | Railways, Miles |
|----------------|------------|-------------|------------|------------|-----------------|
| 1840 . . . . . | 140,000    | 1,000,000   | 200,000    | ...        | ...             |
| 1850 . . . . . | 420,000    | 5,200,000   | 800,000    | 600,000    | ...             |
| 1870 . . . . . | 860,000    | 5,900,000   | 950,000    | 1,400,000  | 40              |
| 1880 . . . . . | 1,120,000  | 19,200,000  | 3,100,000  | 13,000,000 | 1,005           |
| 1887 . . . . . | 1,860,000  | 17,000,000  | 4,000,000  | 26,500,000 | 1,820           |

The statistics for the two colonies in 1887 were as follows :—

|                   | Cape Colony | Natal     | Total      |
|-------------------|-------------|-----------|------------|
| Population . . .  | 1,380,000   | 480,000   | 1,860,000  |
| Commerce, £ . .   | 13,700,000  | 3,300,000 | 17,000,000 |
| Revenue, £ . . .  | 3,200,000   | 800,000   | 4,000,000  |
| Debt, £ . . . . . | 22,500,000  | 4,000,000 | 26,500,000 |
| Railways, miles . | 1,600       | 220       | 1,820      |

## WEST AFRICA

Official returns give the following respecting this group :—

| Year           | Population | Commerce, £ | Revenue, £ | Debt, £ |
|----------------|------------|-------------|------------|---------|
| 1850 . . . . . | 205,000    | 800,000     | 60,000     | ...     |
| 1860 . . . . . | ...        | 1,000,000   | 80,000     | ...     |
| 1870 . . . . . | 550,000    | 2,500,000   | 180,000    | ...     |
| 1880 . . . . . | ...        | 3,100,000   | 280,000    | 90,000  |
| 1887 . . . . . | 1,560,000  | 2,500,000   | 250,000    | 60,000  |

Excluding St. Helena, the West Coast colonies count only 520 whites, mostly Government officials or missionaries. The chief product is palm-oil.

The several colonies stood thus in 1887 :—

|                  | Population | Commerce, £ | Revenue, £ | Debt, £ |
|------------------|------------|-------------|------------|---------|
| Gold Coast . . . | 1,405,000  | 700,000     | 120,000    | ...     |
| Lagos . . . . .  | 75,000     | 1,000,000   | 50,000     | ...     |
| Sierra Leone . . | 60,000     | 600,000     | 60,000     | 60,000  |
| Gambia . . . . . | 15,000     | 200,000     | 10,000     | ...     |
| St. Helena . . . | 5,000      | ...         | 10,000     | ...     |
| Total . . . . .  | 1,560,000  | 2,500,000   | 250,000    | 60,000  |

## MAURITIUS

We have statistics from 1827 as follows :—

| Year           | Population | Commerce, £ | Revenue, £ | Debt, £   | Railway, Miles |
|----------------|------------|-------------|------------|-----------|----------------|
| 1827 . . . . . | 95,000     | 1,000,000   | 200,000    | ...       | ...            |
| 1850 . . . . . | 180,000    | 2,300,000   | 300,000    | ...       | ...            |
| 1860 . . . . . | 310,000    | 5,000,000   | 600,000    | ...       | ...            |
| 1870 . . . . . | 320,000    | 4,200,000   | 600,000    | 1,100,000 | 70             |
| 1880 . . . . . | 380,000    | 5,900,000   | 800,000    | 800,000   | 90             |
| 1887 . . . . . | 370,000    | 5,200,000   | 700,000    | 700,000   | 90             |

The export of sugar, the chief product, rose from 30,000 tons in 1836 to 140,000 tons in 1877, but has now declined to 100,000 tons.

## CEYLON

The principal items are shown as follows :—

| Year           | Population | Commerce, £ | Revenue, £ | Debt, £   | Railway, Miles |
|----------------|------------|-------------|------------|-----------|----------------|
| 1850 . . . . . | 1,580,000  | 3,800,000   | 400,000    | ...       | ...            |
| 1860 . . . . . | 1,890,000  | 6,100,000   | 800,000    | ...       | ...            |
| 1870 . . . . . | 2,410,000  | 8,400,000   | 1,100,000  | 700,000   | 70             |
| 1880 . . . . . | 2,760,000  | 8,700,000   | 1,200,000  | 1,400,000 | 140            |
| 1887 . . . . . | ...        | 7,200,000   | 1,100,000  | 2,200,000 | 180            |

Coffee-planting began about 1840, the exportation reaching 32,000 tons in 1860, and rising to 50,000 tons in 1878, but now it barely reaches 9000 tons. Tea is, however, assuming importance, the shipment rising from £2000 worth in 1878, to a value of £700,000 in 1887. In like manner Chinchona\* has risen from £90,000 in 1881 to £350,000 in 1886.

\* This is often incorrectly called Cinchon. It takes its name from the Marquis of Chinchon, Viceroy of Peru, whose wife was cured by a Jesuit who prescribed this remedy.

## SINGAPORE

Sometimes called the Straits Settlement. Statistics show thus :—

| Year           | Population | Commerce, £ | Revenue, £ |
|----------------|------------|-------------|------------|
| 1860 . . . . . | 280,000    | 14,500,000  | 100,000    |
| 1870 . . . . . | 310,000    | 18,700,000  | 300,000    |
| 1880 . . . . . | 420,000    | 25,700,000  | 400,000    |
| 1887 . . . . . | 540,000    | 47,200,000  | 700,000    |

## WEST INDIES

Under this heading may be comprised all the following colonies, for which the statistics are given for 1887:—

|                          | Population       | Commerce, £       | Revenue, £       | Debt, £          | Railway, Miles |
|--------------------------|------------------|-------------------|------------------|------------------|----------------|
| Jamaica . . . . .        | 600,000          | 2,800,000         | 600,000          | 1,600,000        | 70             |
| Trinidad . . . . .       | 180,000          | 3,800,000         | 500,000          | 600,000          | 50             |
| Barbados . . . . .       | 170,000          | 2,100,000         | 200,000          | ...              | 20             |
| Bahamas . . . . .        | 40,000           | 300,000           | 50,000           | 200,000          | ...            |
| Honduras . . . . .       | 30,000           | 400,000           | 50,000           | ...              | ...            |
| British Guiana . . . . . | 280,000          | 3,800,000         | 500,000          | 600,000          | 20             |
| Small islands . . . . .  | 270,000          | 1,700,000         | 200,000          | 200,000          | ...            |
| <b>Total . . . . .</b>   | <b>1,570,000</b> | <b>14,900,000</b> | <b>2,100,000</b> | <b>3,100,000</b> | <b>160</b>     |

The progress of the group is shown as follows:—

| Year | Population | Com-<br>merce, £ | Revenue, £ | Debt, £   | Rail-<br>ways,<br>Miles |
|------|------------|------------------|------------|-----------|-------------------------|
| 1850 | 900,000    | 9,100,000        | 700,000    | 900,000   | ...                     |
| 1860 | 1,090,000  | 11,900,000       | 1,000,000  | 1,000,000 | ...                     |
| 1870 | 1,280,000  | 14,600,000       | 1,400,000  | 1,600,000 | 30                      |
| 1880 | 1,490,000  | 17,800,000       | 1,900,000  | 1,800,000 | 80                      |
| 1887 | 1,570,000  | 14,900,000       | 2,100,000  | 3,100,000 | 160                     |

commerce of Malta, Gibraltar, and Hong-Kong, the items for which are the latest published, over ten years old.

Hong-Kong is a thriving colony, with considerable trade, shipping entries in 1888 reaching 6,500,000 tons. Statistics show:—

|                                  | 1879      | 1888       |
|----------------------------------|-----------|------------|
| Saving-bank deposits, £          | 1,400,000 | 8,300,000  |
| Joint-stock companies capital, £ | 8,000,000 | 20,000,000 |

## FRENCH COLONIES

The protected countries are stated to be as follows:—

|                        | Population        | Square Miles   |
|------------------------|-------------------|----------------|
| Tonquin . . . . .      | 12,000,000        | 34,700         |
| Gambia . . . . .       | 850,000           | 268,000        |
| Madagascar . . . . .   | 1,500,000         | 228,000        |
| Annam . . . . .        | 5,000,000         | 106,000        |
| Cambodia . . . . .     | 1,500,000         | 32,400         |
| <b>Total . . . . .</b> | <b>20,850,000</b> | <b>669,100</b> |

The following colonial statistics refer to 1885:—

|                        | Births | Deaths | Acres<br>Tilled | Value of<br>Farms, £ |
|------------------------|--------|--------|-----------------|----------------------|
| Reunion . . . . .      | 4,200  | 5,200  | 140,000         | 3,900,000            |
| Cochin-China . . . . . | 62,000 | 36,000 | 2,300,000       | ...                  |
| Martinique . . . . .   | 5,570  | 4,020  | 90,000          | 3,600,000            |
| Guadeloupe . . . . .   | 4,300  | 4,720  | 100,000         | 5,900,000            |

The above returns are for 1887, except as regards the

An official statement in 1885 gives the following returns:—

|                         | Population       | Square Miles   | Imports, £        | Exports, £        | Railway, Miles | Revenue, £       |
|-------------------------|------------------|----------------|-------------------|-------------------|----------------|------------------|
| Algeria . . . . .       | 3,820,000        | 257,400        | 9,400,000         | 7,900,000         | 1,580          | 1,700,000        |
| Tunis . . . . .         | 1,500,000        | 45,000         | 1,300,000         | 800,000           | 260            | 1,000,000        |
| Cochin-China . . . . .  | 1,790,000        | 23,000         | 4,400,000         | 3,400,000         | 40             | 1,100,000        |
| Pondicherry . . . . .   | 280,000          | 200            | 300,000           | 1,100,000         | ...            | ...              |
| Nossi-Bé, &c. . . . .   | 30,000           | 2,400          | 200,000           | 200,000           | ...            | ...              |
| Reunion . . . . .       | 180,000          | 800            | 800,000           | 600,000           | 70             | 200,000          |
| Senegal . . . . .       | 140,000          | 138,400        | 1,000,000         | 700,000           | 250            | 100,000          |
| Tahiti . . . . .        | 10,000           | 450            | 200,000           | 100,000           | ...            | ...              |
| New Caledonia . . . . . | 60,000           | 7,700          | 300,000           | 200,000           | ...            | 100,000          |
| Guiana . . . . .        | 30,000           | 46,800         | 300,000           | 200,000           | ...            | ...              |
| Martinique . . . . .    | 170,000          | 380            | 900,000           | 800,000           | ...            | ...              |
| Guadeloupe . . . . .    | 180,000          | 720            | 800,000           | 700,000           | 120            | 400,000          |
| Marquesas, &c. . . . .  | 50,000           | 500            | 300,000           | 300,000           | ...            | ...              |
| <b>Total . . . . .</b>  | <b>8,240,000</b> | <b>523,750</b> | <b>20,200,000</b> | <b>17,000,000</b> | <b>2,320</b>   | <b>4,600,000</b> |

## ALGERIA

This is the best of the French colonies, and its progress is shown by the number of European settlers:—

|                        | 1883         | 1845          | 1856           | 1866           | 1876           | 1886           |
|------------------------|--------------|---------------|----------------|----------------|----------------|----------------|
| French . . . . .       | 3,500        | 46,300        | 92,800         | 122,100        | 155,700        | 219,600*       |
| Spaniards . . . . .    | 1,300        | 25,300        | 42,200         | 58,500         | 92,500         | 120,100        |
| Italians . . . . .     | 1,100        | 7,700         | 9,500          | 16,700         | 25,800         | ...            |
| Maltese . . . . .      | 1,200        | 8,100         | 7,100          | 10,600         | 14,200         | 86,200         |
| Sundry . . . . .       | 700          | 7,900         | 9,200          | 10,100         | 23,300         | ...            |
| <b>Total . . . . .</b> | <b>7,800</b> | <b>95,300</b> | <b>160,800</b> | <b>218,000</b> | <b>311,500</b> | <b>425,900</b> |

\* This appears to include 70,000 children born in the colony.

The population of the territory was made up thus in 1876:—

|                                 |                  |
|---------------------------------|------------------|
| Arabs under military rule . . . | 1,408,000        |
| Arabs under civil rule . . .    | 763,000          |
| French settlers . . .           | 156,000          |
| Foreign settlers . . .          | 155,000          |
| Jewish population . . .         | 33,000           |
| <b>Total . . .</b>              | <b>2,515,000</b> |

The territory under military law covered 110,000, that under civil law 16,000 square miles, total 126,000 square miles, or 78 million acres. The ordinary garrison is 50,000 men, not included above.

The work of colonisation from the time of the conquest (1830-36) was slow until 1848, when General Lamoricière obtained a grant of two millions sterling from the French Legislature for the purpose. In 1863 an agricultural census showed 102,000 Europeans living on farms that covered an area of 1,300,000 acres. Further grants of 240,000 acres were made in 1871 for Alsatian refugees, and in 1877 the area of farms held by settlers was 2,570,000 acres, distributed among 510 colonies or villages. The figures for 1863 and 1877 showed thus:—

|                                 | 1863             | 1877             |
|---------------------------------|------------------|------------------|
| Men . . . . .                   | 42,300           | 57,600           |
| Women . . . . .                 | 28,600           | 38,500           |
| Children . . . . .              | 30,900           | 47,300           |
| <b>Farming population . . .</b> | <b>101,800</b>   | <b>143,300</b>   |
| <b>Acres . . . . .</b>          | <b>1,300,000</b> | <b>2,570,000</b> |

Each colony or group of settlers averages 5000 acres, with 60 habitations and 300 inhabitants, the Government having expended £120 for each family, or £6000 per colony, in all £3,000,000 sterling. There are 2,100,000 Arabs, holding 39½ million acres. Forests and crown-

#### CUBA AND PORTO RICO

The principal products of these islands are as follows:—

|                        | Value, £          |                  |                   | Tons       |            |            |
|------------------------|-------------------|------------------|-------------------|------------|------------|------------|
|                        | Cuba              | Porto Rico       | Total             | Cuba       | Porto Rico | Total      |
| Sugar . . . . .        | 9,000,000         | 800,000          | 9,800,000         | 670,000    | 60,000     | 730,000    |
| Tobacco . . . . .      | 5,000,000         | 130,000          | 5,130,000         | 20,000     | 2,000      | 22,000     |
| Coffee . . . . .       | 1,000,000         | 900,000          | 1,900,000         | 20,000     | 20,000     | 40,000     |
| Sundries . . . . .     | 3,800,000         | 300,000          | 4,100,000         | ...        | ...        | ...        |
| <b>Total . . . . .</b> | <b>18,800,000</b> | <b>2,130,000</b> | <b>20,930,000</b> | <b>...</b> | <b>...</b> | <b>...</b> |

Cuba has 930 miles of railway and 2800 of telegraphs. The revenue averages £5,100,000, of which £2,400,000 are Customs-dues, the rest taxes. The consolidated debt consists of £25,000,000 in 6 per cents., largely held in Germany. Shipping entries at Havana and other ports sum up 1,350,000 tons yearly, 540,000 tons being Spanish, and the remainder 60 per cent. foreign flags. Havana has a population of 108,000.

The Philippine Islands have 120 miles of railway and 700 of telegraphs. Shipping entries at Manila do not exceed yearly 300,000 tons. Imports, £4,100,000; exports, £5,200,000, viz.:—

|                        |                  |
|------------------------|------------------|
| Sugar . . . . .        | 1,800,000        |
| Hemp . . . . .         | 1,100,000        |
| Tobacco . . . . .      | 500,000          |
| Coffee . . . . .       | 300,000          |
| Sundries . . . . .     | 1,500,000        |
| <b>Total . . . . .</b> | <b>5,200,000</b> |

The revenue reaches £2,000,000, of which £400,000

lands cover 35 million acres. The Arabs have nearly 7 million acres under tillage; their flocks and herds count 8,000,000 head. The French have spent over 20 millions sterling on roads and other public works: the roads over the Atlas and other ranges are excellent. The colony has suffered much from locusts. The first railway was begun in 1863, and there are now 1550 miles in traffic. In 1886 the imports were £9,700,000, exports £7,300,000. Revenue £1,800,000, which is much less than the annual expenditure. Entries of shipping 1,980,000 tons yearly, of which 1,170,000 are French.

#### TUNIS

This territory can hardly be called a colony: it was annexed by France in 1881, but has few French residents. There are 30,000 Christians and 30,000 Jews; the former including 10,000 Italians, 8000 Maltese, and the rest a mixture of all nations. Revenue, £960,000; debt, £5,700,000. The shipping entries reach 1,600,000 tons yearly.

#### SPANISH COLONIES

Official and other documents give us the following:—

|                        | Square Miles   | Population       | Commerce, £       | Railway, Miles | Revenue, £ |
|------------------------|----------------|------------------|-------------------|----------------|------------|
| Cuba . . . . .         | 46,000         | 1,520,000        | 28,000,000        | 930            | 5,100,000  |
| Porto Rico . . .       | 3,700          | 650,000          | 4,300,000         | ...            | 800,000    |
| Canaries . . . .       | 2,700          | 280,000          | 1,500,000         | ...            | ...        |
| Philippines . .        | 114,400        | 5,600,000        | 9,300,000         | ...            | 2,000,000  |
| Fernando Po . .        | 1,500          | 50,000           | ...               | ...            | ...        |
| Mariana Islands        | 400            | 10,000           | ...               | ...            | ...        |
| Carolinas . . .        | 1,500          | 40,000           | ...               | ...            | ...        |
| <b>Total . . . . .</b> | <b>170,200</b> | <b>8,150,000</b> | <b>42,500,000</b> | <b>...</b>     | <b>...</b> |

are Customs-dues, the rest taxes. Population of Manila 182,000.

Statistics of the Canary Islands and other colonies will be found under the head of *Agriculture*, p. 58.

#### PORTUGUESE COLONIES

Official and other documents give us the following:—

|                        | Square Miles   | Population       | Revenue, £     |
|------------------------|----------------|------------------|----------------|
| Madeira . . . . .      | 320            | 130,000          | ...            |
| Azores . . . . .       | 910            | 260,000          | ...            |
| Cape Verd Islands .    | 1,860          | 105,000          | 50,000         |
| St. Thomas and Prince  | 420            | 20,000           | 25,000         |
| Angola . . . . .       | 115,000        | 900,000          | 130,000        |
| Mozambique . . .       | 80,000         | 500,000          | 60,000         |
| Goa . . . . .          | 1,300          | 480,000          | 110,000        |
| Timor . . . . .        | 6,300          | 300,000          | 70,000         |
| Macao . . . . .        | 4              | 70,000           | ...            |
| <b>Total . . . . .</b> | <b>206,114</b> | <b>2,765,000</b> | <b>445,000</b> |

Madeira and the Azores are not treated as colonial possessions, but as two integral provinces of Portugal, with deputies sitting in the Lisbon Cortes.

## DUTCH COLONIES

The latest information is to the following effect :—

|                         | Square Miles | Population |
|-------------------------|--------------|------------|
| Java . . . . .          | 51,300       | 18,100,000 |
| Sumatra . . . . .       | 46,200       | 940,000    |
| Bencoolen . . . . .     | 9,600        | 130,000    |
| Borneo . . . . .        | 197,000      | 1,210,000  |
| Celebes . . . . .       | 45,200       | 350,000    |
| Moluccas . . . . .      | 42,400       | 330,000    |
| New Guinea . . . . .    | 67,400       | 200,000    |
| Palembang . . . . .     | 61,200       | 480,000    |
| Other islands . . . . . | 95,200       | 2,160,000  |
| East Indies . . . . .   | 615,500      | 23,900,000 |
| Dutch Guiana . . . . .  | 46,100       | 60,000     |
| Curaçoa, &c. . . . .    | 440          | 46,000     |
| Total . . . . .         | 662,040      | 24,006,000 |

The East Indian possessions show an aggregate commerce of 14 millions sterling imports and 16 millions exports. The gross revenue is £11,800,000. The Dutch-India Company has a monopoly of Java, which gives a net profit of 3 millions sterling per annum. The population of the East Indian possessions is as follows :—

|                             |            |
|-----------------------------|------------|
| European settlers . . . . . | 34,000     |
| Garrison . . . . .          | 14,000     |
| Chinese . . . . .           | 310,000    |
| Natives . . . . .           | 23,542,000 |

Total . . . . . 23,900,000

Most of the natives are Mahometans, except those of the Moluccas, who are Christians.

The revenue is obtained thus :—

|                              |            |
|------------------------------|------------|
| Coffee plantations . . . . . | £4,700,000 |
| Opium plantations . . . . .  | 1,500,000  |
| Land-tax, &c. . . . .        | 5,600,000  |

Total . . . . . 11,800,000

## DANISH COLONIES

Latest information may be summed up thus :—

|                         | Square Miles | Population |
|-------------------------|--------------|------------|
| Iceland . . . . .       | 40,200       | 72,000     |
| Greenland . . . . .     | 34,000       | 10,000     |
| Faroe Islands . . . . . | 500          | 11,000     |
| St. Thomas, &c. . . . . | 140          | 33,000     |
| Total . . . . .         | 74,840       | 126,000    |

Iceland is in reality a republic, under Danish protection. In 1804 the Census showed 4750 farms, with 47,000 inhabitants; some grain was then cultivated. At present the island depends mainly on its fisheries. A vessel of 60 tons with twelve men can earn £440 in the cod-fishing season. Greenland also depends on fishing, the annual product averaging 12,000 barrels of blubber and 3000 of cod-liver. The West Indian possessions comprise the three islands of St. Thomas, Sainte Croix, and St. John, which produce yearly 7000 tons of sugar and one million barrels of rum. Denmark was the first of all countries to abolish slavery, by liberating her West Indian slaves in 1826.

## GERMAN COLONIES

The extent and population of the new German possession of Cameroons in Africa are not known. The other possessions are :—

|                                | Square Miles | Population |
|--------------------------------|--------------|------------|
| New Guinea . . . . .           | 70,000       | 107,000    |
| Bismarck Archipelago . . . . . | 20,000       | 188,000    |
| Solomon Islands . . . . .      | 9,000        | 80,000     |
| Marshall Islands . . . . .     | 40           | 10,000     |
| Total . . . . .                | 99,040       | 385,000    |

## COMMERCE

International trade has increased fortyfold since the beginning of the eighteenth century. The following table shows approximately the aggregate value of imports and exports for each country :—

MILLIONS, £ STERLING

|                               | 1720 | 1750 | 1780 | 1800 | 1820 | 1830 | 1840 | 1850 | 1860  | 1870  | 1880  | 1889  |
|-------------------------------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Great Britain . . . . .       | 13   | 21   | 23   | 67   | 74   | 88   | 114  | 169  | 375   | 547   | 698   | 740   |
| France . . . . .              | 7    | 13   | 22   | 31   | 33   | 41   | 66   | 95   | 167   | 227   | 339   | 311   |
| Germany . . . . .             | 8    | 15   | 20   | 36   | 40   | 46   | 52   | 70   | 130   | 212   | 294   | 367   |
| Russia . . . . .              | 8    | 14   | 17   | 30   | 22   | 28   | 33   | 40   | 48    | 103   | 131   | 118   |
| Austria . . . . .             | 2    | 4    | 6    | 8    | 10   | 15   | 22   | 29   | 47    | 83    | 107   | 92    |
| Italy . . . . .               | 3    | 5    | 7    | 10   | 15   | 20   | 30   | 38   | 52    | 66    | 91    | 94    |
| Spain . . . . .               | 10   | 14   | 18   | 12   | 10   | 7    | 10   | 11   | 25    | 41    | 50    | 59    |
| Portugal . . . . .            | 2    | 3    | 4    | 4    | 3    | 3    | 4    | 5    | 8     | 10    | 14    | 18    |
| Scandinavia . . . . .         | 2    | 3    | 5    | 5    | 6    | 8    | 12   | 18   | 27    | 48    | 64    | 72    |
| Holland and Belgium . . . . . | 4    | 6    | 8    | 15   | 24   | 30   | 45   | 61   | 86    | 136   | 237   | 310   |
| Switzerland . . . . .         | 1    | 2    | 3    | 5    | 6    | 8    | 10   | 20   | 30    | 45    | 60    | 60    |
| Turkey, &c. . . . .           | 2    | 3    | 4    | 5    | 6    | 7    | 10   | 20   | 29    | 55    | 49    | 72    |
| Europe . . . . .              | 62   | 103  | 137  | 228  | 249  | 301  | 408  | 576  | 1,024 | 1,573 | 2,134 | 2,313 |
| United States . . . . .       | ...  | ...  | 3    | 17   | 23   | 22   | 41   | 62   | 136   | 165   | 308   | 320   |
| Spanish America . . . . .     | 10   | 15   | 20   | 25   | 30   | 35   | 48   | 70   | 94    | 135   | 160   | 166   |
| British Colonies . . . . .    | 2    | 3    | 1    | 2    | 3    | 9    | 21   | 44   | 103   | 128   | 203   | 298   |
| India . . . . .               | 9    | 9    | 10   | 10   | 11   | 10   | 20   | 30   | 52    | 85    | 108   | 131   |
| Various . . . . .             | 5    | 10   | 15   | 20   | 25   | 30   | 35   | 50   | 80    | 105   | 120   | 149   |
| The World . . . . .           | 88   | 140  | 186  | 302  | 341  | 407  | 573  | 832  | 1,489 | 2,191 | 3,033 | 3,377 |

The greatest relative increase was in the decade between 1850 and 1860, namely, 80 per cent., that period being contemporaneous with the introduction of free trade.

# COMMERCE.

*Aggregate of Imports and Exports, millions £.*

*Trade for Population, Shillings per Inhabitant.*

|     |             |     |
|-----|-------------|-----|
| 740 | G. BRITAIN  | 390 |
| 367 | GERMANY     | 136 |
| 320 | U. STATES   | 100 |
| 311 | FRANCE      | 163 |
| 199 | HOLLAND     | 900 |
| 118 | RUSSIA      | 27  |
| 111 | BELGIUM     | 370 |
| 94  | ITALY       | 82  |
| 92  | AUSTRIA     | 48  |
| 74  | AUSTRALIA*  | 405 |
| 60  | SWITZERLAND | 400 |
| 59  | SPAIN       | 70  |
| 42  | CANADA      | 168 |
| 30  | SWEDEN      | 126 |
| 26  | DENMARK     | 260 |
| 16  | PORTUGAL    | 80  |

\* Exclusive of Inter-Colonial Trade.





The trade of all nations from 1861 to 1886 was as follows :—

MILLIONS £ STERLING

|                              | Imports |         |         |          | Exports |         |         |          |
|------------------------------|---------|---------|---------|----------|---------|---------|---------|----------|
|                              | 1861-70 | 1871-80 | 1881-86 | 26 Years | 1861-70 | 1871-80 | 1881-86 | 26 Years |
| United Kingdom . . . . .     | 2,701   | 3,714   | 2,348   | 8,763    | 2,129   | 2,778   | 1,745   | 6,652    |
| France . . . . .             | 1,090   | 1,560   | 1,086   | 3,736    | 1,100   | 1,390   | 806     | 3,296    |
| Germany . . . . .            | 950     | 1,740   | 921     | 3,611    | 680     | 1,270   | 925     | 2,875    |
| Russia . . . . .             | 270     | 490     | 306     | 1,066    | 280     | 480     | 339     | 1,099    |
| Austria . . . . .            | 302     | 570     | 302     | 1,174    | 350     | 505     | 360     | 1,215    |
| Italy . . . . .              | 361     | 472     | 319     | 1,152    | 263     | 444     | 262     | 969      |
| Spain and Portugal . . . . . | 222     | 253     | 231     | 706      | 164     | 242     | 199     | 605      |
| Belgium . . . . .            | 305     | 562     | 355     | 1,222    | 246     | 441     | 307     | 994      |
| Holland . . . . .            | 319     | 630     | 517     | 1,466    | 258     | 432     | 399     | 1,089    |
| Scandinavia . . . . .        | 169     | 348     | 235     | 752      | 151     | 262     | 169     | 582      |
| Other countries . . . . .    | 183     | 174     | 345     | 702      | 225     | 159     | 311     | 695      |
| Europe . . . . .             | 6,872   | 10,513  | 6,965   | 24,350   | 5,846   | 8,403   | 5,822   | 20,071   |
| United States . . . . .      | 493     | 988     | 807     | 2,288    | 361     | 1,122   | 946     | 2,429    |
| Canada . . . . .             | 161     | 179     | 149     | 489      | 132     | 151     | 125     | 408      |
| Australia . . . . .          | 289     | 402     | 366     | 1,057    | 191     | 343     | 282     | 816      |
| India . . . . .              | 293     | 368     | 322     | 983      | 518     | 597     | 495     | 1,610    |
| China and Japan . . . . .    | 244     | 289     | 170     | 703      | 233     | 271     | 160     | 664      |
| South America . . . . .      | 528     | 587     | 317     | 1,432    | 513     | 658     | 359     | 1,530    |
| Egypt . . . . .              | 73      | 52      | 49      | 174      | 184     | 136     | 74      | 394      |
| Java . . . . .               | 52      | 91      | 84      | 227      | 93      | 165     | 96      | 354      |
| Other countries . . . . .    | 223     | 318     | 542     | 1,083    | 230     | 311     | 602     | 1,143    |
| Total . . . . .              | 9,228   | 13,787  | 9,771   | 32,786   | 8,301   | 12,157  | 8,961   | 29,419   |

Imports, of course, always sum up a higher value than exports, the former including freight, insurance, commission, and other charges, which make up about 6 per cent. on the original value of exports at port of shipment. The surplus thus represented by imports has been declining in ratio since 1880, probably owing to cheaper freights and the facilities afforded by telegraphs. The surplus was as follows :—

| Period            | Millions Sterling | Percentage over Exports |
|-------------------|-------------------|-------------------------|
| 1861-70 . . . . . | 927               | 11.7                    |
| 1871-80 . . . . . | 1,630             | 13.6                    |
| 1881-86 . . . . . | 810               | 9.0                     |
| 1887-88 . . . . . | 94                | 6.0                     |

The surplus of imports has been chiefly among European nations as follows :—

|                              | Millions £ Sterling |         |         |          | Percentage over Exports |         |         |          |
|------------------------------|---------------------|---------|---------|----------|-------------------------|---------|---------|----------|
|                              | 1861-70             | 1871-80 | 1881-86 | 26 Years | 1861-70                 | 1871-80 | 1881-86 | 26 Years |
| United Kingdom . . . . .     | 572                 | 936     | 603     | 2,111    | 27                      | 33      | 35      | 32       |
| France . . . . .             | ...                 | 170     | 280     | 440      | ...                     | 12      | 35      | 14       |
| Germany . . . . .            | 270                 | 470     | ...     | 736      | 40                      | 38      | ...     | 26       |
| Italy . . . . .              | 98                  | 28      | 57      | 183      | 37                      | 6       | 22      | 19       |
| Spain and Portugal . . . . . | 58                  | 11      | 32      | 101      | 35                      | 5       | 16      | 17       |
| Belgium . . . . .            | 59                  | 121     | 48      | 228      | 24                      | 27      | 16      | 23       |
| Holland . . . . .            | 61                  | 198     | 118     | 377      | 23                      | 46      | 30      | 35       |
| Scandinavia . . . . .        | 18                  | 86      | 66      | 170      | 12                      | 32      | 40      | 30       |

The following table shows the proportions of the world's commerce corresponding to various nations since 1830 :—

|                              | 1830  | 1850  | 1870  | 1881-86 | 1889  |
|------------------------------|-------|-------|-------|---------|-------|
| United Kingdom . . . . .     | 21.5  | 20.4  | 25.0  | 20.8    | 22.0  |
| France . . . . .             | 10.0  | 11.3  | 10.4  | 10.1    | 9.2   |
| Germany . . . . .            | 11.2  | 8.4   | 9.7   | 9.8     | 10.9  |
| Russia . . . . .             | 6.8   | 4.9   | 4.8   | 3.4     | 3.5   |
| Austria . . . . .            | 3.6   | 3.4   | 3.7   | 3.5     | 2.7   |
| Italy . . . . .              | 4.9   | 4.6   | 3.0   | 2.1     | 2.7   |
| Spain and Portugal . . . . . | 3.2   | 1.9   | 2.3   | 2.3     | 2.3   |
| Belgium . . . . .            | 3.5   | 2.5   | 2.8   | 3.6     | 3.3   |
| Holland . . . . .            | 3.8   | 4.9   | 3.2   | 4.8     | 5.9   |
| Scandinavia . . . . .        | 2.0   | 2.1   | 2.2   | 2.1     | 2.1   |
| Other countries . . . . .    | 3.5   | 5.0   | 4.7   | 3.5     | 4.0   |
| Europe . . . . .             | 74.0  | 69.4  | 71.8  | 67.0    | 68.6  |
| United States . . . . .      | 5.4   | 7.5   | 7.5   | 9.3     | 9.5   |
| South America . . . . .      | 8.6   | 8.3   | 5.5   | 3.5     | 3.4   |
| British colonies . . . . .   | 4.6   | 8.9   | 9.5   | 10.7    | 9.0   |
| China, &c. &c. . . . .       | 7.4   | 5.9   | 5.7   | 9.5     | 9.5   |
| Total . . . . .              | 100.0 | 100.0 | 100.0 | 100.0   | 100.0 |

The above comprises only merchandise; specie, bullion and gold-dust are excluded. The item of British colonies includes also India.

The commerce of the principal nations compared with population thus :—

|                            | 1830    | 1870    | 1889    |
|----------------------------|---------|---------|---------|
|                            | £ s. d. | £ s. d. | £ s. d. |
| United Kingdom . . . . .   | 3 12 0  | 17 7 0  | 19 10 0 |
| France . . . . .           | 1 4 0   | 6 4 0   | 8 3 0   |
| Germany . . . . .          | 1 14 0  | 5 6 0   | 7 16 0  |
| Russia . . . . .           | 0 12 6  | 1 7 0   | 1 7 0   |
| Austria . . . . .          | 0 13 0  | 2 7 0   | 2 6 0   |
| Italy . . . . .            | 1 3 0   | 2 11 0  | 3 3 0   |
| Spain & Portugal . . . . . | 0 16 8  | 2 12 0  | 3 5 0   |
| Holland . . . . .          | 5 14 0  | 19 8 0  | 45 0 0  |
| Belgium . . . . .          | 3 18 0  | 12 12 0 | 18 10 0 |
| Scandinavia . . . . .      | 1 12 0  | 6 5 0   | 8 1 0   |
| Europe . . . . .           | 1 9 8   | 5 18 2  | 7 0 0   |
| United States . . . . .    | 2 0 0   | 4 9 3   | 5 0 0   |

The relative increase in the United States has been much less than in Europe.

The following table shows, in millions £ sterling, the average annual trade of each country in the years 1881 to 1886, and also for 1889, or the year last published :—

|                       | 1881-86 |         |       | 1889    |         |       |
|-----------------------|---------|---------|-------|---------|---------|-------|
|                       | Imports | Exports | Total | Imports | Exports | Total |
| United Kingdom        | 391     | 291     | 682   | 427     | 313     | 740   |
| France . . . . .      | 181     | 134     | 315   | 167     | 144     | 311   |
| Germany . . . . .     | 153     | 154     | 307   | 204     | 163     | 367   |
| Russia . . . . .      | 51      | 56      | 107   | 39      | 79      | 118   |
| Austria . . . . .     | 50      | 60      | 110   | 48      | 44      | 92    |
| Italy . . . . .       | 53      | 44      | 97    | 56      | 38      | 94    |
| Spain . . . . .       | 30      | 27      | 57    | 29      | 30      | 59    |
| Portugal . . . . .    | 8       | 6       | 14    | 11      | 7       | 18    |
| Sweden . . . . .      | 17      | 13      | 30    | 16      | 14      | 30    |
| Norway . . . . .      | 9       | 6       | 15    | 9       | 7       | 16    |
| Denmark . . . . .     | 13      | 9       | 22    | 15      | 11      | 26    |
| Belgium . . . . .     | 59      | 51      | 110   | 61      | 50      | 111   |
| Holland . . . . .     | 86      | 66      | 152   | 106     | 93      | 199   |
| Switzerland . . . . . | 24      | 23      | 47    | 33      | 27      | 60    |
| Greece . . . . .      | 5       | 3       | 8     | 4       | 3       | 7     |
| Roumania . . . . .    | 12      | 9       | 21    | 13      | 10      | 23    |
| Servia . . . . .      | 2       | 2       | 4     | 2       | 2       | 4     |
| Bulgaria . . . . .    | 2       | 2       | 4     | 3       | 3       | 6     |
| Turkey . . . . .      | 17      | 9       | 26    | 20      | 13      | 33    |
| Europe . . . . .      | 1,163   | 965     | 2,128 | 1,263   | 1,051   | 2,314 |

|                           | 1881-86 |         |       | 1889    |         |       |
|---------------------------|---------|---------|-------|---------|---------|-------|
|                           | Imports | Exports | Total | Imports | Exports | Total |
| United States             | 134     | 158     | 292   | 154     | 166     | 320   |
| Canada . . . . .          | 25      | 21      | 46    | 23      | 19      | 42    |
| Australia . . . . .       | 61      | 47      | 108   | 68      | 62      | 130   |
| South Africa . . . . .    | 8       | 9       | 17    | 9       | 10      | 19    |
| Mexico . . . . .          | 6       | 7       | 13    | 8       | 12      | 20    |
| Central America . . . . . | 3       | 4       | 7     | 3       | 4       | 7     |
| South America . . . . .   | 53      | 50      | 103   | 57      | 57      | 114   |
| West Indies . . . . .     | 8       | 8       | 16    | 7       | 8       | 15    |
| India * . . . . .         | 43      | 66      | 109   | 54      | 77      | 131   |
| China . . . . .           | 22      | 19      | 41    | 26      | 23      | 49    |
| Japan . . . . .           | 6       | 8       | 14    | 11      | 11      | 22    |
| Java . . . . .            | 14      | 16      | 30    | 14      | 16      | 30    |
| Persia . . . . .          | 4       | 3       | 7     | 5       | 3       | 8     |
| Egypt . . . . .           | 8       | 12      | 20    | 7       | 12      | 19    |
| Algeria . . . . .         | 10      | 7       | 17    | 9       | 8       | 17    |
| Cuba . . . . .            | 10      | 18      | 28    | 10      | 18      | 28    |
| Other countries . . . . . | 40      | 48      | 88    | 40      | 52      | 92    |
| The world . . . . .       | 1,618   | 1,466   | 3,084 | 1,770   | 1,607   | 3,377 |

\* In this table 20 per cent. is taken off the nominal value of Indian trade because the Government returns compute the rupee at 24 pence.

The following table shows approximately the weight of the principal articles of merchandise exchanged between nations :—

|                     | Tons Merchandise Sea-borne Yearly |            |            |             |             |
|---------------------|-----------------------------------|------------|------------|-------------|-------------|
|                     | 1840                              | 1861-70    | 1871-80    | 1880        | 1887        |
| Coal . . . . .      | 1,400,000                         | 20,300,000 | 30,900,000 | 39,200,000  | 49,300,000  |
| Iron . . . . .      | 1,100,000                         | 4,200,000  | 6,000,000  | 8,500,000   | 11,800,000  |
| Timber . . . . .    | 4,100,000                         | 6,300,000  | 8,000,000  | 9,000,000   | 12,100,000  |
| Grain . . . . .     | 1,900,000                         | 4,400,000  | 11,200,000 | 16,800,000  | 19,200,000  |
| Sugar . . . . .     | 700,000                           | 1,200,000  | 1,800,000  | 2,900,000   | 4,400,000   |
| Petroleum . . . . . | ...                               | 240,000    | 1,400,000  | 2,100,000   | 2,700,000   |
| Cotton . . . . .    | 400,000                           | 600,000    | 1,000,000  | 1,200,000   | 1,800,000   |
| Wool . . . . .      | 20,000                            | 100,000    | 250,000    | 300,000     | 350,000     |
| Jute . . . . .      | ...                               | 100,000    | 300,000    | 400,000     | 600,000     |
| Meat . . . . .      | ...                               | 100,000    | 400,000    | 650,000     | 700,000     |
| Coffee . . . . .    | 200,000                           | 300,000    | 400,000    | 500,000     | 600,000     |
| Wine . . . . .      | 200,000                           | 500,000    | 900,000    | 1,200,000   | 1,400,000   |
| Salt . . . . .      | 800,000                           | 1,000,000  | 1,200,000  | 1,300,000   | 1,300,000   |
| Sundries . . . . .  | 9,180,000                         | 16,660,000 | 24,250,000 | 28,950,000  | 33,750,000  |
| Total . . . . .     | 20,000,000                        | 56,000,000 | 88,000,000 | 113,000,000 | 140,100,000 |

The total weight of sea-borne merchandise composing the commerce of 27 years, down to 1887, and the value approximately of same at shipment, are shown as follows :—

|                     | Millions of Tons | Value, Millions | Ratio of |       |
|---------------------|------------------|-----------------|----------|-------|
|                     |                  |                 | Weight   | Value |
| Coal . . . . .      | 830              | 410             | 36.0     | 1.3   |
| Iron . . . . .      | 170              | 480             | 7.4      | 1.6   |
| Timber . . . . .    | 220              | 660             | 9.5      | 2.1   |
| Grain . . . . .     | 180              | 1,050           | 7.8      | 3.4   |
| Sugar . . . . .     | 55               | 1,130           | 2.4      | 3.7   |
| Petroleum . . . . . | 32               | 180             | 1.4      | 0.6   |
| Cotton . . . . .    | 27               | 180             | 1.2      | 0.6   |
| Salt . . . . .      | 30               | 18              | 1.3      | ...   |
| Wine . . . . .      | 23               | 510             | 1.0      | 1.6   |
| Coffee . . . . .    | 11               | 840             | 0.5      | 2.7   |
| Meat . . . . .      | 10               | 560             | 0.4      | 1.8   |
| Sundries . . . . .  | 712              | 24,982          | 31.1     | 80.6  |
| Total . . . . .     | 2,300            | 31,000          | 100.0    | 100.0 |

If we compare the weight of sea-borne merchandise with the tonnage of shipping of all nations at various dates, we find as follows :—

| Year | Tons Shipping | Tons Merchandise | Tons Carried per Ton of Shipping |
|------|---------------|------------------|----------------------------------|
| 1840 | 9,400,000     | 20,000,000       | 2.1                              |
| 1865 | 17,000,000    | 56,000,000       | 3.3                              |
| 1875 | 18,000,000    | 88,000,000       | 4.9                              |
| 1880 | 20,300,000    | 113,000,000      | 5.6                              |
| 1887 | 21,200,000    | 140,000,000      | 6.6                              |

Each ton of shipping now carries more than three times as much as it did in 1840, which is, of course, due to the use of steam, one ton of steam-ship being equivalent to four of sailing-ships. The traffic of 1887 was approximately as follows :—

|                    | Tonnage Register | Tons Carried |
|--------------------|------------------|--------------|
| Steamers . . . . . | 8,600,000        | 102,000,000  |
| Sailing . . . . .  | 12,600,000       | 38,000,000   |
| Total . . . . .    | 21,200,000       | 140,000,000  |

## GREAT BRITAIN

There are non-continuous records of British commerce since the time of Edward III.

| Year | Reign        | Imports     | Exports     | Total       | Per Inhabitant |
|------|--------------|-------------|-------------|-------------|----------------|
|      |              | £           | £           | £           | £ s. d.        |
| 1355 | Edward III.  | 120,000     | 294,000     | 414,000     | 0 2 10         |
| 1573 | Elizabeth    | 2,100,000   | 1,880,000   | 3,980,000   | 0 15 0         |
| 1614 | James I.     | 2,140,000   | 2,090,000   | 4,230,000   | 0 16 6         |
| 1687 | James II.    | 4,200,000   | 4,080,000   | 8,280,000   | 1 10 2         |
| 1697 | William III. | 3,500,000   | 3,500,000   | 7,000,000   | 1 5 6          |
| 1701 | "            | 5,900,000   | 6,900,000   | 12,800,000  | 2 2 0          |
| 1712 | Anne         | 5,800,000   | 6,900,000   | 12,700,000  | 2 0 0          |
| 1726 | George I.    | 6,700,000   | 7,700,000   | 14,400,000  | 1 18 0         |
| 1736 | George II.   | 7,300,000   | 9,700,000   | 17,000,000  | 2 5 0          |
| 1750 | "            | 7,800,000   | 12,700,000  | 20,500,000  | 2 10 0         |
| 1760 | George III.  | 10,700,000  | 15,800,000  | 26,500,000  | 3 3 0          |
| 1770 | "            | 13,400,000  | 16,000,000  | 29,400,000  | 3 6 0          |
| 1780 | "            | 10,800,000  | 12,600,000  | 23,400,000  | 2 10 0         |
| 1790 | "            | 19,100,000  | 20,100,000  | 39,200,000  | 3 18 0         |
| 1800 | "            | 24,100,000  | 43,200,000  | 67,300,000  | 6 8 0          |
| 1810 | "            | 30,200,000  | 58,800,000  | 89,000,000  | 5 0 0          |
| 1820 | George IV.   | 29,700,000  | 44,200,000  | 73,900,000  | 3 10 0         |
| 1830 | William IV.  | 42,300,000  | 45,800,000  | 88,100,000  | 3 14 0         |
| 1840 | Victoria     | 51,600,000  | 62,000,000  | 113,600,000 | 4 4 0          |
| 1850 | "            | 99,000,000  | 70,000,000  | 169,000,000 | 6 4 0          |
| 1860 | "            | 210,500,000 | 164,500,000 | 375,000,000 | 12 17 0        |
| 1870 | "            | 303,300,000 | 244,100,000 | 547,400,000 | 17 7 0         |
| 1880 | "            | 411,200,000 | 286,400,000 | 697,600,000 | 20 5 0         |
| 1889 | "            | 427,200,000 | 313,000,000 | 740,200,000 | 19 10 0        |

The export trade of G. Britain in 1798 was as follows :—

| British Products     | £          | Foreign and Colonial  | £          |
|----------------------|------------|-----------------------|------------|
| Woolen goods . . .   | 6,200,000  | Coffee . . . . .      | 5,800,000  |
| Cotton goods . . .   | 2,300,000  | Indian textiles . . . | 2,400,000  |
| Linen goods . . .    | 1,200,000  | Sugar . . . . .       | 1,300,000  |
| Iron and steel . . . | 900,000    | Irish linen . . . . . | 500,000    |
| Coal . . . . .       | 500,000    | Tea . . . . .         | 400,000    |
| Sugar . . . . .      | 400,000    | Sundries . . . . .    | 3,500,000  |
| Silks . . . . .      | 300,000    |                       |            |
| Sundries . . . . .   | 7,900,000  | Total . . . . .       | 13,900,000 |
| Total . . . . .      | 19,700,000 | Grand total . . . . . | 33,600,000 |

The trade for the years 1888 and 1889 was as follows :—

|                      | Imports, Mill. £ |      |                       | Exports, Mill. £ |      |
|----------------------|------------------|------|-----------------------|------------------|------|
|                      | 1888             | 1889 |                       | 1888             | 1889 |
| Food . . . . .       | 157              | 171  | Textiles . . . . .    | 109              | 110  |
| Textile fibres . . . | 81               | 91   | Metals . . . . .      | 50               | 56   |
| Hides, timber, &c. . | 37               | 44   | Clothing . . . . .    | 11               | 11   |
| Manufactures . . .   | 58               | 64   | Chemicals . . . . .   | 7                | 8    |
| Metals . . . . .     | 23               | 22   | Sundries . . . . .    | 57               | 63   |
| Chemicals . . . . .  | 15               | 16   |                       |                  |      |
| Sundries . . . . .   | 16               | 19   | British produce . . . | 234              | 248  |
|                      |                  |      | Colonial . . . . .    | 64               | 65   |
| Total . . . . .      | 387              | 427  | Total . . . . .       | 298              | 313  |

Commerce between France and the United Kingdom since 1831 shows thus :—

| Period   | Millions £        |                     |                 | Annual Trade, £ |
|----------|-------------------|---------------------|-----------------|-----------------|
|          | Exports to France | Imports from France | Total Exchanged |                 |
| 1831-40  | 16                | 30                  | 46              | 4,600,000       |
| 1841-50  | 31                | 55                  | 86              | 8,600,000       |
| 1851-60  | 84                | 163                 | 247             | 24,700,000      |
| 1861-70  | 230               | 298                 | 528             | 52,800,000      |
| 1871-80  | 284               | 421                 | 705             | 70,500,000      |
| 1881-89  | 209               | 349                 | 558             | 62,000,000      |
| 59 years | 854               | 1,316               | 2,170           | 36,800,000      |

The trade of 1889 was as follows :—

|                            | Imports from, £ | Exports to, £ | Total Trade, £ | Ratio |
|----------------------------|-----------------|---------------|----------------|-------|
| France . . . . .           | 45,700,000      | 14,600,000    | 60,300,000     | 9.0   |
| Germany . . . . .          | 27,100,000      | 18,400,000    | 45,500,000     | 6.8   |
| Russia . . . . .           | 27,200,000      | 5,300,000     | 32,500,000     | 4.9   |
| Austria . . . . .          | 2,300,000       | 1,000,000     | 3,300,000      | 0.5   |
| Italy . . . . .            | 3,200,000       | 7,100,000     | 10,300,000     | 1.5   |
| Spain . . . . .            | 11,500,000      | 4,200,000     | 15,700,000     | 2.2   |
| Portugal . . . . .         | 3,100,000       | 2,500,000     | 5,600,000      | 0.8   |
| Sweden and Norway . . . }  | 12,700,000      | 4,500,000     | 17,200,000     | 2.5   |
| Denmark . . . . .          | 7,900,000       | 2,400,000     | 10,300,000     | 1.5   |
| Holland . . . . .          | 26,700,000      | 9,700,000     | 36,400,000     | 5.4   |
| Belgium . . . . .          | 17,700,000      | 7,100,000     | 24,800,000     | 3.7   |
| Turkey . . . . .           | 5,300,000       | 6,200,000     | 11,500,000     | 1.6   |
| Europe . . . . .           | 190,400,000     | 83,000,000    | 273,400,000    | 40.4  |
| United States . . . . .    | 95,300,000      | 30,300,000    | 125,600,000    | 18.8  |
| Spanish America . . . . .  | 14,300,000      | 28,000,000    | 42,300,000     | 6.3   |
| China . . . . .            | 6,200,000       | 5,000,000     | 11,200,000     | 1.6   |
| Japan . . . . .            | 1,000,000       | 3,900,000     | 4,900,000      | 0.7   |
| Egypt . . . . .            | 8,500,000       | 2,900,000     | 11,400,000     | 1.6   |
| Various . . . . .          | 14,300,000      | 12,100,000    | 26,400,000     | 3.9   |
| Foreign countries          | 330,000,000     | 165,200,000   | 495,200,000    | 73.3  |
| Australia . . . . .        | 26,800,000      | 22,800,000    | 49,600,000     | 7.4   |
| Canada . . . . .           | 12,200,000      | 8,100,000     | 20,300,000     | 3.0   |
| South Africa . . . . .     | 6,100,000       | 8,900,000     | 15,000,000     | 2.2   |
| East Indies . . . . .      | 44,400,000      | 34,100,000    | 78,500,000     | 11.7  |
| West Indies . . . . .      | 2,200,000       | 2,200,000     | 4,400,000      | 0.6   |
| Various . . . . .          | 5,500,000       | 6,700,000     | 12,200,000     | 1.8   |
| British colonies . . . . . | 97,200,000      | 82,800,000    | 180,000,000    | 26.7  |
| Total . . . . .            | 427,200,000     | 248,000,000   | 675,200,000    | 100.0 |

The above Board of Trade returns exclude exports of colonial and foreign merchandise from the United Kingdom, namely, £65,000,000, the total trade for the year having been £740,200,000. Our trade with the United States is much greater than with any other country, India coming second on the list, and France third.

The following table shows the value of merchandise imported from the several foreign countries and colonies since 1854, the earliest date supplied by statistical abstracts of the Board of Trade :—

|                             | Millions £ Sterling |         |         |         |          | Percentage |         |         |
|-----------------------------|---------------------|---------|---------|---------|----------|------------|---------|---------|
|                             | 1854-60             | 1861-70 | 1871-80 | 1881-87 | 34 Years | 1854-60    | 1861-80 | 1881-87 |
| France . . . . .            | 89                  | 298     | 421     | 264     | 1,072    | 7.3        | 11.2    | 9.7     |
| Germany . . . . .           | 88                  | 162     | 217     | 171     | 638      | 7.3        | 5.9     | 6.3     |
| Russia . . . . .            | 71                  | 169     | 200     | 120     | 560      | 5.8        | 5.8     | 4.4     |
| Austria . . . . .           | 6                   | 10      | 12      | 12      | 40       | 0.5        | 0.3     | 0.4     |
| Italy . . . . .             | 17                  | 33      | 39      | 22      | 111      | 1.4        | 1.1     | 0.8     |
| Spain . . . . .             | 25                  | 54      | 94      | 71      | 244      | 2.0        | 2.3     | 2.6     |
| Portugal . . . . .          | 13                  | 23      | 37      | 21      | 94       | 1.1        | 0.9     | 0.8     |
| Belgium . . . . .           | 23                  | 71      | 131     | 102     | 327      | 1.9        | 3.1     | 3.8     |
| Holland . . . . .           | 48                  | 110     | 175     | 174     | 507      | 4.0        | 4.5     | 6.4     |
| Denmark . . . . .           | 18                  | 20      | 40      | 36      | 114      | 1.5        | 0.9     | 1.3     |
| Sweden and Norway . . . . . | 24                  | 56      | 97      | 76      | 253      | 2.0        | 2.4     | 2.8     |
| Greece . . . . .            | 5                   | 11      | 18      | 13      | 47       | 0.4        | 0.4     | 0.5     |
| Roumania . . . . .          | 6                   | 8       | 9       | 24      | 47       | 0.5        | 0.3     | 0.9     |
| Turkey . . . . .            | 17                  | 54      | 57      | 33      | 161      | 1.4        | 1.7     | 1.3     |
| Europe . . . . .            | 450                 | 1,079   | 1,547   | 1,139   | 4,215    | 37.1       | 40.8    | 42.0    |
| United States . . . . .     | 239                 | 360     | 773     | 627     | 1,999    | 19.7       | 17.7    | 23.1    |
| Brazil . . . . .            | 17                  | 59      | 63      | 37      | 176      | 1.4        | 1.9     | 1.3     |
| River Plate . . . . .       | 13                  | 23      | 26      | 14      | 76       | 1.1        | 0.8     | 0.5     |
| Chili . . . . .             | 14                  | 33      | 39      | 19      | 105      | 1.2        | 1.1     | 0.7     |
| Peru . . . . .              | 23                  | 35      | 45      | 14      | 117      | 1.9        | 1.2     | 0.5     |
| Central America . . . . .   | 5                   | 19      | 24      | 16      | 64       | 0.4        | 0.7     | 0.6     |
| Mexico . . . . .            | 2                   | 11      | 5       | 4       | 22       | 0.2        | 0.2     | 0.1     |
| Spanish Colonies . . . . .  | 29                  | 60      | 51      | 17      | 157      | 2.4        | 1.7     | 0.6     |
| Java . . . . .              | 1                   | 1       | 14      | 22      | 38       | 0.1        | 0.2     | 0.8     |
| China and Japan . . . . .   | 63                  | 113     | 132     | 69      | 377      | 5.2        | 3.8     | 2.5     |
| Egypt . . . . .             | 46                  | 158     | 114     | 61      | 379      | 3.8        | 4.2     | 2.2     |
| Various . . . . .           | 32                  | 46      | 57      | 35      | 170      | 2.5        | 1.7     | 1.3     |
| Foreign countries . . . . . | 934                 | 1,997   | 2,890   | 2,074   | 7,895    | 77.0       | 76.0    | 76.2    |
| India . . . . .             | 105                 | 345     | 299     | 241     | 990      | 8.7        | 10.1    | 8.9     |
| Australia . . . . .         | 38                  | 103     | 201     | 173     | 515      | 3.1        | 4.8     | 6.4     |
| Canada . . . . .            | 42                  | 75      | 108     | 75      | 300      | 3.5        | 2.9     | 2.8     |
| West Indies . . . . .       | 45                  | 69      | 67      | 32      | 213      | 3.7        | 2.1     | 1.3     |
| Singapore . . . . .         | 5                   | 21      | 29      | 31      | 86       | 0.4        | 0.8     | 1.2     |
| Ceylon . . . . .            | 11                  | 33      | 36      | 15      | 95       | 0.9        | 1.1     | 0.6     |
| South Africa . . . . .      | 10                  | 23      | 42      | 38      | 113      | 0.8        | 1.0     | 1.4     |
| Various . . . . .           | 22                  | 35      | 42      | 31      | 130      | 1.9        | 1.2     | 1.2     |
| British colonies . . . . .  | 278                 | 704     | 824     | 636     | 2,442    | 23.0       | 24.0    | 23.8    |
| Grand total . . . . .       | 1,212               | 2,701   | 3,714   | 2,710   | 10,337   | 100.0      | 100.0   | 100.0   |

The exports (including also colonial products) for the same period were :—

|                             | Millions £ Sterling |         |         |         |          | Percentage |         |         |
|-----------------------------|---------------------|---------|---------|---------|----------|------------|---------|---------|
|                             | 1854-60             | 1861-70 | 1871-80 | 1881-87 | 34 Years | 1854-60    | 1861-80 | 1881-87 |
| France . . . . .            | 69                  | 230     | 283     | 180     | 762      | 7.0        | 10.5    | 8.9     |
| Germany . . . . .           | 116                 | 261     | 334     | 202     | 913      | 11.8       | 12.1    | 10.0    |
| Russia . . . . .            | 26                  | 69      | 101     | 53      | 249      | 2.6        | 3.5     | 2.6     |
| Austria . . . . .           | 9                   | 13      | 14      | 9       | 45       | 0.9        | 0.6     | 0.5     |
| Italy . . . . .             | 28                  | 41      | 74      | 54      | 197      | 2.8        | 2.3     | 2.7     |
| Spain . . . . .             | 15                  | 33      | 43      | 31      | 122      | 1.5        | 1.5     | 1.5     |
| Portugal . . . . .          | 12                  | 22      | 27      | 17      | 78       | 1.2        | 1.0     | 0.8     |
| Belgium . . . . .           | 27                  | 68      | 128     | 97      | 320      | 2.7        | 4.0     | 4.8     |
| Holland . . . . .           | 57                  | 145     | 193     | 111     | 506      | 5.8        | 6.9     | 5.5     |
| Denmark . . . . .           | 7                   | 14      | 23      | 17      | 61       | 0.7        | 0.8     | 0.8     |
| Sweden and Norway . . . . . | 9                   | 22      | 53      | 35      | 119      | 0.9        | 1.5     | 1.7     |
| Greece . . . . .            | 2                   | 8       | 10      | 8       | 28       | 0.2        | 0.4     | 0.4     |
| Roumania . . . . .          | 1                   | 4       | 9       | 8       | 22       | 0.1        | 0.3     | 0.4     |
| Turkey . . . . .            | 31                  | 67      | 70      | 48      | 216      | 3.1        | 2.8     | 2.4     |
| Europe . . . . .            | 409                 | 997     | 1,362   | 870     | 3,638    | 41.3       | 48.2    | 43.0    |
| United States . . . . .     | 146                 | 233     | 299     | 254     | 932      | 14.9       | 10.8    | 12.6    |
| Brazil . . . . .            | 29                  | 55      | 68      | 46      | 198      | 2.9        | 2.5     | 2.3     |
| River Plate . . . . .       | 12                  | 29      | 39      | 46      | 126      | 1.2        | 1.4     | 2.3     |
| Chili . . . . .             | 10                  | 18      | 21      | 15      | 64       | 1.0        | 0.8     | 0.7     |
| Peru . . . . .              | 7                   | 13      | 17      | 7       | 44       | 0.7        | 0.6     | 0.3     |

|                             | Millions £ Sterling |         |         |         |          | Percentage |         |         |
|-----------------------------|---------------------|---------|---------|---------|----------|------------|---------|---------|
|                             | 1854-60             | 1861-70 | 1871-80 | 1881-87 | 34 years | 1854-60    | 1861-80 | 1881-87 |
| Central America . . . . .   | 8                   | 25      | 30      | 20      | 83       | 0.8        | 1.1     | 1.0     |
| Mexico . . . . .            | 4                   | 13      | 10      | 9       | 36       | 0.4        | 0.5     | 0.4     |
| Spanish colonies . . . . .  | 16                  | 33      | 37      | 28      | 114      | 1.6        | 1.4     | 1.4     |
| Java . . . . .              | 6                   | 10      | 15      | 13      | 44       | 0.6        | 0.5     | 0.6     |
| China and Japan . . . . .   | 12                  | 54      | 78      | 57      | 201      | 1.2        | 2.7     | 2.8     |
| Egypt . . . . .             | 14                  | 60      | 40      | 22      | 136      | 1.4        | 2.0     | 1.1     |
| Various . . . . .           | 24                  | 65      | 50      | 32      | 171      | 2.4        | 2.4     | 1.6     |
| Foreign countries . . . . . | 697                 | 1,605   | 2,066   | 1,419   | 5,787    | 70.4       | 74.9    | 70.1    |
| India . . . . .             | 99                  | 197     | 241     | 223     | 760      | 10.2       | 8.9     | 11.0    |
| Australia . . . . .         | 80                  | 128     | 188     | 181     | 577      | 8.2        | 6.4     | 8.9     |
| Canada . . . . .            | 29                  | 60      | 87      | 66      | 242      | 3.0        | 3.0     | 3.3     |
| West Indies . . . . .       | 16                  | 32      | 32      | 22      | 102      | 1.6        | 1.3     | 1.1     |
| Singapore . . . . .         | 7                   | 16      | 23      | 18      | 64       | 0.7        | 0.8     | 0.9     |
| Ceylon . . . . .            | 4                   | 8       | 10      | 6       | 28       | 0.4        | 0.4     | 0.3     |
| South Africa . . . . .      | 12                  | 18      | 49      | 39      | 118      | 1.2        | 1.4     | 1.9     |
| Various . . . . .           | 36                  | 65      | 82      | 51      | 234      | 4.3        | 2.9     | 2.5     |
| British colonies . . . . .  | 283                 | 524     | 712     | 606     | 2,125    | 29.6       | 25.1    | 29.9    |
| Grand total . . . . .       | 980                 | 2,129   | 2,778   | 2,025   | 7,912    | 100.0      | 100.0   | 100.0   |

The total volume of trade with the various countries was :—

|                             | Millions £ Sterling |         |         |         |          | Percentage |         |         |
|-----------------------------|---------------------|---------|---------|---------|----------|------------|---------|---------|
|                             | 1854-60             | 1861-70 | 1871-80 | 1881-87 | 34 Years | 1854-60    | 1861-80 | 1881-87 |
| France . . . . .            | 158                 | 528     | 704     | 444     | 1,834    | 7.2        | 10.9    | 9.4     |
| Germany . . . . .           | 204                 | 423     | 551     | 373     | 1,551    | 9.3        | 8.6     | 7.9     |
| Russia . . . . .            | 97                  | 238     | 301     | 173     | 809      | 4.4        | 4.7     | 3.6     |
| Austria . . . . .           | 15                  | 23      | 26      | 21      | 85       | 0.7        | 0.4     | 0.4     |
| Italy . . . . .             | 45                  | 74      | 113     | 76      | 308      | 2.1        | 1.7     | 1.6     |
| Spain . . . . .             | 40                  | 87      | 137     | 102     | 366      | 1.8        | 2.0     | 2.2     |
| Portugal . . . . .          | 25                  | 45      | 64      | 38      | 172      | 1.1        | 1.0     | 0.8     |
| Belgium . . . . .           | 50                  | 139     | 259     | 199     | 647      | 2.3        | 3.5     | 4.2     |
| Holland . . . . .           | 105                 | 255     | 368     | 285     | 1,013    | 4.8        | 5.6     | 6.0     |
| Denmark . . . . .           | 25                  | 34      | 63      | 53      | 175      | 1.1        | 0.9     | 1.1     |
| Sweden and Norway . . . . . | 33                  | 78      | 150     | 111     | 372      | 1.5        | 2.0     | 2.3     |
| Greece . . . . .            | 7                   | 19      | 28      | 21      | 75       | 0.3        | 0.4     | 0.4     |
| Roumania . . . . .          | 7                   | 12      | 18      | 32      | 69       | 0.3        | 0.3     | 0.6     |
| Turkey . . . . .            | 48                  | 121     | 127     | 81      | 377      | 2.3        | 2.2     | 1.7     |
| Europe . . . . .            | 859                 | 2,076   | 2,909   | 2,009   | 7,853    | 39.2       | 44.2    | 42.2    |
| United States . . . . .     | 385                 | 593     | 1,072   | 881     | 2,931    | 17.6       | 14.8    | 18.6    |
| Brazil . . . . .            | 46                  | 114     | 131     | 83      | 374      | 2.2        | 2.2     | 1.8     |
| River Plate . . . . .       | 25                  | 52      | 65      | 60      | 202      | 1.1        | 1.1     | 1.2     |
| Chili . . . . .             | 24                  | 51      | 60      | 34      | 169      | 1.1        | 1.0     | 0.7     |
| Peru . . . . .              | 30                  | 48      | 62      | 21      | 161      | 1.4        | 1.0     | 0.4     |
| Central America . . . . .   | 13                  | 44      | 54      | 36      | 147      | 0.6        | 0.9     | 0.8     |
| Mexico . . . . .            | 6                   | 24      | 15      | 13      | 58       | 0.3        | 0.3     | 0.3     |
| Spanish colonies . . . . .  | 45                  | 93      | 88      | 45      | 271      | 2.1        | 1.6     | 1.0     |
| Java . . . . .              | 7                   | 11      | 29      | 35      | 82       | 0.3        | 0.4     | 0.7     |
| China and Japan . . . . .   | 75                  | 167     | 210     | 126     | 578      | 3.4        | 3.3     | 2.7     |
| Egypt . . . . .             | 60                  | 218     | 154     | 83      | 515      | 2.7        | 3.3     | 1.8     |
| Various . . . . .           | 56                  | 111     | 107     | 67      | 341      | 2.6        | 1.8     | 1.4     |
| Foreign countries . . . . . | 1,631               | 3,612   | 4,956   | 3,493   | 13,682   | 74.6       | 75.9    | 73.6    |
| India . . . . .             | 204                 | 522     | 540     | 464     | 1,750    | 9.3        | 9.7     | 9.8     |
| Australia . . . . .         | 118                 | 231     | 389     | 354     | 1,092    | 5.4        | 5.6     | 7.5     |
| Canada . . . . .            | 71                  | 135     | 195     | 141     | 542      | 3.3        | 3.0     | 3.0     |
| West Indies . . . . .       | 61                  | 101     | 99      | 54      | 315      | 2.6        | 1.8     | 1.2     |
| Singapore . . . . .         | 12                  | 37      | 52      | 49      | 150      | 0.6        | 0.8     | 1.0     |
| Ceylon . . . . .            | 15                  | 41      | 46      | 21      | 123      | 0.7        | 0.8     | 0.4     |
| South Africa . . . . .      | 22                  | 41      | 91      | 77      | 231      | 1.0        | 1.2     | 1.6     |
| Various . . . . .           | 58                  | 100     | 124     | 82      | 364      | 2.5        | 2.0     | 1.9     |
| British colonies . . . . .  | 561                 | 1,228   | 1,536   | 1,242   | 4,567    | 25.4       | 24.1    | 26.4    |
| Grand total . . . . .       | 2,192               | 4,830   | 6,492   | 4,735   | 18,249   | 100.0      | 100.0   | 100.0   |

The ratio of our trade with British colonies is increasing, and with European countries declining, except as regards Spain, Belgium, Holland, Scandinavia, and Roumania.

During the said period of 34 years there was a balance of trade against the United Kingdom, the value of imports exceeding that of exports by 2425 millions, or 72 millions sterling per annum. The countries from which we had the largest excess of imports are seen in the following table:—

| From                        | Surplus Imports, Millions £ |         |       |
|-----------------------------|-----------------------------|---------|-------|
|                             | 1854-80                     | 1881-87 | Total |
| United States . . . . .     | 694                         | 373     | 1,067 |
| Russia . . . . .            | 244                         | 67      | 311   |
| France . . . . .            | 226                         | 84      | 310   |
| Egypt . . . . .             | 204                         | 39      | 243   |
| India . . . . .             | 212                         | 18      | 230   |
| China and Japan . . . . .   | 164                         | 12      | 176   |
| Sweden and Norway . . . . . | 93                          | 41      | 134   |
| Spain . . . . .             | 82                          | 40      | 122   |
| West Indies . . . . .       | 101                         | 10      | 111   |
| Other countries . . . . .   | 287                         | 137     | 424   |
| Total . . . . .             | 2,307                       | 821     | 3,128 |

At the same time there were twelve countries which showed a balance of trade in favour of Great Britain, the excess of our exports thither being as follows:—

| To                        | Surplus Exports, Millions £ |         |       |
|---------------------------|-----------------------------|---------|-------|
|                           | 1854-80                     | 1881-87 | Total |
| Germany . . . . .         | 244                         | 31      | 275   |
| Italy . . . . .           | 54                          | 32      | 86    |
| Australia . . . . .       | 54                          | 8       | 62    |
| Turkey . . . . .          | 40                          | 15      | 55    |
| River Plate . . . . .     | 18                          | 32      | 50    |
| Brazil . . . . .          | 13                          | 9       | 22    |
| Other countries . . . . . | 142                         | 11      | 153   |
| Total . . . . .           | 565                         | 138     | 703   |

The principal articles of merchandise that composed the import trade of the United Kingdom were as follows:—

The quantities of certain articles of imported merchandise retained for consumption were as follows:—

|                                | 1854       | 1860       | 1870       | 1880       | 1889       |
|--------------------------------|------------|------------|------------|------------|------------|
| Grain, tons . . . . .          | 1,460,000  | 2,630,000  | 3,760,000  | 6,700,000  | 7,380,000  |
| Cotton „ . . . . .             | 360,000    | 530,000    | 510,000    | 625,000    | 735,000    |
| Wool „ . . . . .               | 36,000     | 53,000     | 77,000     | 101,000    | 160,000    |
| Sugar „ . . . . .              | 460,000    | 475,000    | 700,000    | 980,000    | 1,300,000  |
| Butter „ . . . . .             | 24,000     | 42,000     | 98,000     | 114,000    | 155,000    |
| Cheese „ . . . . .             | 19,000     | 29,000     | 52,000     | 87,000     | 92,000     |
| Tea and coffee, tons . . . . . | 59,000     | 63,000     | 73,000     | 90,000     | 95,000     |
| Meat, tons . . . . .           | 84,000     | 87,000     | 140,000    | 590,000    | 790,000    |
| Minerals „ . . . . .           | 120,000    | 190,000    | 290,000    | 3,070,000  | 5,150,000  |
| Timber, „ . . . . .            | 2,650,000  | 2,850,000  | 4,500,000  | 6,400,000  | 7,870,000  |
| Wine, gallons . . . . .        | 11,900,000 | 12,200,000 | 23,500,000 | 24,300,000 | 23,800,000 |

Grain includes also potatoes and rice; wine includes spirits; meat includes also lard and live animals, and cocoa is comprised with tea and coffee; sugar also includes molasses.

The quantities of the principal exports were as follows:—

|                                       | 1854      | 1860      | 1870       | 1880       | 1889       |
|---------------------------------------|-----------|-----------|------------|------------|------------|
| Cotton cloth, million yards . . . . . | 1,700     | 2,800     | 3,300      | 4,500      | 5,002      |
| Woollen goods, „ . . . . .            | 150       | 190       | 290        | 260        | 274        |
| Linen goods, „ . . . . .              | 112       | 144       | 226        | 165        | 181        |
| Jute goods . . . . .                  | ...       | ...       | 52         | 183        | 265        |
| All textiles, statute miles . . . . . | 1,120,000 | 1,790,000 | 2,220,000  | 2,910,000  | 3,220,000  |
| Iron and steel, tons . . . . .        | 1,200,000 | 1,400,000 | 2,800,000  | 3,800,000  | 4,200,000  |
| Other metals, „ . . . . .             | 40,000    | 60,000    | 100,000    | 100,000    | 120,000    |
| Coal, „ . . . . .                     | 4,300,000 | 7,300,000 | 11,700,000 | 18,700,000 | 29,000,000 |
| Chemicals, „ . . . . .                | 50,000    | 100,000   | 200,000    | 420,000    | 390,000    |
| Cement, „ . . . . .                   | 20,000    | 80,000    | 150,000    | 280,000    | 630,000    |
| All yarns, million lbs. . . . .       | 184       | 259       | 276        | 274        | 345        |

|                          | Millions Sterling * |       |       |       |       |
|--------------------------|---------------------|-------|-------|-------|-------|
|                          | 1854                | 1860  | 1870  | 1880  | 1889  |
| Grain . . . . .          | 22.8                | 32.8  | 36.7  | 69.5  | 54.1  |
| Cotton . . . . .         | 20.2                | 35.8  | 53.5  | 42.8  | 45.3  |
| Manufactures . . . . .   | 4.1                 | 6.4   | 26.5  | 33.7  | 64.3  |
| Meat . . . . .           | 3.8                 | 3.9   | 7.7   | 26.5  | 31.7  |
| Wool . . . . .           | 6.5                 | 11.0  | 15.8  | 26.4  | 29.7  |
| Sugar . . . . .          | 10.8                | 12.8  | 17.6  | 23.0  | 22.7  |
| Dairy produce . . . . .  | 3.1                 | 6.8   | 11.9  | 21.2  | 21.5  |
| Tea and coffee . . . . . | 7.2                 | 9.7   | 15.4  | 19.3  | 14.4  |
| Timber . . . . .         | 11.5                | 10.7  | 13.2  | 16.8  | 19.8  |
| Minerals . . . . .       | 3.1                 | 5.3   | 8.9   | 15.5  | 22.1  |
| Wines . . . . .          | 6.4                 | 6.2   | 8.0   | 8.6   | 5.9   |
| Flax and jute . . . . .  | 5.8                 | 5.6   | 10.4  | 10.1  | 11.8  |
| Silk . . . . .           | 6.4                 | 9.9   | 8.2   | 3.1   | 3.6   |
| Sundries . . . . .       | 40.7                | 53.6  | 69.5  | 94.7  | 80.3  |
| Total . . . . .          | 152.4               | 210.5 | 303.3 | 411.2 | 427.2 |

In the above table grain includes also rice and potatoes, wines likewise include spirits, and meat also live cattle and poultry. The above shows the total importation, not only for home use, but also what was re-shipped. The following table shows the value of what was retained for home consumption.

|                          | Millions £ Sterling |       |       |       |       |
|--------------------------|---------------------|-------|-------|-------|-------|
|                          | 1854                | 1860  | 1870  | 1880  | 1889  |
| Grain . . . . .          | 21.9                | 32.0  | 34.6  | 66.8  | 52.5  |
| Cotton . . . . .         | 17.9                | 30.4  | 45.4  | 37.3  | 39.4  |
| Meat . . . . .           | 3.8                 | 3.9   | 7.7   | 25.7  | 31.0  |
| Wool . . . . .           | 5.0                 | 8.7   | 10.2  | 12.0  | 14.3  |
| Sugar . . . . .          | 10.3                | 12.4  | 17.1  | 22.4  | 21.9  |
| Tea and coffee . . . . . | 5.9                 | 7.5   | 9.2   | 10.9  | 10.1  |
| Wines . . . . .          | 4.6                 | 4.7   | 7.1   | 7.4   | 7.0   |
| Dairy produce . . . . .  | 3.1                 | 6.8   | 11.9  | 21.2  | 21.5  |
| Timber . . . . .         | 11.5                | 10.7  | 13.2  | 16.8  | 19.8  |
| Sundries . . . . .       | 49.8                | 64.9  | 102.6 | 127.5 | 144.7 |
| Total . . . . .          | 133.8               | 182.0 | 259.0 | 348.0 | 362.2 |

\* For example, 22.8 signifies £22,800,000.

The consumption per head of the population has been of various imported articles as follows :—

|                  | 1845 | 1850 | 1860 | 1870 | 1880 | 1889 |
|------------------|------|------|------|------|------|------|
| Grain, bushels . | 1.0  | 1.5  | 3.7  | 4.9  | 7.6  | 7.7  |
| Sugar, lbs. . .  | 20   | 25   | 36   | 50   | 65   | 72   |
| Meat „ . . .     | 0    | 6    | 6    | 10   | 38   | 43   |
| Butter „ . . .   | 1    | 2    | 3    | 4    | 7    | 9    |
| Cheese „ . . .   | 1    | 2    | 2    | 4    | 5    | 6    |
| Tea, oz. . . .   | 25   | 31   | 43   | 60   | 75   | 78   |
| Coffee, oz. . .  | 20   | 19   | 20   | 16   | 15   | 12   |
| Wines, gallons . | 0.4  | 0.4  | 0.4  | 0.7  | 0.7  | 0.6  |
| Cotton, lbs. . . | 20   | 20   | 40   | 35   | 40   | 43   |
| Wool „ . . .     | 2    | 2    | 4    | 6    | 7    | 20   |

The principal exports from the United Kingdom \* were in value thus :—

#### MILLIONS £ STERLING

|                      | 1854 | 1860  | 1870  | 1880  | 1889  |
|----------------------|------|-------|-------|-------|-------|
| Cotton goods . . .   | 31.7 | 52.0  | 71.4  | 75.6  | 70.5  |
| Woolen goods . . .   | 10.7 | 16.0  | 26.6  | 20.6  | 25.7  |
| Linen and jute . . . | 5.1  | 6.6   | 10.4  | 9.3   | 9.8   |
| Silken, &c. . . .    | 1.2  | 2.4   | 2.6   | 2.7   | 4.2   |
| Textiles . . . . .   | 48.7 | 77.0  | 111.0 | 108.2 | 110.2 |
| Iron . . . . .       | 11.7 | 12.4  | 26.5  | 29.7  | 29.2  |
| Machinery . . . .    | 2.2  | 3.8   | 5.3   | 9.2   | 15.3  |
| Cutlery . . . . .    | 4.1  | 5.3   | 6.4   | 5.5   | 3.0   |
| Metals . . . . .     | 3.8  | 5.6   | 4.7   | 4.8   | 8.7   |
| Hardware . . . . .   | 21.8 | 27.1  | 42.9  | 49.2  | 56.2  |
| Coal . . . . .       | 2.1  | 3.3   | 5.6   | 8.4   | 14.8  |
| Sundries . . . . .   | 24.6 | 28.5  | 40.1  | 57.3  | 66.9  |
| Total . . . . .      | 97.2 | 135.9 | 199.6 | 223.1 | 248.1 |

#### IRELAND

Dobbs gives returns for the 17th century ; the rest are from Blue-books :—

| Date              | Imports, £ | Exports, £ | Total, £   |
|-------------------|------------|------------|------------|
| 1665 . . . . .    | 336,000    | 358,000    | 694,000    |
| 1681 . . . . .    | 433,000    | 583,000    | 1,016,000  |
| 1695 . . . . .    | 392,000    | 296,000    | 688,000    |
| 1698 . . . . .    | 577,000    | 996,000    | 1,573,000  |
| 1725 . . . . .    | 1,000,000  | 1,400,000  | 2,400,000  |
| 1750-52 . . . . . | 1,900,000  | 1,600,000  | 3,500,000  |
| 1760-62 . . . . . | 2,300,000  | 1,700,000  | 4,000,000  |
| 1770-72 . . . . . | 3,300,000  | 2,400,000  | 5,700,000  |
| 1780-82 . . . . . | 3,100,000  | 2,700,000  | 5,800,000  |
| 1790-92 . . . . . | 5,100,000  | 4,100,000  | 9,200,000  |
| 1800-2 . . . . .  | 4,100,000  | 5,600,000  | 9,700,000  |
| 1810 . . . . .    | 6,500,000  | 5,300,000  | 11,800,000 |
| 1820 . . . . .    | 6,000,000  | 6,300,000  | 12,300,000 |
| 1826 . . . . .    | 7,500,000  | 8,500,000  | 16,000,000 |

Since 1826 no separate tables of Irish trade have been kept. In 1725 the exports were as follows :—

|                   |           |
|-------------------|-----------|
| Meat . . . . .    | £ 860,000 |
| Linen . . . . .   | 470,000   |
| Grain &c. . . . . | 70,000    |
|                   | 1,400,000 |

\* This table is exclusive of colonial merchandise.

In the years 1796 to 1799 the annual average was as follows :—

| From                | Imports, £ | To                  | Exports, £ |
|---------------------|------------|---------------------|------------|
| Great Britain . .   | 4,010,000  | Great Britain . .   | 4,970,000  |
| Other countries . . | 1,270,000  | Other countries . . | 810,000    |
| Total . . . . .     | 5,280,000  | Total . . . . .     | 5,780,000  |

The trade between Great Britain and Ireland in the same year was :—

|                    | Imported from Great Britain |                  | Exported to Great Britain |
|--------------------|-----------------------------|------------------|---------------------------|
| Woollens . . . .   | £ 690,000                   | Linen . . . .    | £ 2,490,000               |
| Coal . . . . .     | 160,000                     | Meat . . . .     | 870,000                   |
| Cottons and silk . | 130,000                     | Butter . . . .   | 740,000                   |
| Iron and steel . . | 120,000                     | Wheat . . . .    | 440,000                   |
| Fish . . . . .     | 100,000                     | Cattle . . . .   | 140,000                   |
| Sundries . . . . . | 2,810,000                   | Sundries . . . . | 290,000                   |
| Total . . . . .    | 4,010,000                   | Total . . . . .  | 4,970,000                 |

#### FRANCE

Official returns date continuously from 1716, yearly averages being as follows :—

| Period    | Imports     | Exports     | Total       | Per Inhabitant |
|-----------|-------------|-------------|-------------|----------------|
|           | £           | £           | £           | £ s. d.        |
| 1716-20   | 2,600,000   | 4,200,000   | 6,800,000   | 0 7 0          |
| 1721-30   | 3,200,000   | 4,600,000   | 7,800,000   | 0 7 6          |
| 1731-40   | 3,600,000   | 5,200,000   | 8,800,000   | 0 8 0          |
| 1741-50   | 4,100,000   | 7,700,000   | 11,800,000  | 0 10 6         |
| 1751-60   | 5,800,000   | 9,200,000   | 15,000,000  | 0 12 6         |
| 1761-70   | 6,600,000   | 12,400,000  | 19,000,000  | 0 16 0         |
| 1771-80   | 8,300,000   | 10,400,000  | 18,700,000  | 0 15 0         |
| 1781-90   | 12,100,000  | 14,200,000  | 26,300,000  | 1 1 0          |
| 1791-1800 | 17,000,000  | 14,500,000  | 31,500,000  | 1 3 0          |
| 1801-10   | 16,300,000  | 14,400,000  | 30,700,000  | 1 1 0          |
| 1811-20   | 11,300,000  | 16,100,000  | 27,400,000  | 0 18 0         |
| 1821-30   | 20,600,000  | 20,900,000  | 41,500,000  | 1 6 0          |
| 1831-40   | 28,500,000  | 30,700,000  | 59,200,000  | 1 16 0         |
| 1841-50   | 33,000,000  | 40,500,000  | 73,500,000  | 2 2 0          |
| 1851-60   | 62,000,000  | 65,000,000  | 127,000,000 | 3 10 0         |
| 1861-70   | 110,000,000 | 110,000,000 | 220,000,000 | 6 0 0          |
| 1871-80   | 157,000,000 | 140,000,000 | 297,000,000 | 8 0 0          |
| 1881-86   | 181,000,000 | 134,000,000 | 315,000,000 | 8 6 0          |
| 1889      | 167,000,000 | 144,300,000 | 311,300,000 | 8 3 0          |

The trade returns of 1800 showed thus :—

|                    | Imports, £ |                  | Exports, £ |
|--------------------|------------|------------------|------------|
| Coffee . . . . .   | 1,500,000  | Wine . . . . .   | 2,000,000  |
| Raw cotton . . .   | 1,400,000  | Silks . . . . .  | 1,600,000  |
| Sundries . . . . . | 10,100,000 | Sundries . . . . | 7,200,000  |
| Total . . . . .    | 13,000,000 | Total . . . . .  | 10,800,000 |

The weight of merchandise imported and exported yearly averaged thus :—

| Period          | Imports, Tons | Exports, Tons | Total, Tons |
|-----------------|---------------|---------------|-------------|
| 1857-66 . . . . | 9,200,000     | 2,400,000     | 11,600,000  |
| 1867-76 . . . . | 12,800,000    | 4,300,000     | 17,100,000  |
| 1877-89 . . . . | 20,400,000    | 4,600,000     | 25,000,000  |

The statement of French trade for ten years ending 1886 shows thus :—

|                         | Millions £ Sterling |            |             |       |
|-------------------------|---------------------|------------|-------------|-------|
|                         | Imports from        | Exports to | Gross Trade | Ratio |
| Great Britain . . . .   | 248                 | 358        | 606         | 19.4  |
| Belgium . . . . .       | 178                 | 179        | 357         | 11.4  |
| Germany . . . . .       | 167                 | 137        | 304         | 9.7   |
| United States . . . .   | 171                 | 114        | 285         | 9.1   |
| Italy . . . . .         | 144                 | 81         | 225         | 7.2   |
| Spain . . . . .         | 118                 | 62         | 180         | 5.8   |
| Russia . . . . .        | 99                  | 9          | 108         | 3.5   |
| Argentina . . . . .     | 65                  | 37         | 102         | 3.3   |
| India . . . . .         | 74                  | 3          | 77          | 2.5   |
| Turkey . . . . .        | 53                  | 19         | 72          | 2.3   |
| Austria . . . . .       | 41                  | 10         | 51          | 1.6   |
| Switzerland . . . . .   | 46                  | 91         | 137         | 4.4   |
| China and Japan . . .   | 49                  | ...        | 49          | 1.5   |
| Other countries . . . . | 241                 | 158        | 399         | 12.8  |
| Total foreign . . . .   | 1,694               | 1,258      | 2,952       | 94.5  |
| French colonies . . . . | 91                  | 80         | 171         | 5.5   |
| Total . . . . .         | 1,785               | 1,338      | 3,123       | 100.0 |

The imports according to quantity were as follows :—

|                            | 1876      | 1886      | 1877-86    |
|----------------------------|-----------|-----------|------------|
| Wine, million gallons . .  | 14        | 242       | 1,430      |
| Wool, million lbs. . . .   | 270       | 426       | 3,300      |
| Grain, million bushels . . | 40        | 57        | 770        |
| Silk, million lbs. . . . . | 29        | 29        | 240        |
| Hides, tons . . . . .      | 67,000    | 79,000    | 720,000    |
| Cotton, million lbs. . . . | 350       | 302       | 3,100      |
| Coal, tons . . . . .       | 7,900,000 | 9,300,000 | 92,000,000 |
| Fruit and seeds, tons . .  | 420,000   | 760,000   | 6,600,000  |
| Coffee, tons . . . . .     | 53,000    | 68,000    | 620,000    |
| Flax, tons . . . . .       | 41,000    | 56,000    | 710,000    |
| Cheese and butter, tons .  | 17,000    | 24,000    | 230,000    |
| Copper, tons . . . . .     | 30,000    | 23,000    | 260,000    |

The principal exports were in value thus :—

|                               | 1876        | 1886        | Average, 1877-86 | 1889        |
|-------------------------------|-------------|-------------|------------------|-------------|
|                               | £           | £           | £                | £           |
| Woollen fabrics . . . .       | 12,700,000  | 15,100,000  | 14,100,000       | 13,400,000  |
| Silk fabrics . . . . .        | 11,800,000  | 9,700,000   | 11,000,000       | 9,900,000   |
| Wines . . . . .               | 12,600,000  | 13,400,000  | 12,800,000       | 12,800,000  |
| Raw silk . . . . .            | 6,900,000   | 5,900,000   | 6,100,000        | 5,400,000   |
| Raw wool . . . . .            | 3,000,000   | 5,300,000   | 4,200,000        | 6,200,000   |
| Sugar . . . . .               | 6,400,000   | 2,200,000   | 4,100,000        | 4,200,000   |
| Hides and leather . . .       | 11,200,000  | 11,600,000  | 12,400,000       | 12,200,000  |
| Cotton manufac. . . . .       | 2,600,000   | 4,300,000   | 3,400,000        | 4,500,000   |
| Clothing . . . . .            | 3,600,000   | 3,100,000   | 3,100,000        | 3,500,000   |
| Grain . . . . .               | 5,800,000   | 1,200,000   | 2,700,000        | 3,300,000   |
| Cheese and butter . . .       | 4,400,000   | 3,600,000   | 3,900,000        | 4,400,000   |
| Raw cotton . . . . .          | 3,200,000   | 1,200,000   | 2,100,000        | 1,100,000   |
| Eggs . . . . .                | 1,800,000   | 1,100,000   | 1,200,000        | 1,100,000   |
| Jewellery . . . . .           | 2,200,000   | 2,000,000   | 2,400,000        | 2,400,000   |
| Fruit . . . . .               | 1,400,000   | 1,700,000   | 1,500,000        | 1,700,000   |
| Metal wares . . . . .         | 29,000,000  | 2,500,000   | 2,700,000        | 5,400,000   |
| H a b e r - d a s h e r y . . | 6,900,000   | 5,000,000   | 6,000,000        | 5,700,000   |
| Sundries . . . . .            | 43,600,000  | 41,100,000  | 40,100,000       | 47,200,000  |
| Total . . . . .               | 143,000,000 | 130,000,000 | 133,800,000      | 144,300,000 |

The principal imports were as follows :—

|                         | 1876        | 1886        | Average, 1877-86 | 1889        |
|-------------------------|-------------|-------------|------------------|-------------|
|                         | £           | £           | £                | £           |
| Wine . . . . .          | 1,010,000   | 20,700,000  | 11,300,000       | 15,500,000  |
| Wool . . . . .          | 11,100,000  | 15,400,000  | 12,900,000       | 15,100,000  |
| Grain . . . . .         | 9,600,000   | 10,500,000  | 18,400,000       | 17,400,000  |
| Silk . . . . .          | 21,800,000  | 11,700,000  | 12,100,000       | 10,800,000  |
| Hides . . . . .         | 6,800,000   | 7,000,000   | 6,900,000        | 6,500,000   |
| Cotton . . . . .        | 9,200,000   | 6,400,000   | 7,900,000        | 7,400,000   |
| Timber . . . . .        | 8,100,000   | 5,800,000   | 8,400,000        | 6,200,000   |
| Coal . . . . .          | 6,900,000   | 5,000,000   | 6,300,000        | 5,400,000   |
| Cattle and meat . . . . | 7,400,000   | 6,400,000   | 8,600,000        | 4,800,000   |
| Fruit and seeds . . . . | 5,900,000   | 11,600,000  | 9,600,000        | 8,400,000   |
| Coffee . . . . .        | 4,300,000   | 4,100,000   | 3,800,000        | 5,100,000   |
| Flax . . . . .          | 2,000,000   | 2,200,000   | 2,600,000        | 2,400,000   |
| Sundries . . . . .      | 65,390,000  | 61,500,000  | 69,700,000       | 62,100,000  |
| Total . . . . .         | 159,500,000 | 168,300,000 | 178,500,000      | 167,000,000 |

The exports according to quantity were as follows :—

|                             | 1876    | 1886    | 1877-86   |
|-----------------------------|---------|---------|-----------|
| Wines, million gallons . .  | 84      | 64      | 640       |
| Wool, million lbs. . . . .  | 46      | 108     | 730       |
| Grain, million bushels . .  | 23      | 7       | 120       |
| Cheese and butter, tons . . | 43,000  | 34,000  | 370,000   |
| Eggs, tons . . . . .        | 33,000  | 21,000  | 220,000   |
| Fruit . . . . .             | 44,000  | 64,000  | 520,000   |
| Hides . . . . .             | 24,000  | 35,000  | 340,000   |
| Sugar . . . . .             | 230,000 | 140,000 | 1,520,000 |
| Raw cotton, million lbs. .  | 120     | 56      | 770       |

The net imports averaged for ten years, 1877-86, as follows :—

|                           | Quantity    | Value, £ Sterling |
|---------------------------|-------------|-------------------|
| Wines, gallons . . . . .  | 79,000,000  | 6,400,000         |
| Wool, lbs. . . . .        | 257,000,000 | 8,700,000         |
| Grain, bushels . . . . .  | 65,000,000  | 15,700,000        |
| Silk, raw, lbs. . . . .   | 13,000,000  | 6,000,000         |
| Hides, tons . . . . .     | 38,000      | 4,000,000         |
| Raw cotton, lbs. . . . .  | 233,000,000 | 5,800,000         |
| Timber . . . . .          | ...         | 7,200,000         |
| Coal, tons . . . . .      | 9,200,000   | 6,300,000         |
| Cattle and meat . . . . . | ...         | 7,400,000         |
| Fruit and seeds, tons . . | 610,000     | 8,100,000         |
| Coffee, tons . . . . .    | 62,000      | 3,800,000         |
| Sundries . . . . .        | ...         | 72,300,000        |
| Total . . . . .           | ...         | 151,700,000       |

The French coasting trade in 1889 was 2,360,000 tons.

#### ALGERIA

Trade returns show as follows for 1888 :—

| From                    | Imports, £ | To                      | Exports, £ | Total Trade, £ |
|-------------------------|------------|-------------------------|------------|----------------|
| France . . . . .        | 7,200,000  | France . . . . .        | 6,600,000  | 13,800,000     |
| Other countries . . . . | 2,200,000  | Other countries . . . . | 1,300,000  | 3,500,000      |
| Total . . . . .         | 9,400,000  | Total . . . . .         | 7,900,000  | 17,300,000     |



| Imports, £         |           | Exports, £     |           |
|--------------------|-----------|----------------|-----------|
| Cotton goods . . . | 1,100,000 | Grain . . .    | 1,300,000 |
| Leather . . .      | 600,000   | Wine . . .     | 1,700,000 |
| Hardware . . .     | 300,000   | Cattle . . .   | 1,400,000 |
| Haberdashery . . . | 300,000   | Wool . . .     | 800,000   |
| Sundries . . .     | 7,100,000 | Sundries . . . | 2,700,000 |
| Total . . .        | 9,400,000 | Total . . .    | 7,900,000 |

The trade with Great Britain, imports and exports, reaches £900,000.

## GERMANY

The *Répertoire Générale* gives the trade for 1822 as follows:—

|                      | Imports, £ | Exports, £ | Total, £   |
|----------------------|------------|------------|------------|
| Prussia . . . . .    | 13,100,000 | 14,200,000 | 27,300,000 |
| Other states . . . . | 6,400,000  | 6,500,000  | 12,900,000 |
| Total . . . . .      | 19,500,000 | 20,700,000 | 40,200,000 |

In 1850, according to Levi's estimate, the total trade was:—

|         |              |
|---------|--------------|
| Imports | £ 22,000,000 |
| Exports | 20,000,000   |
| Total   | 42,000,000   |

This was much below the reality. We know that the trade of the Zollverein in 1856 reached 106 millions sterling, and the increase of six years could hardly have exceeded 50 per cent. The trade seems to have been as follows:—

| Year           | Millions £ Sterling |         |       | Per Inhabitant    |
|----------------|---------------------|---------|-------|-------------------|
|                | Imports             | Exports | Total |                   |
| 1822 . . . . . | 19                  | 21      | 40    | £ s. d.<br>1 10 0 |
| 1840 . . . . . | 25                  | 27      | 52    | 1 14 0            |
| 1850 . . . . . | 34                  | 36      | 70    | 2 2 0             |
| 1872 . . . . . | 163                 | 116     | 279   | 7 0 0             |
| 1880 . . . . . | 142                 | 152     | 294   | 6 11 0            |
| 1888 . . . . . | 172                 | 168     | 340   | 7 4 0             |
| 1889 . . . . . | 204                 | 163     | 367   | 7 16 0            |

The statement for German trade for seven years ending 1886 was as follows:—

|                       | Millions £ Sterling |            |             | Ratio |
|-----------------------|---------------------|------------|-------------|-------|
|                       | Imports from        | Exports to | Gross Trade |       |
| Great Britain . . .   | 151                 | 167        | 318         | 14.9  |
| Austria . . . . .     | 151                 | 107        | 258         | 12.1  |
| Russia . . . . .      | 125                 | 61         | 186         | 8.7   |
| Belgium . . . . .     | 89                  | 57         | 146         | 6.8   |
| France . . . . .      | 84                  | 101        | 185         | 8.7   |
| Holland . . . . .     | 81                  | 83         | 164         | 7.7   |
| Switzerland . . . .   | 55                  | 58         | 113         | 5.3   |
| United States . . .   | 48                  | 61         | 109         | 5.1   |
| Italy . . . . .       | 25                  | 26         | 51          | 2.5   |
| Other countries . . . | 254                 | 348        | 602         | 28.2  |
| Total . . . . .       | 1,063               | 1,069      | 2,132       | 100.0 |

There is not much difference between the total value of imports and that of exports. The trade with Russia and Austria, however, shows a heavy excess of imports, which is counterbalanced by a surplus of exports to Great Britain, France, United States, and other countries.

The principal articles of import were as follows:—

|                     | 1876        | 1886        | 1877-86, Ten Years | Net Import |
|---------------------|-------------|-------------|--------------------|------------|
|                     | £           | £           | Mill. £            | Mill. £    |
| Grain . . . . .     | 29,800,000  | 10,300,000  | 222                | 133        |
| Wool . . . . .      | 10,400,000  | 10,900,000  | 104                | 78         |
| Cotton . . . . .    | 10,200,000  | 8,800,000   | 93                 | 78         |
| Coffee . . . . .    | 9,600,000   | 6,900,000   | 73                 | 73         |
| Cattle . . . . .    | 8,000,000   | 4,700,000   | 63                 | 6          |
| Hides . . . . .     | 3,900,000   | 4,600,000   | 44                 | 44         |
| Horses . . . . .    | 3,500,000   | 3,500,000   | 28                 | 16         |
| Petroleum . . . . . | 5,200,000   | 2,800,000   | 31                 | 28         |
| Silk, raw . . . . . | 6,600,000   | 7,500,000   | 60                 | 60         |
| Tobacco . . . . .   | 4,100,000   | 3,200,000   | 33                 | 29         |
| Yarn . . . . .      | 8,500,000   | 8,100,000   | 69                 | 40         |
| Wine . . . . .      | 2,900,000   | 1,700,000   | 24                 | 24         |
| Sundries . . . . .  | 87,400,000  | 71,400,000  | 772                | 772        |
| Total . . . . .     | 190,100,000 | 144,400,000 | 1,616              | 1,381      |

The principal exports were:—

|                        | 1876        | 1886        | 1877-86, Ten Years |
|------------------------|-------------|-------------|--------------------|
|                        | £           | £           | Mill. £            |
| Woollen fabrics . . .  | 6,300,000   | 8,600,000   | 81                 |
| Silk fabrics . . . . . | 2,800,000   | 9,000,000   | 71                 |
| Cotton fabrics . . . . | 1,900,000   | 4,900,000   | 33                 |
| Sugar . . . . .        | 1,900,000   | 7,100,000   | 64                 |
| Leather goods . . . .  | 3,400,000   | 7,600,000   | 56                 |
| Iron and machinery . . | 5,500,000   | 7,500,000   | 80                 |
| Cattle . . . . .       | 7,000,000   | 4,200,000   | 57                 |
| Yarn . . . . .         | 2,700,000   | 3,100,000   | 29                 |
| Paper . . . . .        | 800,000     | 2,500,000   | 18                 |
| Grain . . . . .        | 11,100,000  | 3,100,000   | 89                 |
| Coal . . . . .         | 1,600,000   | 4,000,000   | 28                 |
| Wool . . . . .         | 3,300,000   | 2,000,000   | 26                 |
| Sundries . . . . .     | 79,100,000  | 85,700,000  | 859                |
| Total . . . . .        | 127,400,000 | 149,300,000 | 1,491              |

The trade returns for 1888 were as follows:—

|                     | Imports, £  | Exports, £                     |
|---------------------|-------------|--------------------------------|
| Textiles . . . . .  | 51,300,000  | Textiles . . . . . 53,800,000  |
| Food . . . . .      | 37,600,000  | Food . . . . . 19,600,000      |
| Cattle . . . . .    | 7,800,000   | Metals . . . . . 24,300,000    |
| Metals . . . . .    | 15,900,000  | Chemicals . . . . . 11,800,000 |
| Chemicals . . . . . | 12,100,000  | Leather . . . . . 11,800,000   |
| Tallow, &c. . . . . | 10,800,000  | Machinery . . . . . 6,800,000  |
| Sundries . . . . .  | 36,300,000  | Sundries . . . . . 39,500,000  |
| Total . . . . .     | 171,800,000 | Total . . . . . 167,600,000    |

## RUSSIA.

The principal imports of European Russia were as follows:—

|                        | 1876       | 1886       | 1877-86, Ten Years, Millions Sterling | Net Imports, Millions Sterling |
|------------------------|------------|------------|---------------------------------------|--------------------------------|
|                        | £          | £          | £                                     | £                              |
| Cotton . . . . .       | 5,200,000  | 7,200,000  | 74                                    | 74                             |
| Wool . . . . .         | 1,700,000  | 1,900,000  | 24                                    | 9                              |
| Tea . . . . .          | 5,200,000  | 3,600,000  | 46                                    | 46                             |
| Iron and steel . . . . | 5,100,000  | 1,900,000  | 34                                    | 32                             |
| Machinery . . . . .    | 2,700,000  | 1,400,000  | 25                                    | 25                             |
| Coal . . . . .         | 1,600,000  | 1,300,000  | 17                                    | 17                             |
| Chemicals . . . . .    | 800,000    | 1,300,000  | 19                                    | 19                             |
| Sundries . . . . .     | 36,800,000 | 18,800,000 | 282                                   | 282                            |
| Total . . . . .        | 59,100,000 | 37,400,000 | 521                                   | 504                            |

The principal exports of European Russia were as follows:—

|                 | 1876       | 1886       | 1877-86, Ten Years, Millions Sterling |
|-----------------|------------|------------|---------------------------------------|
|                 | £          | £          | £                                     |
| Wheat . . .     | 14,000,000 | 9,700,000  | 162                                   |
| Rye . . .       | 7,600,000  | 4,800,000  | 74                                    |
| Oats . . .      | 3,300,000  | 2,600,000  | 45                                    |
| Barley, &c. . . | 2,200,000  | 4,600,000  | 42                                    |
| All grain . . . | 27,100,000 | 21,700,000 | 323                                   |
| Flax . . .      | 5,100,000  | 4,300,000  | 70                                    |
| Hemp . . .      | 1,200,000  | 1,200,000  | 18                                    |
| Linseed . . .   | 3,200,000  | 1,500,000  | 31                                    |
| Timber . . .    | 4,100,000  | 2,000,000  | 33                                    |
| Wool . . .      | 1,600,000  | 2,100,000  | 15                                    |
| Cattle . . .    | 1,600,000  | 900,000    | 13                                    |
| Sundries . . .  | 6,800,000  | 10,000,000 | 87                                    |
| Total . . .     | 50,700,000 | 43,700,000 | 590                                   |

Exports of the whole Russian Empire at various dates were officially valued thus:—

| Year       | Grain, £   | Sundries, £ | Total, £   |
|------------|------------|-------------|------------|
| 1830 . . . | 3,000,000  | 9,400,000   | 12,400,000 |
| 1840 . . . | 5,800,000  | 10,900,000  | 16,700,000 |
| 1860 . . . | 10,400,000 | 15,800,000  | 26,200,000 |
| 1870 . . . | 24,400,000 | 29,900,000  | 54,300,000 |
| 1880 . . . | 26,600,000 | 31,600,000  | 58,200,000 |
| 1886 . . . | 21,700,000 | 27,100,000  | 48,800,000 |

Official returns, allowing for discount on paper-money at various periods, may be summed up since 1742 thus:—

| Date    | Imports    | Exports    | Total       | Per Inhabitant |
|---------|------------|------------|-------------|----------------|
|         | £          | £          | £           | £ s. d.        |
| 1742    | 3,600,000  | 4,700,000  | 8,300,000   | 0 8 0          |
| 1750    | 6,900,000  | 7,200,000  | 14,100,000  | 0 13 0         |
| 1760    | 7,400,000  | 9,900,000  | 17,300,000  | 0 15 0         |
| 1770    | 11,400,000 | 15,000,000 | 26,400,000  | 1 2 0          |
| 1780    | 15,500,000 | 19,700,000 | 35,200,000  | 1 7 0          |
| 1790    | 20,800,000 | 21,800,000 | 42,600,000  | 1 10 0         |
| 1802    | 14,100,000 | 15,800,000 | 29,900,000  | 0 16 0         |
| 1820-39 | 10,500,000 | 12,000,000 | 22,500,000  | 0 10 0         |
| 1840    | 11,200,000 | 15,200,000 | 26,400,000  | 0 11 0         |
| 1841-49 | 15,000,000 | 18,000,000 | 33,000,000  | 0 12 0         |
| 1850-59 | 21,000,000 | 23,000,000 | 44,000,000  | 0 15 0         |
| 1860    | 21,500,000 | 26,200,000 | 47,700,000  | 0 15 0         |
| 1870    | 48,900,000 | 54,300,000 | 103,200,000 | 1 6 0          |
| 1880    | 72,600,000 | 58,200,000 | 130,800,000 | 1 11 0         |
| 1886    | 42,700,000 | 48,800,000 | 91,500,000  | 1 1 0          |
| 1888    | 39,100,000 | 79,400,000 | 118,500,000 | 1 7 0          |

The principal exports of Austria-Hungary were:—

|                     | 1860       | 1870       | 1880       | 1886       | Million £, 1877-86 |
|---------------------|------------|------------|------------|------------|--------------------|
|                     | £          | £          | £          | £          | £                  |
| Timber . . .        | 1,600,000  | 2,400,000  | 3,700,000  | 4,200,000  | 42                 |
| Grain . . .         | 2,000,000  | 5,200,000  | 6,700,000  | 6,300,000  | 81                 |
| Fancy goods . . .   | 1,800,000  | 4,400,000  | 4,300,000  | 5,200,000  | 56                 |
| Cattle . . .        | 800,000    | 1,000,000  | 3,000,000  | 3,300,000  | 37                 |
| Leather goods . . . | 1,100,000  | 1,400,000  | 1,500,000  | 2,100,000  | 17                 |
| Textile goods . . . | 3,100,000  | 4,200,000  | 4,200,000  | 4,400,000  | 44                 |
| Sugar . . .         | ...        | ...        | 4,900,000  | 4,000,000  | 47                 |
| Sundries . . .      | 16,100,000 | 20,900,000 | 28,000,000 | 28,700,000 | 259                |
| Total . . .         | 26,500,000 | 39,500,000 | 56,300,000 | 58,200,000 | 583                |

The statement for ten years ending 1886 shows as follows:—

|                         | Millions £ Sterling |            |             | Ratio |
|-------------------------|---------------------|------------|-------------|-------|
|                         | Imports from        | Exports to | Gross Trade |       |
| Germany . . .           | 201                 | 165        | 366         | 36.2  |
| Great Britain . . .     | 123                 | 169        | 292         | 28.9  |
| Austria . . .           | 23                  | 31         | 54          | 5.3   |
| France . . .            | 18                  | 48         | 66          | 6.5   |
| Turkey . . .            | 14                  | 10         | 24          | 2.4   |
| Italy . . .             | 9                   | 12         | 21          | 2.1   |
| Holland . . .           | 6                   | 36         | 42          | 4.1   |
| Sweden and Norway . . . | 4                   | 16         | 20          | 2.0   |
| Other countries . . .   | 79                  | 49         | 128         | 12.5  |
| Total . . .             | 477                 | 536        | 1,013       | 100.0 |

The exports of grain since 1867 averaged in quantity as follows:—

|                | Millions of Bushels |         |      |      |
|----------------|---------------------|---------|------|------|
|                | 1867-76             | 1877-86 | 1887 | 1888 |
| Wheat . . .    | 50                  | 67      | 75   | 122  |
| Oats . . .     | 20                  | 46      | 59   | 85   |
| Rye . . .      | 27                  | 46      | 50   | 68   |
| Barley . . .   | 6                   | 20      | 34   | 58   |
| Maize, &c. . . | 7                   | 16      | 28   | 34   |
| Total . . .    | 110                 | 195     | 246  | 367  |

The trade returns for European Russia in 1888 may be summed up thus:—

|                  | Imports, £ | Exports, £                      |
|------------------|------------|---------------------------------|
| Raw cotton . . . | 6,800,000  | Grain . . . 42,200,000          |
| Wool . . .       | 2,500,000  | Flax . . . 6,700,000            |
| Tea . . .        | 1,600,000  | Seeds . . . 3,800,000           |
| Machinery . . .  | 1,600,000  | Timber . . . 3,800,000          |
| Iron wares . . . | 1,500,000  | Hemp . . . 1,700,000            |
| Coal . . .       | 1,300,000  | Butter and eggs . . . 1,500,000 |
| Sundries . . .   | 17,900,000 | Sundries . . . 13,000,000       |
| Total . . .      | 33,200,000 | Total . . . 72,700,000          |

#### AUSTRIA-HUNGARY

The following are the official returns:—

| Year | Imports    | Exports    | Total       | Per Inhab. |
|------|------------|------------|-------------|------------|
|      | £          | £          | £           | £ s. d.    |
| 1831 | 6,800,000  | 7,900,000  | 14,700,000  | 0 12 0     |
| 1835 | 9,100,000  | 8,900,000  | 18,000,000  | 0 14 0     |
| 1840 | 11,000,000 | 10,800,000 | 21,800,000  | 0 15 6     |
| 1851 | 15,600,000 | 13,400,000 | 29,000,000  | 0 19 0     |
| 1860 | 20,900,000 | 26,500,000 | 47,400,000  | 1 10 0     |
| 1870 | 43,600,000 | 39,500,000 | 83,100,000  | 2 7 0      |
| 1880 | 51,100,000 | 56,300,000 | 107,400,000 | 2 16 0     |
| 1889 | 48,200,000 | 44,400,000 | 92,600,000  | 2 6 0      |

| Austro-Hungarian Imports | 1860       | 1870       | 1880       | 1886       | 1877-86,<br>Million £ | Net Imports,<br>Million £ |
|--------------------------|------------|------------|------------|------------|-----------------------|---------------------------|
| Raw cotton . . . . .     | 2,900,000  | 3,800,000  | 3,600,000  | 3,800,000  | 37                    | 34                        |
| Wool . . . . .           | 1,100,000  | 1,400,000  | 3,100,000  | 2,700,000  | 30                    | 14                        |
| Coffee . . . . .         | 1,100,000  | 2,000,000  | 2,300,000  | 2,600,000  | 25                    | 25                        |
| Tobacco . . . . .        | ...        | ...        | 2,300,000  | 2,800,000  | 20                    | 20                        |
| Hides . . . . .          | 500,000    | 1,400,000  | 1,800,000  | 1,700,000  | 17                    | 9                         |
| Silk, raw . . . . .      | 500,000    | 1,100,000  | 1,300,000  | 1,600,000  | 13                    | 13                        |
| Leather . . . . .        | 500,000    | 1,400,000  | 1,600,000  | 1,300,000  | 16                    | 16                        |
| Waxes . . . . .          | 1,500,000  | 2,700,000  | 2,700,000  | 2,300,000  | 26                    | 15                        |
| Flax and jute . . . . .  | ...        | ...        | 1,000,000  | 1,500,000  | 12                    | 12                        |
| Sundries . . . . .       | 11,700,000 | 29,800,000 | 31,400,000 | 24,600,000 | 293                   | ...                       |
| Total . . . . .          | 20,900,000 | 43,600,000 | 51,100,000 | 44,900,000 | 491                   | ...                       |

Trade returns for 1887 may be summed up thus :—

|                             | Imports, £ |                    | Exports, £ |
|-----------------------------|------------|--------------------|------------|
| Cotton . . . . .            | 4,700,000  | Grain . . . . .    | 7,800,000  |
| Wool . . . . .              | 3,600,000  | Timber . . . . .   | 4,600,000  |
| Coffee . . . . .            | 2,800,000  | Sugar . . . . .    | 3,700,000  |
| Silk . . . . .              | 1,600,000  | Hardware . . . . . | 3,000,000  |
| Tobacco . . . . .           | 1,500,000  | Woolens . . . . .  | 2,100,000  |
| Waxes . . . . .             | 2,600,000  | Cattle . . . . .   | 2,200,000  |
| Hides and leather . . . . . | 2,700,000  | Glass . . . . .    | 1,700,000  |
| Sundries . . . . .          | 27,900,000 | Sundries . . . . . | 31,000,000 |
| Total . . . . .             | 47,400,000 | Total . . . . .    | 56,100,000 |

|                         | Imports from | Exports to | Total Trade |
|-------------------------|--------------|------------|-------------|
|                         | £            | £          | £           |
| Germany . . . . .       | 30,200,000   | 33,300,000 | 63,500,000  |
| Russia . . . . .        | 2,100,000    | 1,500,000  | 3,600,000   |
| Great Britain . . . . . | 1,600,000    | 900,000    | 2,500,000   |
| Servia . . . . .        | 1,200,000    | 1,000,000  | 2,200,000   |
| Various . . . . .       | 12,300,000   | 19,400,000 | 31,700,000  |
| Total . . . . .         | 47,400,000   | 56,100,000 | 103,500,000 |

The above includes the total foreign trade of both Austria and Hungary, in which only a small portion seems to fall to Hungary, since the returns for that kingdom for 1888, including trade with Austria, show :—

|                             | Imports from | Exports to | Total Trade |
|-----------------------------|--------------|------------|-------------|
|                             | £            | £          | £           |
| Austria . . . . .           | 32,400,000   | 25,800,000 | 58,200,000  |
| Foreign countries . . . . . | 6,300,000    | 11,400,000 | 17,700,000  |
| Total . . . . .             | 38,700,000   | 37,200,000 | 75,900,000  |

Hungary exported grain worth £14,000,000 and cattle £5,000,000: her imports included textiles worth £16,600,000 sterling.

## ITALY

The trade of Genoa increased 80 per cent. from 1835 to 1867.\* If we suppose a similar increase for Italy, the trade of the kingdom would have been 35 millions sterling in the former year, but it was doubtless much below that figure. Levi's estimate for 1850 was only 11 millions for imports, and 8 millions for exports, which was certainly too low. We have regular statistics from 1861 :—

| Year           | Million £ Sterling |         |       | Per Inhabitant   |
|----------------|--------------------|---------|-------|------------------|
|                | Imports            | Exports | Total |                  |
| 1835 . . . . . | 13                 | 11      | 24    | £ s. d.<br>1 7 0 |
| 1850 . . . . . | 23                 | 15      | 38    | 1 18 0           |
| 1861 . . . . . | 33                 | 19      | 52    | 2 7 0            |
| 1870 . . . . . | 36                 | 30      | 66    | 2 13 0           |
| 1880 . . . . . | 47                 | 44      | 91    | 3 3 0            |
| 1886 . . . . . | 58                 | 41      | 99    | 3 6 0            |
| 1889 . . . . . | 56                 | 38      | 94    | 3 3 0            |

The aggregate for ten years, 1877-86, was :—

|                           | Millions £ Sterling |             |             | Ratio |
|---------------------------|---------------------|-------------|-------------|-------|
|                           | Imported from       | Exported to | Gross Trade |       |
| France . . . . .          | 136                 | 194         | 330         | 34.0  |
| Great Britain . . . . .   | 116                 | 36          | 152         | 15.6  |
| Austria . . . . .         | 84                  | 58          | 142         | 14.4  |
| Germany . . . . .         | 33                  | 27          | 60          | 6.2   |
| Switzerland . . . . .     | 21                  | 44          | 65          | 6.7   |
| Russia . . . . .          | 24                  | 9           | 33          | 3.4   |
| United States . . . . .   | 24                  | 20          | 44          | 4.5   |
| India . . . . .           | 27                  | 8           | 35          | 3.6   |
| Other countries . . . . . | 62                  | 48          | 110         | 11.6  |
| Total . . . . .           | 527                 | 444         | 971         | 100.0 |

This table includes bullion both ways.

\* From £8,200,000 to £14,400,000.

| Imports of Italy        | 1862       | 1870       | 1880       | 1886       | 1877-86,<br>Millions Sterling | Net Imports,<br>Millions Sterling |
|-------------------------|------------|------------|------------|------------|-------------------------------|-----------------------------------|
| Grain . . . . .         | 3,000,000  | 3,200,000  | 3,600,000  | 8,100,000  | 49                            | 18                                |
| Coal . . . . .          | 700,000    | 1,500,000  | 2,300,000  | 2,700,000  | 23                            | 23                                |
| Timber . . . . .        | 800,000    | 1,000,000  | 1,200,000  | 2,400,000  | 15                            | 15                                |
| Raw cotton . . . . .    | 300,000    | 1,400,000  | 3,300,000  | 3,000,000  | 30                            | 22                                |
| Wool . . . . .          | 500,000    | 500,000    | 1,200,000  | 1,300,000  | 13                            | 13                                |
| Silk . . . . .          | 5,000,000  | 2,200,000  | 2,100,000  | 2,000,000  | 18                            | ...                               |
| Machinery . . . . .     | ...        | 200,000    | 1,600,000  | 1,700,000  | 19                            | 19                                |
| Textile goods . . . . . | ...        | 4,800,000  | 4,400,000  | 4,900,000  | 52                            | 47                                |
| Hides . . . . .         | 500,000    | 700,000    | 1,100,000  | 1,400,000  | 14                            | 14                                |
| Sundries . . . . .      | 22,400,000 | 20,300,000 | 26,600,000 | 30,700,000 | 280                           | ...                               |
| Total . . . . .         | 33,200,000 | 35,800,000 | 47,400,000 | 58,200,000 | 505                           | ...                               |

The principal exports were :—

|                    | 1862       | 1870       | 1880       | 1886       | 1877-86, Millions Sterling |
|--------------------|------------|------------|------------|------------|----------------------------|
|                    | £          | £          | £          | £          | £                          |
| Silk . . . . .     | 8,200,000  | 9,200,000  | 11,600,000 | 12,600,000 | 114                        |
| Wine . . . . .     | 400,000    | 400,000    | 2,600,000  | 3,300,000  | 20                         |
| Oil . . . . .      | 2,600,000  | 3,400,000  | 3,400,000  | 3,100,000  | 37                         |
| Fruit . . . . .    | 1,200,000  | 1,000,000  | 1,400,000  | 1,500,000  | 16                         |
| Eggs . . . . .     | 60,000     | 160,000    | 1,400,000  | 1,200,000  | 13                         |
| Cattle . . . . .   | 500,000    | 900,000    | 1,200,000  | 700,000    | 13                         |
| Hemp . . . . .     | 400,000    | 800,000    | 900,000    | 1,000,000  | 11                         |
| Sulphur . . . . .  | 1,200,000  | 1,000,000  | 1,300,000  | 1,000,000  | 12                         |
| Sundries . . . . . | 8,540,000  | 13,340,000 | 20,300,000 | 16,400,000 | 190                        |
| Total . . . . .    | 23,100,000 | 30,200,000 | 44,100,000 | 40,800,000 | 426                        |

The trade of 1888 may be summed up thus :—

|                     | Imports, £ |                    | Exports, £ |
|---------------------|------------|--------------------|------------|
| Grain . . . . .     | 5,900,000  | Silk . . . . .     | 11,600,000 |
| Coal . . . . .      | 3,600,000  | Oil . . . . .      | 2,500,000  |
| Cotton . . . . .    | 3,400,000  | Wine . . . . .     | 2,200,000  |
| Textiles . . . . .  | 2,500,000  | Fruit . . . . .    | 1,700,000  |
| Machinery . . . . . | 1,600,000  | Hemp . . . . .     | 1,100,000  |
| Timber . . . . .    | 1,200,000  | Sulphur . . . . .  | 900,000    |
| Sundries . . . . .  | 28,800,000 | Sundries . . . . . | 15,600,000 |
| Total . . . . .     | 47,000,000 | Total . . . . .    | 35,600,000 |

#### SPAIN

The official returns show as follows :—

| Year | Imports    | Exports    | Total      | Per Inhabitant |
|------|------------|------------|------------|----------------|
|      | £          | £          | £          | £ s. d.        |
| 1795 | 8,800,000  | 4,800,000  | 13,600,000 | 1 7 0          |
| 1827 | 3,800,000  | 2,900,000  | 6,700,000  | 0 12 0         |
| 1850 | 5,900,000  | 4,800,000  | 10,700,000 | 0 15 0         |
| 1860 | 14,500,000 | 10,700,000 | 25,200,000 | 1 11 0         |
| 1872 | 21,100,000 | 20,100,000 | 41,200,000 | 2 11 0         |
| 1880 | 24,900,000 | 25,500,000 | 50,400,000 | 3 3 0          |
| 1885 | 29,500,000 | 27,500,000 | 57,000,000 | 3 7 0          |
| 1888 | 28,600,000 | 30,500,000 | 59,100,000 | 3 8 0          |

The exports of 1795 were as follows :—

|                    |           |
|--------------------|-----------|
|                    | £         |
| Wool . . . . .     | 1,500,000 |
| Wine . . . . .     | 1,600,000 |
| Sundries . . . . . | 1,700,000 |
| Total . . . . .    | 4,800,000 |

The statement for ten years ending December 1885 showed as follows :—

|                           | Million £ Sterling |            |             |       |
|---------------------------|--------------------|------------|-------------|-------|
|                           | Imports from       | Exports to | Gross Trade | Ratio |
| France . . . . .          | 78                 | 85         | 163         | 31.3  |
| Great Britain . . . . .   | 61                 | 77         | 138         | 26.6  |
| Germany . . . . .         | 20                 | 3          | 23          | 4.4   |
| United States . . . . .   | 33                 | 7          | 40          | 7.7   |
| Cuba . . . . .            | 11                 | 25         | 36          | 7.0   |
| Other countries . . . . . | 72                 | 47         | 119         | 23.0  |
| Total . . . . .           | 275                | 244        | 519         | 100.0 |

The above table includes bullion both ways. Notwithstanding heavy import duties, the imports surpassed exports. In 1888, however, there was a surplus of exports.

The imports were as follows :—

|                     | 1860       | 1872       | 1880       | 1885       | 1876-85, Millions Sterling | Net Imports, Millions Sterling |
|---------------------|------------|------------|------------|------------|----------------------------|--------------------------------|
|                     | £          | £          | £          | £          | £                          | £                              |
| Grain . . . . .     | ...        | 200,000    | 300,000    | 900,000    | 10                         | 4                              |
| Brandy . . . . .    | 200,000    | 200,000    | 1,700,000  | 2,200,000  | 13                         | 13                             |
| Cotton . . . . .    | 1,300,000  | 2,600,000  | 3,200,000  | 2,600,000  | 29                         | 29                             |
| Textiles . . . . .  | 1,500,000  | 1,000,000  | 1,700,000  | 2,100,000  | 19                         | 19                             |
| Sugar . . . . .     | 1,100,000  | 1,100,000  | 900,000    | 1,200,000  | 11                         | 11                             |
| Coal . . . . .      | 300,000    | 700,000    | 800,000    | 1,000,000  | 9                          | 9                              |
| Fish . . . . .      | 500,000    | 700,000    | 700,000    | 1,200,000  | 8                          | 8                              |
| Machinery . . . . . | 300,000    | 700,000    | 2,000,000  | 1,400,000  | 18                         | 18                             |
| Sundries . . . . .  | 9,300,000  | 13,900,000 | 13,600,000 | 16,900,000 | 143                        | ...                            |
| Total . . . . .     | 14,500,000 | 21,100,000 | 24,900,000 | 29,500,000 | 260                        | ...                            |

The above is of merchandise only, excluding bullion. The exports were as follows :—

|                    | 1860       | 1872       | 1880       | 1885       | 1876-85, Millions Sterling |
|--------------------|------------|------------|------------|------------|----------------------------|
|                    | £          | £          | £          | £          | £                          |
| Wine . . . . .     | 3,200,000  | 6,800,000  | 10,000,000 | 12,600,000 | 92                         |
| Minerals . . . . . | ...        | 3,600,000  | 6,400,000  | 4,800,000  | 53                         |
| Fruit . . . . .    | ...        | 2,100,000  | 1,600,000  | 1,900,000  | 19                         |
| Oil . . . . .      | 200,000    | 600,000    | 500,000    | 1,600,000  | 7                          |
| Sundries . . . . . | 7,300,000  | 7,000,000  | 7,000,000  | 6,600,000  | 70                         |
| Total . . . . .    | 10,700,000 | 20,100,000 | 25,500,000 | 27,500,000 | 241                        |

The trade of 1888 may be summed up thus :—

|                                      | Imports, £ |                                     | Exports, £ |
|--------------------------------------|------------|-------------------------------------|------------|
| Cotton . . .                         | 2,300,000  | Wine . . .                          | 12,100,000 |
| Grain . . .                          | 2,400,000  | Metals and minerals }<br>Cork . . . | 6,800,000  |
| Coal . . .                           | 1,200,000  | Fruit . . .                         | 2,300,000  |
| Textiles . . .                       | 2,000,000  | Cattle . . .                        | 800,000    |
| Machinery and iron }<br>Timber . . . | 1,600,000  | Wool . . .                          | 700,000    |
| Sugar . . .                          | 1,200,000  | Oil . . .                           | 600,000    |
| Sundries . . .                       | 16,700,000 | Sundries . . .                      | 400,000    |
| Total . . .                          | 28,600,000 | Total . . .                         | 6,800,000  |
|                                      |            |                                     | 30,500,000 |

## PORTUGAL

Official returns are as follows :—

| Year | Imports    | Exports   | Total      | Per Inhabitant |
|------|------------|-----------|------------|----------------|
|      | £          | £         | £          | £ s. d.        |
| 1806 | 7,100,000  | 7,600,000 | 14,700,000 | 4 15 0         |
| 1842 | 2,400,000  | 1,700,000 | 4,100,000  | 1 4 0          |
| 1850 | 3,100,000  | 2,200,000 | 5,300,000  | 1 9 0          |
| 1870 | 5,700,000  | 4,600,000 | 10,300,000 | 2 11 0         |
| 1880 | 7,900,000  | 5,600,000 | 13,500,000 | 3 1 0          |
| 1886 | 10,500,000 | 5,700,000 | 16,200,000 | 3 10 0         |
| 1888 | 10,600,000 | 7,200,000 | 17,800,000 | 4 0 0          |

The trade of 1806 was probably abnormally high on account of the war with Spain. There has been a steady increase since 1842.

The returns for imports are as follows :—

|                   | 1872      | 1880      | 1886       | 1877-86, Average |
|-------------------|-----------|-----------|------------|------------------|
|                   | £         | £         | £          | £                |
| Grain . . .       | 400,000   | 1,200,000 | 1,100,000  | 1,200,000        |
| Textile goods     | 1,500,000 | 1,200,000 | 1,400,000  | 1,300,000        |
| Cotton and wool } | 200,000   | 300,000   | 500,000    | 300,000          |
| Fish . . .        | 300,000   | 300,000   | 400,000    | 300,000          |
| Coal . . .        | 200,000   | 300,000   | 300,000    | 300,000          |
| Sundries . . .    | 3,900,000 | 6,800,000 | 6,800,000  | 4,700,000        |
| Total . . .       | 6,500,000 | 7,900,000 | 10,500,000 | 8,100,000        |

The exports were as follows :—

|                | 1872      | 1880      | 1886      | 1877-86   |
|----------------|-----------|-----------|-----------|-----------|
|                | £         | £         | £         | £         |
| Wine . . .     | 2,000,000 | 2,200,000 | 3,700,000 | 2,400,000 |
| Copper . . .   | 400,000   | 400,000   | ...       | 300,000   |
| Cork . . .     | 200,000   | 600,000   | 500,000   | 500,000   |
| Cattle . . .   | 300,000   | 400,000   | 200,000   | 400,000   |
| Fruit . . .    | 200,000   | 200,000   | 100,000   | 200,000   |
| Sundries . . . | 2,100,000 | 1,800,000 | 1,200,000 | 1,400,000 |
| Total . . .    | 5,200,000 | 5,600,000 | 5,700,000 | 5,200,000 |

The statement for ten years ending December 1882 was as follows :—

|                       | Millions £ Sterling |            |       | Ratio |
|-----------------------|---------------------|------------|-------|-------|
|                       | Imports from        | Exports to | Total |       |
| Great Britain . . .   | 34                  | 27         | 61    | 48.0  |
| France . . .          | 10                  | 4          | 14    | 11.0  |
| Spain . . .           | 5                   | 10         | 15    | 11.8  |
| United States . . .   | 7                   | 1          | 8     | 6.3   |
| Spain . . .           | 5                   | 3          | 8     | 6.3   |
| Other countries . . . | 15                  | 6          | 21    | 16.6  |
| Total . . .           | 76                  | 51         | 127   | 100.0 |

## SWEDEN

Official returns of merchandise are as follows :—

| Year    | Imports    | Exports    | Total      | Per Inhabitant |
|---------|------------|------------|------------|----------------|
|         | £          | £          | £          | £ s. d.        |
| 1801    | 1,400,000  | 1,000,000  | 2,400,000  | 1 1 0          |
| 1805    | 1,500,000  | 1,700,000  | 3,200,000  | 1 6 0          |
| 1831-40 | 1,300,000  | 1,600,000  | 2,900,000  | 1 1 0          |
| 1850    | 3,300,000  | 3,700,000  | 7,000,000  | 2 1 0          |
| 1860    | 4,400,000  | 4,800,000  | 9,200,000  | 2 8 0          |
| 1870    | 7,800,000  | 8,400,000  | 16,200,000 | 3 18 0         |
| 1880    | 15,100,000 | 13,100,000 | 28,200,000 | 6 5 0          |
| 1885    | 18,700,000 | 13,700,000 | 32,400,000 | 6 10 0         |
| 1887    | 16,300,000 | 13,500,000 | 29,800,000 | 6 0 0          |

A statement for ten years ending December 1885 shows thus :—

|                       | Millions £ Sterling |            |             | Ratio |
|-----------------------|---------------------|------------|-------------|-------|
|                       | Imports from        | Exports to | Gross Trade |       |
| Great Britain . . .   | 44                  | 63         | 107         | 37.2  |
| Germany . . .         | 40                  | 9          | 49          | 17.1  |
| Denmark . . .         | 28                  | 13         | 41          | 14.3  |
| Norway . . .          | 9                   | 4          | 13          | 4.5   |
| France . . .          | 4                   | 15         | 19          | 6.6   |
| Other countries . . . | 37                  | 21         | 58          | 20.3  |
| Total . . .           | 162                 | 125        | 287         | 100.0 |

The above table includes bullion both ways.

The imports were as follows of merchandise :—

|                           | 1875       | 1885       | 1876-85 | Net Imports |
|---------------------------|------------|------------|---------|-------------|
|                           | £          | £          | Mill. £ | Mill. £     |
| Textile goods . . .       | 1,500,000  | 2,000,000  | 16      | 15          |
| Grain . . .               | 1,100,000  | 2,000,000  | 16      | ...         |
| Cotton, wool, and yarns } | 1,100,000  | 1,300,000  | 11      | 11          |
| Coal . . .                | 800,000    | 900,000    | 8       | 8           |
| Sundries . . .            | 10,000,000 | 12,500,000 | 107     | ...         |
| Total . . .               | 14,500,000 | 18,700,000 | 158     | ...         |

The exports were as follows :—

|                | 1875       | 1885       | 1876-85   |
|----------------|------------|------------|-----------|
|                | £          | £          | Million £ |
| Timber . . .   | 4,700,000  | 5,100,000  | 50        |
| Iron . . .     | 2,100,000  | 1,900,000  | 17        |
| Grain . . .    | 1,800,000  | 1,500,000  | 18        |
| Butter . . .   | 400,000    | 1,100,000  | 6         |
| Sundries . . . | 2,300,000  | 4,100,000  | 30        |
| Total . . .    | 11,300,000 | 13,700,000 | 121       |

The trade of 1887 may be summed up thus :—

|                | Imports, £ |                 | Exports, £ |
|----------------|------------|-----------------|------------|
| Textiles . . . | 2,700,000  | Timber . . .    | 5,400,000  |
| Grain . . .    | 1,700,000  | Butter, &c. . . | 2,400,000  |
| Fibre . . .    | 1,600,000  | Metals . . .    | 1,800,000  |
| Coal . . .     | 1,200,000  | Hardware . . .  | 400,000    |
| Sundries . . . | 9,100,000  | Sundries . . .  | 3,500,000  |
| Total . . .    | 16,300,000 | Total . . .     | 13,500,000 |

## NORWAY

Previously to 1872 the value of exports was not recorded, but merely the quantities. The trade has been approximately as follows:—

| Year | Imports   | Exports   | Total      | Per Inhabitant |
|------|-----------|-----------|------------|----------------|
|      | £         | £         | £          | £ s. d.        |
| 1830 | 700,000   | 800,000   | 1,500,000  | 1 8 0          |
| 1850 | 1,600,000 | 1,800,000 | 3,400,000  | 2 9 0          |
| 1860 | 2,400,000 | 2,200,000 | 4,600,000  | 3 0 0          |
| 1872 | 7,600,000 | 5,800,000 | 13,400,000 | 7 10 0         |
| 1880 | 8,400,000 | 6,100,000 | 14,500,000 | 7 3 0          |
| 1888 | 8,800,000 | 6,800,000 | 15,600,000 | 7 15 0         |

The imports were as follows:—

|                   | 1876      | 1886      | 1877-86    |
|-------------------|-----------|-----------|------------|
|                   | £         | £         | Millions £ |
| Grain . . . . .   | 2,000,000 | 1,500,000 | 18         |
| Textile goods . . | 800,000   | 800,000   | 8          |
| Hardware . . . .  | 700,000   | 500,000   | 5          |
| Sundries . . . .  | 5,800,000 | 4,700,000 | 54         |
| Total . . . . .   | 9,300,000 | 7,500,000 | 85         |

The exports were as follows:—

|                  | 1876      | 1886      | 1877-86    |
|------------------|-----------|-----------|------------|
|                  | £         | £         | Millions £ |
| Timber . . . . . | 2,400,000 | 1,600,000 | 19         |
| Fish . . . . .   | 2,400,000 | 1,800,000 | 19         |
| Sundries . . . . | 1,800,000 | 2,300,000 | 22         |
| Total . . . . .  | 6,600,000 | 5,700,000 | 60         |

The statement for ten years ending December 1886 shows:—

|                   | Millions £ Sterling |            |             | Ratio |
|-------------------|---------------------|------------|-------------|-------|
|                   | Imports from        | Exports to | Gross Trade |       |
| Great Britain . . | 22                  | 20         | 42          | 29.0  |
| Germany . . . .   | 25                  | 8          | 33          | 22.7  |
| Sweden . . . . .  | 9                   | 7          | 16          | 11.0  |
| Other countries   | 29                  | 25         | 54          | 37.3  |
| Total . . . . .   | 85                  | 60         | 145         | 100.0 |

The trade of 1888 may be summed up thus:—

|                  | Imports, £ | Exports, £                   |
|------------------|------------|------------------------------|
| Grain . . . . .  | 1,700,000  | Fish . . . . . 2,300,000     |
| Textiles . . . . | 1,000,000  | Timber . . . . . 1,800,000   |
| Hardware . . . . | 700,000    | Metals and minerals 500,000  |
| Sundries . . . . | 5,400,000  | Sundries . . . . . 2,200,000 |
| Total . . . . .  | 8,800,000  | Total . . . . . 6,800,000    |

## DENMARK

Official returns show as follows:—

| Year | Imports    | Exports    | Gross Trade | Per Inhab. |
|------|------------|------------|-------------|------------|
|      | £          | £          | £           | £ s. d.    |
| 1789 | 950,000    | 1,020,000  | 1,970,000   | ...        |
| 1850 | 4,700,000  | 3,100,000  | 7,800,000   | 5 5 0      |
| 1872 | 10,800,000 | 8,100,000  | 18,900,000  | 10 8 0     |
| 1880 | 11,500,000 | 9,800,000  | 21,300,000  | 10 15 0    |
| 1888 | 15,200,000 | 10,700,000 | 25,900,000  | 13 0 0     |

The exports in 1836 were as follows:—

|                           | Quantity  | Value, £ |
|---------------------------|-----------|----------|
| Wheat, bushels . . .      | 800,000   | 150,000  |
| Barley and rye, bushels . | 2,300,000 | 250,000  |
| Butter, barrels . . .     | 70,000    | 400,000  |
| Cattle, No. . . . .       | 40,000    | 300,000  |
| Sundries . . . . .        | ...       | 860,000  |

Total . 1,960,000

The imports of merchandise in ten years ending 1885 were:—

|                      | 1875    | 1885    | 1876-85   |
|----------------------|---------|---------|-----------|
| Coal, tons . . . .   | 500,000 | 900,000 | 7,000,000 |
| Grain . . . . .      | 65,000  | 145,000 | 1,150,000 |
| Iron goods, tons . . | 50,000  | 55,000  | 510,000   |
| Oil . . . . .        | 8,000   | 19,000  | 16,000    |
| Salt . . . . .       | 25,000  | 25,000  | 240,000   |
| Sugar . . . . .      | 26,000  | 20,000  | 270,000   |

The exports of Denmark were:—

|                     | 1875    | 1885    | 1876-85   |
|---------------------|---------|---------|-----------|
| Grain, tons . . . . | 240,000 | 150,000 | 2,100,000 |
| Cattle, No. . . . . | 340,000 | 350,000 | 4,200,000 |
| Bacon, tons . . . . | 5,000   | 16,000  | 75,000    |
| Butter . . . . .    | 13,000  | 18,000  | 145,000   |

It will be observed that the exports of grain much exceeded the imports, the net export for ten years being one million tons, or 40 million bushels.

The countries trading with Denmark in the period of ten years ending December 1885 were:—

|                     | Million £ Sterling |            |       | Ratio |
|---------------------|--------------------|------------|-------|-------|
|                     | Imports from       | Exports to | Total |       |
| Germany . . . . .   | 49                 | 31         | 80    | 34.8  |
| Great Britain . . . | 30                 | 37         | 67    | 29.1  |
| Sweden . . . . .    | 16                 | 15         | 31    | 13.4  |
| Other countries . . | 38                 | 15         | 53    | 22.7  |
| Total . . . . .     | 133                | 98         | 231   | 100.0 |

The trade of 1888 may be summed up thus:—

| Imports                       | Exports                      |
|-------------------------------|------------------------------|
| Textiles . . . . . 2,200,000  | Butter and eggs . 5,100,000  |
| Grain . . . . . 1,600,000     | Cattle . . . . . 1,600,000   |
| Metals . . . . . 1,300,000    | Grain . . . . . 900,000      |
| Sundries . . . . . 10,100,000 | Sundries . . . . . 3,100,000 |
| Total . 15,200,000            | Total . 10,700,000           |

## HOLLAND

Official statements are as follows:—

| Year | Imports     | Exports    | Total       | Per Inhabitant |
|------|-------------|------------|-------------|----------------|
|      | £           | £          | £           | £ s. d.        |
| 1843 | 15,200,000  | 11,400,000 | 26,600,000  | 8 10 0         |
| 1850 | 22,000,000  | 18,000,000 | 40,000,000  | 11 5 0         |
| 1860 | 25,300,000  | 20,200,000 | 45,500,000  | 12 10 0        |
| 1870 | 38,800,000  | 31,800,000 | 70,600,000  | 18 10 0        |
| 1880 | 69,000,000  | 52,100,000 | 121,100,000 | 30 5 0         |
| 1888 | 106,000,000 | 92,900,000 | 198,900,000 | 45 0 0         |

More than half the trade is in a manner goods in transit, since we see that the net imports are less than half the gross imports.

The imports of Holland were as follows :—

|                           | 1861       | 1870       | 1880       | 1886       | 1877-86    | Net Import |
|---------------------------|------------|------------|------------|------------|------------|------------|
|                           | £          | £          | £          | £          | Millions £ | Millions £ |
| Chinchona . . . . .       | 600,000    | 500,000    | 2,500,000  | 8,800,000  | 46         | 4          |
| Grain . . . . .           | 5,000,000  | 5,500,000  | 10,300,000 | 15,000,000 | 115        | 57         |
| Iron . . . . .            | 1,400,000  | 2,000,000  | 7,700,000  | 8,000,000  | 78         | 21         |
| Coal . . . . .            | 1,400,000  | 1,500,000  | 2,500,000  | 3,000,000  | 26         | 26         |
| Coffee . . . . .          | 2,700,000  | 3,500,000  | 3,500,000  | 3,100,000  | 37         | 12         |
| Cotton and yarn . . . . . | 3,800,000  | 4,000,000  | 4,200,000  | 3,800,000  | 42         | 15         |
| Wool and yarn . . . . .   | 1,600,000  | 2,200,000  | 1,700,000  | 2,900,000  | 21         | 5          |
| Timber . . . . .          | 800,000    | 900,000    | 1,800,000  | 1,800,000  | 19         | 19         |
| Lard . . . . .            | ...        | ...        | 2,300,000  | 2,400,000  | 20         | 17         |
| Sugar . . . . .           | 3,300,000  | 4,600,000  | 2,800,000  | 2,500,000  | 30         | 7          |
| Petroleum . . . . .       | ...        | 900,000    | 1,000,000  | 1,700,000  | 12         | 12         |
| Sundries . . . . .        | 6,700,000  | 13,200,000 | 28,700,000 | 36,400,000 | 335        | ...        |
| Total . . . . .           | 27,300,000 | 38,800,000 | 69,000,000 | 89,400,000 | 781        | ...        |

The exports of Holland were as follows :—

|                           | 1861       | 1870       | 1880       | 1886       | 1877-86   |
|---------------------------|------------|------------|------------|------------|-----------|
|                           | £          | £          | £          | £          | Million £ |
| Chinchona . . . . .       | 500,000    | 400,000    | 2,400,000  | 9,100,000  | 42        |
| Iron . . . . .            | 900,000    | 1,400,000  | 5,700,000  | 4,800,000  | 57        |
| Butter . . . . .          | 1,200,000  | 1,400,000  | 2,400,000  | 4,700,000  | 29        |
| Coffee . . . . .          | 2,300,000  | 2,900,000  | 2,400,000  | 2,700,000  | 25        |
| Sugar . . . . .           | 2,700,000  | 3,800,000  | 2,200,000  | 2,500,000  | 23        |
| Cattle . . . . .          | 700,000    | 800,000    | 1,100,000  | 1,100,000  | 11        |
| Cotton and yarn . . . . . | 3,100,000  | 3,100,000  | 2,600,000  | 2,400,000  | 27        |
| Wool and yarn . . . . .   | 1,400,000  | 1,800,000  | 1,200,000  | 2,500,000  | 16        |
| Grain . . . . .           | 1,500,000  | 2,100,000  | 5,200,000  | 7,800,000  | 58        |
| Sundries . . . . .        | 7,200,000  | 14,500,000 | 29,300,000 | 50,400,000 | 300       |
| Total . . . . .           | 21,000,000 | 31,800,000 | 52,100,000 | 78,900,000 | 588       |

The statement for ten years ending December 1886 showed :—

|                           | Million £ Sterling |            |       | Ratio |
|---------------------------|--------------------|------------|-------|-------|
|                           | Imports from       | Exports to | Total |       |
| Germany . . . . .         | 227                | 267        | 494   | 35.5  |
| Great Britain . . . . .   | 207                | 140        | 347   | 25.0  |
| Belgium . . . . .         | 107                | 92         | 199   | 14.3  |
| Java . . . . .            | 58                 | 37         | 95    | 6.8   |
| United States . . . . .   | 48                 | 17         | 65    | 4.7   |
| Russia . . . . .          | 57                 | 6          | 63    | 4.5   |
| Other countries . . . . . | 92                 | 34         | 126   | 9.2   |
| Total . . . . .           | 796                | 593        | 1,389 | 100.0 |

The summary for ten years shows that imports exceeded exports by 203 millions sterling. This excess is to be observed in the trade of Holland with all countries except Germany. The largest excess is in respect of Russia, the imports from which are ten times the exports thither. Trade with the United States is also very unequal.

The trade of 1888 may be summed up thus :—

|                          | Imports, £  |                             | Exports, £ |
|--------------------------|-------------|-----------------------------|------------|
| Grain . . . . .          | 16,300,000  | Drugs . . . . .             | 13,000,000 |
| Drugs . . . . .          | 16,400,000  | Textiles . . . . .          | 9,500,000  |
| Iron and steel . . . . . | 12,000,000  | Grain . . . . .             | 7,700,000  |
| Textiles . . . . .       | 9,000,000   | Butter and cheese . . . . . | 4,900,000  |
| Sundries . . . . .       | 52,300,000  | Sundries . . . . .          | 57,800,000 |
| Total . . . . .          | 106,000,000 | Total . . . . .             | 92,900,000 |

The above includes bullion both ways.

#### BELGIUM

The values of the principal imports at various dates were as follows :—

|                    | 1840      | 1850      | 1860       | 1870       | 1880       | 1887       |
|--------------------|-----------|-----------|------------|------------|------------|------------|
|                    | £         | £         | £          | £          | £          | £          |
| Grain . . . . .    | 400,000   | 200,000   | 2,400,000  | 2,900,000  | 7,400,000  | 6,600,000  |
| Wool . . . . .     | 500,000   | 700,000   | 2,100,000  | 3,500,000  | 7,400,000  | 3,100,000  |
| Hides . . . . .    | 100,000   | 200,000   | 1,900,000  | 2,400,000  | 2,600,000  | 2,900,000  |
| Flax . . . . .     | ...       | 200,000   | 600,000    | 2,200,000  | 2,800,000  | 2,000,000  |
| Cattle . . . . .   | 100,000   | 100,000   | 600,000    | 1,100,000  | 2,300,000  | 1,800,000  |
| Coffee . . . . .   | 1,000,000 | 900,000   | 1,300,000  | 1,200,000  | 1,800,000  | 1,600,000  |
| Meat . . . . .     | ...       | ...       | ...        | 700,000    | 3,600,000  | 2,000,000  |
| Eggs . . . . .     | ...       | ...       | ...        | ...        | 1,300,000  | 1,300,000  |
| Cotton . . . . .   | 600,000   | 700,000   | 800,000    | 1,400,000  | 1,700,000  | 1,000,000  |
| Sundries . . . . . | 5,500,000 | 6,400,000 | 10,900,000 | 21,400,000 | 36,300,000 | 34,900,000 |
| Total . . . . .    | 8,200,000 | 9,400,000 | 20,600,000 | 36,800,000 | 67,200,000 | 57,200,000 |

The weight of certain imports was as follows :—

|                         | Tons      |           |           |           |           |           |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
|                         | 1840      | 1850      | 1860      | 1870      | 1880      | 1887      |
| Coal . . . . .          | 21,000    | 9,000     | 97,000    | 229,000   | 937,000   | 1,025,000 |
| Ores . . . . .          | ...       | ...       | 1,000     | 569,000   | 922,000   | 1,452,000 |
| Grain . . . . .         | 92,000    | 53,000    | 243,000   | 315,000   | 786,000   | 1,001,000 |
| Rice . . . . .          | 4,000     | 6,000     | 27,000    | 35,000    | 62,000    | 76,000    |
| Meat . . . . .          | 3,000     | 3,000     | 22,000    | 52,000    | 133,000   | 95,000    |
| Iron . . . . .          | ...       | ...       | 2,000     | 91,000    | 251,000   | 175,000   |
| Salt . . . . .          | 26,000    | 32,000    | 40,000    | 49,000    | 100,000   | 115,000   |
| Flax . . . . .          | 1,000     | 4,000     | 10,000    | 41,000    | 41,000    | 50,000    |
| Wool . . . . .          | 3,000     | 4,000     | 14,000    | 42,000    | 49,000    | 44,000    |
| Cotton . . . . .        | 9,000     | 10,000    | 15,000    | 16,000    | 23,000    | 23,000    |
| Sugar . . . . .         | 25,000    | 25,000    | 21,000    | 24,000    | 23,000    | 14,000    |
| Coffee . . . . .        | 19,000    | 17,000    | 19,000    | 22,000    | 23,000    | 19,000    |
| Wine, gallons . . . . . | 1,700,000 | 2,100,000 | 3,200,000 | 3,100,000 | 4,500,000 | 4,200,000 |

Official reports show as follows :—

| Period            | Imports | Exports | Gross Trade | Per Inhab. |
|-------------------|---------|---------|-------------|------------|
|                   | Mill. £ | Mill. £ | Mill. £     | £ s. d.    |
| 1831-40 . . . . . | 8       | 6       | 14          | 4 0 0      |
| 1841-50 . . . . . | 13      | 12      | 25          | 5 15 0     |
| 1851-60 . . . . . | 20      | 17      | 37          | 8 0 0      |
| 1861-70 . . . . . | 30      | 24      | 54          | 10 10 0    |
| 1871-80 . . . . . | 56      | 44      | 100         | 19 0 0     |
| 1881-86 . . . . . | 59      | 51      | 110         | 20 0 0     |
| 1850 . . . . .    | 10      | 11      | 21          | 4 14 0     |
| 1860 . . . . .    | 21      | 19      | 40          | 8 10 0     |
| 1870 . . . . .    | 37      | 28      | 65          | 13 0 0     |
| 1880 . . . . .    | 67      | 49      | 116         | 21 10 0    |
| 1886 . . . . .    | 53      | 47      | 100         | 18 0 0     |
| 1888 . . . . .    | 61      | 50      | 111         | 18 10 0    |

The averages of imports and exports for ten years ending 1886 were :—

|                         | Gross Imports, £ | Net Imports, £ |                      | Exports, £ |
|-------------------------|------------------|----------------|----------------------|------------|
| Grain . . . . .         | 11,400,000       | 7,400,000      | Yarn . . . . .       | 4,600,000  |
| Wool . . . . .          | 5,000,000        | 5,000,000      | Coal . . . . .       | 2,800,000  |
| Meat . . . . .          | 3,600,000        | 3,600,000      | Textiles . . . . .   | 2,700,000  |
| Timber . . . . .        | 1,800,000        | 1,800,000      | Flax . . . . .       | 2,700,000  |
| Flax . . . . .          | 3,400,000        | 700,000        | Iron wares . . . . . | 3,800,000  |
| Cotton . . . . .        | 1,400,000        | 1,400,000      | Sugar . . . . .      | 1,400,000  |
| Minerals . . . . .      | 2,900,000        | 2,900,000      | Glass . . . . .      | 1,900,000  |
| Textile goods . . . . . | 1,900,000        | ...            | Grain . . . . .      | 4,000,000  |
| Coffee . . . . .        | 1,700,000        | 1,700,000      | Hides . . . . .      | 1,800,000  |
| Hides . . . . .         | 2,300,000        | 500,000        | Stone . . . . .      | 2,500,000  |
| Sundries . . . . .      | 24,700,000       | ...            | Sundries . . . . .   | 20,900,000 |
| Total . . . . .         | 60,100,000       | ...            | Total . . . . .      | 49,100,000 |

| Exports                 | 1860       | 1870       | 1880       | 1886       |
|-------------------------|------------|------------|------------|------------|
|                         | £          | £          | £          | £          |
| Yarn . . . . .          | 1,200,000  | 2,500,000  | 5,200,000  | 5,300,000  |
| Coal . . . . .          | 2,200,000  | 2,400,000  | 3,300,000  | 2,800,000  |
| Textile goods . . . . . | 3,100,000  | 2,500,000  | 3,100,000  | 2,600,000  |
| Flax . . . . .          | 1,000,000  | 2,000,000  | 2,700,000  | 2,600,000  |
| Iron goods . . . . .    | 1,000,000  | 2,400,000  | 3,400,000  | 3,000,000  |
| Sugar . . . . .         | ...        | 900,000    | 1,300,000  | 1,000,000  |
| Glass . . . . .         | 500,000    | 600,000    | 2,000,000  | 2,000,000  |
| Grain . . . . .         | ...        | ...        | 4,800,000  | 2,200,000  |
| Hides . . . . .         | 1,200,000  | 1,400,000  | 1,500,000  | 2,200,000  |
| Stone . . . . .         | ...        | ...        | 2,300,000  | 2,300,000  |
| Sundries . . . . .      | 8,600,000  | 12,900,000 | 19,100,000 | 21,300,000 |
| Total . . . . .         | 18,800,000 | 27,600,000 | 48,700,000 | 47,300,000 |

The statement for ten years ending Dec. 1886 showed :—

|                              | Millions £ Sterling |            |             | Ratio |
|------------------------------|---------------------|------------|-------------|-------|
|                              | Imports from        | Exports to | Gross Trade |       |
| France . . . . .             | 122                 | 151        | 273         | 25.0  |
| Great Britain . . . . .      | 81                  | 99         | 180         | 16.5  |
| Holland . . . . .            | 84                  | 66         | 150         | 13.8  |
| Germany . . . . .            | 77                  | 91         | 168         | 15.4  |
| United States . . . . .      | 72                  | 13         | 85          | 7.7   |
| Argentine Republic . . . . . | 19                  | 4          | 23          | 2.2   |
| Other countries . . . . .    | 146                 | 67         | 213         | 19.4  |
| Total . . . . .              | 601                 | 491        | 1,092       | 100.0 |

The weight of exported goods was as follows :—

|                      | 1840      | 1850      | 1860      | 1870      | 1880      | 1887      |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Coal, tons . . . . . | 1,000,000 | 2,000,000 | 3,400,000 | 3,800,000 | 5,400,000 | 5,500,000 |
| Iron „ . . . . .     | 17,000    | 109,000   | 104,000   | 251,000   | 314,000   | 416,000   |
| Sugar „ . . . . .    | 65,000    | 66,000    | 35,000    | 54,000    | 88,000    | 130,000   |
| Flax „ . . . . .     | ...       | ...       | 6,000     | 5,000     | 10,000    | 41,000    |
| Wool „ . . . . .     | 6,000     | 11,000    | 17,000    | 23,000    | 28,000    | 2,000     |

The trade of 1888 may be summed up thus :—

|                           | Imports, £ |                            | Exports, £ |
|---------------------------|------------|----------------------------|------------|
| Grain . . . . .           | 10,500,000 | Yarn . . . . .             | 5,400,000  |
| Fibre . . . . .           | 7,400,000  | Fibre . . . . .            | 3,200,000  |
| Meat and cattle . . . . . | 3,500,000  | Coal . . . . .             | 3,200,000  |
| Timber . . . . .          | 2,800,000  | Grain . . . . .            | 2,800,000  |
| Chemicals . . . . .       | 2,700,000  | Textiles . . . . .         | 2,600,000  |
| Sundries . . . . .        | 34,500,000 | Iron & machinery . . . . . | 4,400,000  |
| Total . . . . .           | 61,400,000 | Sundries . . . . .         | 28,200,000 |
|                           |            | Total . . . . .            | 49,800,000 |

#### SWITZERLAND

We have returns since 1855, viz. :—

| Year           | Imports    | Exports    | Total      |
|----------------|------------|------------|------------|
|                | £          | £          | £          |
| 1855 . . . . . | 14,400,000 | 19,600,000 | 34,000,000 |
| 1863 . . . . . | 18,400,000 | 16,800,000 | 35,200,000 |
| 1888 . . . . . | 33,100,000 | 26,900,000 | 60,000,000 |



|                         | Imports, £ |            |                        | Exports, £ |            |
|-------------------------|------------|------------|------------------------|------------|------------|
|                         | 1885       | 1886       |                        | 1885       | 1886       |
| Raw silk . . . . .      | 6,800,000  | 5,500,000  | Clocks . . . . .       | 1,900,000  | 3,300,000  |
| Grain . . . . .         | 2,300,000  | 3,600,000  | Lace . . . . .         |            | 3,700,000  |
| Textile goods . . . . . | 1,000,000  | 1,300,000  | Silks . . . . .        | 12,100,000 | 3,000,000  |
| Cattle . . . . .        | 600,000    | 1,700,000  | Ribbons . . . . .      |            | 1,300,000  |
| Raw cotton . . . . .    | 600,000    | 1,100,000  | Cheese . . . . .       | 400,000    | 1,500,000  |
| Sugar . . . . .         | 400,000    | 1,000,000  | Cotton goods . . . . . | 2,000,000  | 2,800,000  |
| Sundries . . . . .      | 2,700,000  | 17,700,000 | Sundries . . . . .     | 3,200,000  | 11,100,000 |
| Total . . . . .         | 14,400,000 | 31,900,000 | Total . . . . .        | 19,600,000 | 26,700,000 |

The returns for 1885 and 1886 show thus, two years aggregate :—

#### MILLIONS £

|                           | Imports from | Exports to | Gross Trade | Ratio |
|---------------------------|--------------|------------|-------------|-------|
| France . . . . .          | 15           | 11         | 26          | 21.8  |
| Italy . . . . .           | 9            | 5          | 14          | 12.0  |
| Great Britain . . . . .   | 4            | 8          | 12          | 10.1  |
| Austria . . . . .         | 6            | 3          | 9           | 7.5   |
| Germany . . . . .         | 20           | 13         | 33          | 27.7  |
| United States . . . . .   | 2            | 7          | 9           | 7.5   |
| Other countries . . . . . | 6            | 10         | 16          | 13.4  |
| Total . . . . .           | 62           | 57         | 119         | 100.0 |

#### GREECE

Official returns of merchandise show as follows :—

| Year | Imports     | Exports     | Total       | Per Inhabitant   |
|------|-------------|-------------|-------------|------------------|
| 1861 | £ 1,700,000 | £ 1,000,000 | £ 2,700,000 | £ s. d.<br>2 1 0 |
| 1870 | 3,100,000   | 1,400,000   | 4,500,000   | 3 1 0            |
| 1880 | 4,100,000   | 1,500,000   | 5,600,000   | 3 6 0            |
| 1888 | 4,000,000   | 3,400,000   | 7,400,000   | 3 15 0           |

The import trade was as follows :—

|                         | 1861      | 1870      | 1875        | 1888        |
|-------------------------|-----------|-----------|-------------|-------------|
| Grain . . . . .         | £ 220,000 | £ 650,000 | £ 1,100,000 | £ 1,400,000 |
| Textile goods . . . . . | 360,000   | 540,000   | 600,000     | 800,000     |
| Sundries . . . . .      | 1,120,000 | 1,910,000 | 2,400,000   | 1,800,000   |
| Total . . . . .         | 1,700,000 | 3,100,000 | 4,100,000   | 4,000,000   |

The exports were as follows :—

|                    | 1861      | 1870      | 1875        | 1888        |
|--------------------|-----------|-----------|-------------|-------------|
| Fruit . . . . .    | £ 580,000 | £ 720,000 | £ 1,500,000 | £ 1,900,000 |
| Oil . . . . .      | ...       | ...       | 470,000     | 100,000     |
| Sundries . . . . . | 420,000   | 680,000   | 730,000     | 1,400,000   |
| Total . . . . .    | 1,000,000 | 1,400,000 | 2,700,000   | 3,400,000   |

The countries trading with Greece in 1888 showed thus :—

|                         | Imports from | Exports to  | Total Trade |
|-------------------------|--------------|-------------|-------------|
| Great Britain . . . . . | £ 1,100,000  | £ 1,400,000 | £ 2,500,000 |
| France . . . . .        | 400,000      | 600,000     | 1,000,000   |
| Austria . . . . .       | 500,000      | 300,000     | 800,000     |
| Various . . . . .       | 2,000,000    | 1,100,000   | 3,100,000   |
| Total . . . . .         | 4,000,000    | 3,400,000   | 7,400,000   |

#### TURKEY

Official returns are as follows :—

|      | Imports      | Exports     | Total        |
|------|--------------|-------------|--------------|
| 1881 | £ 16,100,000 | £ 7,600,000 | £ 23,700,000 |
| 1889 | 19,500,000   | 13,500,000  | 33,000,000   |

Judging by the proportion of British trade with Turkey, the returns for the Ottoman Empire (excluding Egypt) should have been :—

| Year           | £ Sterling |            |            |
|----------------|------------|------------|------------|
|                | Imports    | Exports    | Total      |
| 1854 . . . . . | 8,000,000  | 7,000,000  | 15,000,000 |
| 1860 . . . . . | 12,000,000 | 9,000,000  | 21,000,000 |
| 1870 . . . . . | 19,000,000 | 20,000,000 | 39,000,000 |
| 1880 . . . . . | 16,000,000 | 8,000,000  | 24,000,000 |
| 1879 . . . . . | 19,500,000 | 13,500,000 | 33,000,000 |

The trade of 1888 may be summed up thus :—

|                    | Imports, £ |                    | Exports, £ |
|--------------------|------------|--------------------|------------|
| Cottons . . . . .  | 3,000,000  | Fruit . . . . .    | 2,300,000  |
| Linens . . . . .   | 800,000    | Silk . . . . .     | 1,200,000  |
| Woollens . . . . . | 700,000    | Grain . . . . .    | 700,000    |
| Sugar . . . . .    | 1,200,000  | Wool . . . . .     | 600,000    |
| Grain . . . . .    | 1,400,000  | Mohair . . . . .   | 500,000    |
| Coffee . . . . .   | 700,000    | Opium . . . . .    | 400,000    |
| Sundries . . . . . | 13,200,000 | Sundries . . . . . | 7,800,000  |
| Total . . . . .    | 21,000,000 | Total . . . . .    | 13,500,000 |

The countries trading with Turkey were :—

|                         | Imports from | Exports to  | Total Trade  |
|-------------------------|--------------|-------------|--------------|
| Great Britain . . . . . | £ 8,500,000  | £ 3,600,000 | £ 12,100,000 |
| Austria . . . . .       | 3,800,000    | 1,000,000   | 4,800,000    |
| France . . . . .        | 2,400,000    | 4,200,000   | 6,600,000    |
| Russia . . . . .        | 2,200,000    | 200,000     | 2,400,000    |
| Various . . . . .       | 4,100,000    | 4,500,000   | 8,600,000    |
| Total . . . . .         | 21,000,000   | 13,500,000  | 34,500,000   |

#### ROUMANIA

Official returns are as follows :—

| Year | Imports     | Exports     | Total        | Per Inhabitant   |
|------|-------------|-------------|--------------|------------------|
| 1872 | £ 4,400,000 | £ 6,700,000 | £ 11,100,000 | £ s. d.<br>2 4 0 |
| 1880 | 10,200,000  | 8,800,000   | 19,000,000   | 3 14 0           |
| 1887 | 12,600,000  | 10,600,000  | 23,200,000   | 3 12 0           |

The statement for ten years ending December 1885 showed thus :—

## MILLIONS £ STERLING

|                   | Imports from | Exports to | Total | Ratio |
|-------------------|--------------|------------|-------|-------|
| Austria . . .     | 54           | 30         | 84    | 42.4  |
| Great Britain . . | 20           | 24         | 44    | 22.2  |
| Germany . . .     | 13           | 1          | 14    | 7.1   |
| France . . .      | 9            | 8          | 17    | 8.6   |
| Turkey . . .      | 5            | 7          | 12    | 6.1   |
| Other countries   | 10           | 17         | 27    | 13.6  |
| Total . .         | 111          | 87         | 198   | 100.0 |

The imports were as follows :—

|                   | 1880       | 1885       | 1880-85   | 1887       |
|-------------------|------------|------------|-----------|------------|
| Textile goods     | 1,600,000  | 1,800,000  | 1,700,000 | 5,500,000  |
| Cotton yarn       | 1,000,000  | 400,000    | 700,000   | ...        |
| Shoes and leather | 500,000    | 800,000    | 700,000   | 700,000    |
| Sundries . .      | 7,100,000  | 7,700,000  | 6,800,000 | 6,400,000  |
| Total . .         | 10,200,000 | 10,700,000 | 9,900,000 | 12,600,000 |

The exports were as follows :—

|              | 1880      | 1885      | 1880-85   | 1887       |
|--------------|-----------|-----------|-----------|------------|
| Grain . .    | 6,000,000 | 6,800,000 | 6,200,000 | 8,600,000  |
| Sundries . . | 2,800,000 | 3,100,000 | 2,700,000 | 2,000,000  |
| Total . .    | 8,800,000 | 9,900,000 | 8,900,000 | 10,600,000 |

## UNITED STATES

## TRADE WITH ALL COUNTRIES, MILLIONS STERLING

|           | Gross Trade |         |       | Net Trade |         |       | Per Inhabitant |
|-----------|-------------|---------|-------|-----------|---------|-------|----------------|
|           | Imports     | Exports | Total | Imports   | Exports | Total |                |
| 1791-1800 | 12          | 10      | 22    | 8         | 6       | 14    | 3 3 0          |
| 1801-10   | 19          | 16      | 35    | 12        | 8       | 20    | 3 9 0          |
| 1811-20   | 17          | 13      | 30    | 14        | 10      | 24    | 2 15 0         |
| 1821-30   | 15          | 15      | 30    | 12        | 11      | 23    | 2 2 0          |
| 1831-40   | 25          | 21      | 46    | 22        | 18      | 40    | 2 13 0         |
| 1841-50   | 25          | 25      | 50    | 23        | 23      | 46    | 2 6 0          |
| 1851-60   | 59          | 52      | 111   | 56        | 48      | 104   | 3 17 0         |
| 1861-70   | 69          | 53      | 122   | 66        | 50      | 116   | 3 6 0          |
| 1871-80   | 111         | 124     | 235   | 110       | 121     | 231   | 5 16 0         |
| 1881-86   | 137         | 161     | 298   | 135       | 156     | 291   | 5 10 0         |
| 1790      | 5           | 4       | 9     | 5         | 4       | 9     | 2 6 0          |
| 1800      | 19          | 15      | 34    | 11        | 6       | 17    | 3 5 0          |
| 1810      | 18          | 14      | 32    | 12        | 9       | 21    | 2 18 0         |
| 1820      | 15          | 14      | 29    | 12        | 11      | 23    | 2 8 0          |
| 1830      | 13          | 15      | 28    | 10        | 12      | 22    | 1 15 0         |
| 1840      | 20          | 26      | 46    | 18        | 23      | 41    | 2 6 0          |
| 1850      | 36          | 30      | 66    | 34        | 28      | 62    | 2 14 0         |
| 1860      | 74          | 70      | 144   | 70        | 66      | 136   | 4 8 0          |
| 1870      | 90          | 81      | 171   | 87        | 78      | 165   | 4 5 0          |
| 1880      | 138         | 174     | 312   | 136       | 172     | 308   | 6 3 0          |
| 1889      | 154         | 166     | 320   | ...       | ...     | ...   | 5 0 0          |

The above is of merchandise only, excluding bullion. Official records of gross trade, including re-shipments, and of the net trade of the Union, as well as of the Colonies with Great Britain before Independence, are shown as follows :—

| Period  | Imports from Great Britain | Exports to Great Britain | Total     | Per Inhabitant |
|---------|----------------------------|--------------------------|-----------|----------------|
| 1700-10 | 267,000                    | 266,000                  | 533,000   | 1 16 0         |
| 1711-20 | 366,000                    | 393,000                  | 759,000   | 1 5 0          |
| 1721-30 | 471,000                    | 579,000                  | 1,050,000 | 1 2 0          |
| 1731-40 | 660,000                    | 670,000                  | 1,330,000 | 1 4 0          |
| 1741-50 | 813,000                    | 709,000                  | 1,522,000 | 1 7 0          |
| 1751-60 | 1,577,000                  | 803,000                  | 2,380,000 | 1 10 0         |
| 1761-70 | 1,763,000                  | 1,045,000                | 2,808,000 | 0 15 0         |
| 1771-80 | 1,331,000                  | 744,000                  | 2,075,000 | 0 14 0         |
| 1785    | 2,308,000                  | 894,000                  | 3,202,000 | 1 0 0          |

The proportion of trade with Great Britain in the commerce of the United States since 1790 is shown as follows :—

| Year         | Millions £ Sterling      |                      |       | Ratio         |                 |       |
|--------------|--------------------------|----------------------|-------|---------------|-----------------|-------|
|              | Trade with Great Britain | With other Countries | Total | Great Britain | Other Countries | Total |
| 1790 . . . . | 5                        | 4                    | 9     | 55            | 45              | 100   |
| 1800 . . . . | 15                       | 19                   | 34    | 44            | 56              | 100   |
| 1810 . . . . | 16                       | 16                   | 32    | 50            | 50              | 100   |
| 1820 . . . . | 15                       | 14                   | 29    | 52            | 48              | 100   |
| 1830 . . . . | 14                       | 14                   | 28    | 50            | 50              | 100   |
| 1840 . . . . | 23                       | 23                   | 46    | 50            | 50              | 100   |
| 1850 . . . . | 32                       | 34                   | 66    | 48            | 52              | 100   |
| 1860 . . . . | 68                       | 76                   | 144   | 47            | 53              | 100   |
| 1870 . . . . | 81                       | 90                   | 171   | 48            | 52              | 100   |
| 1880 . . . . | 145                      | 167                  | 312   | 46            | 54              | 100   |
| 1889 . . . . | 117                      | 203                  | 320   | 37            | 63              | 100   |

The statement for ten years ending 1886 was as follows :—

|                     | Millions £ Sterling |            |       | Ratio |
|---------------------|---------------------|------------|-------|-------|
|                     | Imports from        | Exports to | Total |       |
| Great Britain . . . | 322                 | 820        | 1,142 | 41.0  |
| Germany . . . .     | 108                 | 123        | 231   | 8.3   |
| France . . . .      | 137                 | 129        | 266   | 9.6   |
| Cuba . . . .        | 154                 | 27         | 181   | 6.5   |
| Canada . . . .      | 75                  | 73         | 148   | 5.3   |
| China and Japan . . | 66                  | 21         | 87    | 3.1   |
| Brazil . . . .      | 96                  | 17         | 113   | 4.1   |
| Italy . . . .       | 23                  | 20         | 43    | 1.6   |
| Other countries . . | 263                 | 309        | 572   | 20.5  |
| Total . .           | 1,244               | 1,539      | 2,783 | 100.0 |

The values of exports in sixty years ending 1886 were :—

## MILLIONS £ STERLING

|                     | 1827-36 | 1837-46 | 1847-56 | 1857-66 | 1867-76 | 1877-86 | Sixty Years |
|---------------------|---------|---------|---------|---------|---------|---------|-------------|
| Cotton . . . .      | 81      | 114     | 181     | 181     | 346     | 422     | 1,325       |
| Grain . . . .       | 12      | 13      | 54      | 88      | 154     | 381     | 702         |
| Meat . . . .        | 3       | 5       | 17      | 29      | 75      | 179     | 308         |
| Petroleum . . . .   | ...     | ...     | ...     | 7       | 64      | 94      | 165         |
| Tobacco . . . .     | 13      | 15      | 20      | 40      | 51      | 51      | 190         |
| Butter and cheese . | ...     | 1       | 2       | 11      | 20      | 33      | 67          |
| Cotton manufacture  | 2       | 6       | 12      | 8       | 9       | 23      | 60          |
| Iron . . . .        | ...     | 2       | 5       | 9       | 27      | 33      | 76          |
| Wooden . . . .      | 5       | 6       | 12      | 18      | 34      | 43      | 118         |
| Sundries . . . .    | 29      | 40      | 59      | 89      | 90      | 280     | 587         |
| Total . .           | 145     | 202     | 362     | 480     | 870     | 1,539   | 3,598       |

The values of imports for sixty years ending 1886 were as follows :—

MILLIONS £ STERLING

|                             | 1827-36 | 1837-46 | 1847-56 | 1857-66 | 1867-76 | 1877-86 | 60 Years |
|-----------------------------|---------|---------|---------|---------|---------|---------|----------|
| Sugar . . . . .             | 15      | 18      | 29      | 69      | 153     | 179     | 463      |
| Coffee . . . . .            | 15      | 18      | 27      | 37      | 77      | 102     | 276      |
| Woolens . . . . .           | 23      | 21      | 42      | 63      | 108     | 85      | 342      |
| Cottons . . . . .           | 23      | 21      | 40      | 37      | 50      | 58      | 229      |
| Silks . . . . .             | 21      | 23      | 46      | 43      | 52      | 77      | 262      |
| Linen . . . . .             | 10      | 11      | 17      | 21      | 35      | 42      | 136      |
| Iron manufactures . . . . . | 10      | 8       | 33      | 31      | 69      | 69      | 220      |
| Tea . . . . .               | 7       | 9       | 12      | 15      | 37      | 33      | 113      |
| Sundries . . . . .          | 46      | 78      | 172     | 272     | 418     | 599     | 1,585    |
| Total . . . . .             | 170     | 207     | 418     | 588     | 999     | 1,244   | 3,626    |

The imports were as follows :—

|                        | 1821      | 1840       | 1860       | 1880        | 1889        |
|------------------------|-----------|------------|------------|-------------|-------------|
|                        | £         | £          | £          | £           | £           |
| Sugar . . . . .        | 1,100,000 | 1,800,000  | 7,100,000  | 17,700,000  | 19,400,000  |
| Coffee . . . . .       | 900,000   | 1,800,000  | 4,500,000  | 12,500,000  | 15,600,000  |
| Woolen goods . . . . . | 1,600,000 | 1,900,000  | 7,800,000  | 7,100,000   | 10,900,000  |
| Cotton . . . . .       | 1,600,000 | 1,300,000  | 1,900,000  | 6,200,000   | 5,600,000   |
| Silk . . . . .         | 900,000   | 2,000,000  | 6,200,000  | 9,200,000   | 7,300,000   |
| Linen . . . . .        | 500,000   | 1,000,000  | 2,200,000  | 4,700,000   | 5,400,000   |
| Iron . . . . .         | 400,000   | 600,000    | 3,800,000  | 11,200,000  | 8,800,000   |
| Tea . . . . .          | 200,000   | 1,100,000  | 1,800,000  | 4,100,000   | 2,600,000   |
| Sundries . . . . .     | 1,900,000 | 6,400,000  | 34,600,000 | 63,700,000  | 78,500,000  |
| Total . . . . .        | 9,100,000 | 17,900,000 | 69,900,000 | 136,400,000 | 154,100,000 |

The exports were as follows :—

|                     | 1821      | 1840       | 1860       | 1880        | 1889        |
|---------------------|-----------|------------|------------|-------------|-------------|
|                     | £         | £          | £          | £           | £           |
| Cotton . . . . .    | 4,200,000 | 13,300,000 | 39,900,000 | 44,000,000  | 49,600,000  |
| Grain . . . . .     | 1,100,000 | 2,500,000  | 4,600,000  | 58,200,000  | 25,800,000  |
| Meat . . . . .      | 300,000   | 400,000    | 2,100,000  | 22,900,000  | 21,600,000  |
| Petroleum . . . . . | ...       | ...        | ...        | 7,500,000   | 9,400,000   |
| Tobacco . . . . .   | 1,100,000 | 2,100,000  | 3,900,000  | 3,800,000   | 4,700,000   |
| Sundries . . . . .  | 2,400,000 | 4,800,000  | 15,200,000 | 35,000,000  | 54,500,000  |
| Total . . . . .     | 9,100,000 | 23,100,000 | 65,700,000 | 171,400,000 | 165,600,000 |

The trade of the Colonies before independence was as follows :—

|                        | 1701       |            | 1760       |            | 1778       |            |
|------------------------|------------|------------|------------|------------|------------|------------|
|                        | Imports, £ | Exports, £ | Imports, £ | Exports, £ | Imports, £ | Exports, £ |
| New England . . . . .  | 33,000     | 86,000     | 48,000     | 344,000    | 125,000    | 527,000    |
| New York . . . . .     | 19,000     | 32,000     | 36,000     | 267,000    | 76,000     | 289,000    |
| Pennsylvania . . . . . | 5,000      | 12,000     | 28,000     | 218,000    | 37,000     | 426,000    |
| Carolina . . . . .     | 17,000     | 14,000     | 192,000    | 133,000    | 457,000    | 345,000    |
| Virginia, &c. . . . .  | 235,000    | 199,000    | 510,000    | 351,000    | 675,000    | 392,000    |
| Total . . . . .        | 309,000    | 343,000    | 814,000    | 1,313,000  | 1,370,000  | 1,979,000  |

The weight of the principal exports was approximately as follows :—

| Period             | Tons       |            |           |           |                   |             |
|--------------------|------------|------------|-----------|-----------|-------------------|-------------|
|                    | Cotton     | Grain      | Meat      | Tobacco   | Butter and Cheese | Total       |
| 1827-36 . . . . .  | 1,600,000  | 1,800,000  | 60,000    | 450,000   | ...               | 3,910,000   |
| 1837-46 . . . . .  | 3,400,000  | 2,000,000  | 1,000,000 | 650,000   | 20,000            | 6,170,000   |
| 1847-56 . . . . .  | 4,800,000  | 6,000,000  | 350,000   | 750,000   | 40,000            | 11,940,000  |
| 1857-66 . . . . .  | 4,000,000  | 11,000,000 | 600,000   | 900,000   | 200,000           | 16,700,000  |
| 1867-76 . . . . .  | 4,200,000  | 18,500,000 | 1,500,000 | 900,000   | 400,000           | 25,500,000  |
| 1877-86 . . . . .  | 8,800,000  | 47,000,000 | 3,600,000 | 1,100,000 | 700,000           | 61,200,000  |
| 60 years . . . . . | 26,800,000 | 86,300,000 | 6,210,000 | 4,750,000 | 1,360,000         | 125,420,000 |

It appears that whereas the value of exports increased tenfold since the decade ending 1836 the weight increased 32-fold.

All the values in the above tables are in gold, allowance being made in each year from 1862 to 1878 for the difference between greenbacks and gold.

Bullion is not included in either imports or exports.

## CANADA

Official returns show as follows :—

| Year | Imports    | Exports    | Total      | Per Inhabitant |
|------|------------|------------|------------|----------------|
|      | £          | £          | £          | £ s. d.        |
| 1832 | 1,600,000  | 900,000    | 2,500,000  | 2 10 0         |
| 1834 | 2,490,000  | 1,100,000  | 3,590,000  | 2 15 0         |
| 1839 | 2,100,000  | 1,100,000  | 3,200,000  | 2 10 0         |
| 1851 | 7,600,000  | 5,200,000  | 12,800,000 | 5 2 0          |
| 1860 | 11,900,000 | 10,800,000 | 22,700,000 | 6 15 0         |
| 1870 | 16,100,000 | 15,000,000 | 31,100,000 | 8 1 0          |
| 1880 | 19,400,000 | 19,100,000 | 38,500,000 | 8 10 0         |
| 1887 | 24,200,000 | 19,600,000 | 43,800,000 | 8 18 2         |
| 1888 | 23,000,000 | 18,700,000 | 41,700,000 | 8 10 0         |

The statement for ten years ending 1886 showed as follows :—

The imports were as follows :—

|                         | 1851      | 1860       | 1876       | 1877-86    | 1888       |
|-------------------------|-----------|------------|------------|------------|------------|
|                         | £         | £          | £          | £          | £          |
| Textile goods . . . . . | 1,900,000 | 2,400,000  | 3,700,000  | 3,900,000  | 3,800,000  |
| Iron goods . . . . .    | 500,000   | 500,000    | 2,200,000  | 2,500,000  | 2,200,000  |
| Sugar . . . . .         | 200,000   | 400,000    | 1,200,000  | 1,200,000  | 1,200,000  |
| Coal . . . . .          | ...       | 100,000    | 700,000    | 1,200,000  | 1,900,000  |
| Sundries . . . . .      | 5,000,000 | 8,500,000  | 11,800,000 | 14,100,000 | 13,900,000 |
| Total . . . . .         | 7,600,000 | 11,900,000 | 19,400,000 | 22,900,000 | 23,000,000 |

The exports were as follows :—

|                    | 1851      | 1860       | 1876       | 1877-86    | 1888       |
|--------------------|-----------|------------|------------|------------|------------|
|                    | £         | £          | £          | £          | £          |
| Grain . . . . .    | 700,000   | 2,800,000  | 5,100,000  | 4,600,000  | 3,200,000  |
| Meat . . . . .     | ...       | 300,000    | 700,000    | 1,200,000  | 2,200,000  |
| Cheese . . . . .   | ...       | ...        | 800,000    | 1,200,000  | 1,900,000  |
| Timber . . . . .   | 1,000,000 | 1,800,000  | 3,700,000  | 3,700,000  | 4,500,000  |
| Fish . . . . .     | 550,000   | 1,000,000  | 1,900,000  | 1,900,000  | 1,700,000  |
| Sundries . . . . . | 2,950,000 | 4,900,000  | 4,700,000  | 6,900,000  | 5,200,000  |
| Total . . . . .    | 5,200,000 | 10,800,000 | 16,900,000 | 19,500,000 | 18,700,000 |

In the foregoing tables the whole Canadian Dominion and Newfoundland are included. Meat includes live cattle.

## MEXICO

Official reports are as follows :—

|      | Imports   | Exports    | Total      | Per Inhabitant |
|------|-----------|------------|------------|----------------|
|      | £         | £          | £          | £ s. d.        |
| 1880 | 5,000,000 | 6,800,000  | 11,800,000 | 1 2 0          |
| 1889 | 8,100,000 | 12,500,000 | 20,600,000 | 2 2 0          |

The trade of ten years summed up thus :—

|         |             |
|---------|-------------|
| Imports | 71,000,000  |
| Exports | 87,000,000  |
| Total   | 158,000,000 |

## MILLIONS £ STERLING

|                 | Imports from | Exports to | Total | Ratio |
|-----------------|--------------|------------|-------|-------|
| United States . | 100          | 74         | 174   | 41.1  |
| Great Britain . | 91           | 95         | 186   | 44.0  |
| Germany . . .   | 3            | ...        | 3     | 0.7   |
| France . . . .  | 4            | 1          | 5     | 1.2   |
| Cuba . . . . .  | 3            | 2          | 5     | 1.2   |
| Other countries | 28           | 22         | 50    | 11.8  |
| Total . . . . . | 229          | 194        | 423   | 100.0 |

The quantities of exported goods in thirty years showed approximately thus :—

|                             | Tons       |            |            |            |
|-----------------------------|------------|------------|------------|------------|
|                             | 1857-66    | 1867-76    | 1877-86    | 30 Years   |
| Grain . . . . .             | 3,600,000  | 3,900,000  | 7,500,000  | 15,000,000 |
| Timber . . . . .            | 12,400,000 | 17,900,000 | 19,200,000 | 49,500,000 |
| Meat . . . . .              | 130,000    | 140,000    | 280,000    | 550,000    |
| Cheese and butter . . . . . | 25,000     | 80,000     | 320,000    | 425,000    |
| Fish . . . . .              | 650,000    | 900,000    | 1,220,000  | 2,770,000  |
| Coal . . . . .              | ...        | 2,500,000  | 4,300,000  | 6,800,000  |
| Ores . . . . .              | 45,000     | 70,000     | 280,000    | 395,000    |
| Total . . . . .             | 16,850,000 | 25,490,000 | 33,100,000 | 75,440,000 |

The returns for 1889 give only exports in detail, viz. :—

|                    | Exports    | Exported to                |
|--------------------|------------|----------------------------|
| Silver . . . . .   | 5,800,000  | United States 6,100,000    |
| Hemp . . . . .     | 1,000,000  | Great Britain 1,900,000    |
| Coffee . . . . .   | 600,000    | France . . . 500,000       |
| Hides . . . . .    | 300,000    | Germany . . . 300,000      |
| Sundries . . . . . | 4,800,000  | Various . . . 3,700,000    |
| Total . . . . .    | 12,500,000 | Total . . . . . 12,500,000 |

## CENTRAL AMERICA

The aggregate trade of Guatemala, Salvador, Honduras, Costa Rica, and Nicaragua in 1888 summed up—imports, \$19,600,000; exports, \$23,100,000; but as these dollars are worth only three shillings, the amount is only £3,000,000 for imports, and £3,500,000 for exports.

## SOUTH AMERICA

The latest returns for the various States show as follows:—

|                   | Imports    | Exports    | Total       |
|-------------------|------------|------------|-------------|
|                   | £          | £          | £           |
| Brazil . . . .    | 19,700,000 | 21,200,000 | 40,900,000  |
| Argentina . . . . | 14,300,000 | 12,500,000 | 26,800,000  |
| Chili . . . . .   | 6,600,000  | 7,500,000  | 14,100,000  |
| Uruguay . . . .   | 6,300,000  | 6,200,000  | 12,500,000  |
| Venezuela . . . . | 2,500,000  | 3,300,000  | 5,800,000   |
| Colombia . . . .  | 2,800,000  | 1,600,000  | 4,400,000   |
| Ecuador . . . .   | 2,200,000  | 2,000,000  | 4,200,000   |
| Peru . . . . .    | 1,800,000  | 1,300,000  | 3,100,000   |
| Bolivia . . . . . | 900,000    | 1,500,000  | 2,400,000   |
| Paraguay . . . .  | 300,000    | 200,000    | 500,000     |
| Total . . . .     | 57,200,000 | 57,300,000 | 114,500,000 |

## BRAZIL

Inconvertible paper money has so often been a disturbing element that values were at times obscured. Reduced to gold, the trade showed approximately thus:—

| Period  | Annual Average |            |            |
|---------|----------------|------------|------------|
|         | Imports        | Exports    | Total      |
|         | £              | £          | £          |
| 1836-41 | 5,200,000      | 4,700,000  | 9,900,000  |
| 1852-61 | 12,000,000     | 10,800,000 | 22,800,000 |
| 1862-74 | 15,500,000     | 18,300,000 | 33,800,000 |
| 1882-88 | 17,200,000     | 18,000,000 | 35,200,000 |

The exports in 1888 were as follows:—

|                | £          | To            | £          |
|----------------|------------|---------------|------------|
| Coffee . . . . | 15,100,000 | United States | 11,000,000 |
| Sugar . . . .  | 1,300,000  | Great Britain | 5,200,000  |
| Cotton . . . . | 1,200,000  | France . . .  | 2,800,000  |
| Sundries . . . | 3,600,000  | Various . . . | 2,200,000  |
| Total . . . .  | 21,200,000 | Total . . . . | 21,200,000 |

The weight of exports in the years 1880-84 averaged thus:—

|                | <i>Tons</i> |                  | <i>Tons</i> |
|----------------|-------------|------------------|-------------|
| Coffee . . . . | 230,000     | Tobacco . . . .  | 22,000      |
| Sugar . . . .  | 217,000     | India-rubber . . | 7,100       |

## ARGENTINA

Official records of merchandise are as follows:—

| Year | Imports    | Exports    | Total      | Per Inhab. |
|------|------------|------------|------------|------------|
|      | £          | £          | £          | £ s. d.    |
| 1795 | 510,000    | 920,000    | 1,430,000  | 3 10 0     |
| 1825 | 1,600,000  | 1,200,000  | 2,800,000  | 4 0 0      |
| 1837 | 1,200,000  | 1,400,000  | 2,600,000  | 3 0 0      |
| 1842 | 1,300,000  | 1,400,000  | 2,700,000  | 3 3 0      |
| 1850 | 2,100,000  | 2,200,000  | 4,300,000  | 4 6 0      |
| 1865 | 5,400,000  | 4,400,000  | 9,800,000  | 6 0 0      |
| 1870 | 9,500,000  | 5,800,000  | 15,300,000 | 8 0 0      |
| 1880 | 8,800,000  | 11,300,000 | 20,100,000 | 8 0 0      |
| 1889 | 14,300,000 | 12,500,000 | 26,800,000 | 8 0 0      |

The trade of the country was stagnant from the period of Independence down to 1842, but after the latter date numbers of Irish sheep-farmers arrived (now numbering 20,000), to whom, in Consul Cowper's words, "the wealth and progress of Argentina are in a great measure due."

The statement for ten years ending December 1886 showed:—

|                         | Millions £ Sterling |            |       | Ratio |
|-------------------------|---------------------|------------|-------|-------|
|                         | Imports from        | Exports to | Total |       |
| Great Britain . . . .   | 38                  | 11         | 49    | 21.8  |
| France . . . . .        | 22                  | 31         | 53    | 23.4  |
| Belgium . . . . .       | 7                   | 23         | 30    | 13.7  |
| Germany . . . . .       | 8                   | 7          | 15    | 6.8   |
| United States . . . .   | 8                   | 6          | 14    | 6.4   |
| Uruguay . . . . .       | 6                   | 4          | 10    | 4.4   |
| Other countries . . . . | 28                  | 24         | 52    | 23.5  |
| Total . . . .           | 117                 | 106        | 223   | 100.0 |

The principal exports appear in the following table:—

|                       | 1873      | 1880       | 1888       | 1877-86    |
|-----------------------|-----------|------------|------------|------------|
|                       | £         | £          | £          | £          |
| Wool . . . .          | 3,900,000 | 5,300,000  | 5,900,000  | 5,100,000  |
| Hides and skins . . . | 2,800,000 | 3,600,000  | 2,700,000  | 2,900,000  |
| Meat . . . .          | 700,000   | 900,000    | 700,000    | 700,000    |
| Grain . . . .         | ...       | 150,000    | 1,400,000  | 700,000    |
| Sundries . . .        | 1,800,000 | 1,350,000  | 2,600,000  | 1,200,000  |
| Total . . . .         | 9,200,000 | 11,300,000 | 13,300,000 | 10,600,000 |

Fuller details of exports will be found under *Agriculture*, p. 49.

## URUGUAY

Official returns are as follows:—

| Period  | Annual Trade, £ Sterling |           |            | Per Inhabitant |
|---------|--------------------------|-----------|------------|----------------|
|         | Imports                  | Exports   | Total      |                |
|         |                          |           |            | £ s. d.        |
| 1841-50 | 1,300,000                | 1,200,000 | 2,500,000  | 20 10 0        |
| 1851-60 | 1,800,000                | 1,700,000 | 3,500,000  | 20 5 0         |
| 1861-70 | 2,700,000                | 2,400,000 | 5,100,000  | 18 10 0        |
| 1871-80 | 3,500,000                | 3,300,000 | 6,800,000  | 18 12 0        |
| 1881-87 | 4,500,000                | 4,600,000 | 9,100,000  | 16 10 0        |
| 1888    | 6,300,000                | 6,200,000 | 12,500,000 | 20 0 0         |

The statement for ten years ending 1886 was as follows:—

## MILLIONS £ STERLING

|                         | Imports from | Exports to | Total | Ratio |
|-------------------------|--------------|------------|-------|-------|
| Great Britain . . . .   | 12           | 10         | 22    | 26.8  |
| France . . . . .        | 7            | 7          | 14    | 16.7  |
| United States . . . .   | 3            | 5          | 8     | 9.5   |
| Brazil . . . . .        | 4            | 8          | 12    | 14.4  |
| Belgium . . . . .       | 1            | 6          | 7     | 8.3   |
| Germany . . . . .       | 3            | 1          | 4     | 4.8   |
| Other countries . . . . | 10           | 7          | 17    | 20.1  |
| Total . . . .           | 40           | 44         | 84    | 100.0 |

The returns for 1887 were as follows:—

|                       | Imports   |                | Exports   |
|-----------------------|-----------|----------------|-----------|
|                       | £         |                | £         |
| Wines . . . .         | 700,000   | Wool . . . .   | 1,200,000 |
| Raw material . . . .  | 1,000,000 | Meat . . . .   | 1,200,000 |
| Textile goods . . . . | 900,000   | Hides . . . .  | 700,000   |
| Groceries . . . .     | 1,100,000 | Sundries . . . | 1,400,000 |
| Sundries . . . .      | 1,500,000 |                |           |
| Total . . . .         | 5,200,000 | Total . . . .  | 4,500,000 |

## CHILE

Official reports give the following :—

| Year       | Imports   | Exports   | Total      |
|------------|-----------|-----------|------------|
|            | £         | £         | £          |
| 1844 . . . | 1,500,000 | 1,400,000 | 2,900,000  |
| 1854 . . . | 3,400,000 | 3,000,000 | 6,400,000  |
| 1865 . . . | 4,800,000 | 4,400,000 | 9,200,000  |
| 1875 . . . | 7,600,000 | 7,200,000 | 14,800,000 |
| 1888 . . . | 6,600,000 | 7,500,000 | 14,100,000 |

The statement for ten years ending 1886 showed :—

|                           | Millions £ Sterling |            |       | Ratio |
|---------------------------|---------------------|------------|-------|-------|
|                           | Imports from        | Exports to | Total |       |
| Great Britain . . .       | 18                  | 45         | 63    | 54.6  |
| Germany . . . . .         | 7                   | 3          | 10    | 9.0   |
| France . . . . .          | 7                   | 4          | 11    | 10.0  |
| Argentine Republic . . .  | 3                   | 1          | 4     | 3.2   |
| United States . . . . .   | 2                   | 2          | 4     | 3.6   |
| Other countries . . . . . | 11                  | 12         | 23    | 19.6  |
| Total . . . . .           | 48                  | 67         | 115   | 100.0 |

The above amounts for 1888 are computed at the current rate for the year, 27 pence per dollar.

## AUSTRALIA

Official reports show as follows :—

| Year       | Imports    | Exports    | Total       | Per Inhab. |
|------------|------------|------------|-------------|------------|
|            | £          | £          | £           | £ s. d.    |
| 1824 . . . | 420,000    | 120,000    | 540,000     | 5 2 0      |
| 1830 . . . | 670,000    | 310,000    | 980,000     | 8 2 0      |
| 1838 . . . | 2,970,000  | 1,530,000  | 4,500,000   | 22 10 0    |
| 1851 . . . | 4,300,000  | 3,700,000  | 8,000,000   | 17 10 0    |
| 1861 . . . | 25,100,000 | 24,500,000 | 49,600,000  | 31 10 0    |
| 1871 . . . | 30,100,000 | 34,700,000 | 64,800,000  | 24 0 0     |
| 1881 . . . | 50,200,000 | 48,600,000 | 98,800,000  | 33 0 0     |
| 1888 . . . | 65,300,000 | 57,600,000 | 122,900,000 | 29 5 0     |
| 1889 . . . | 68,300,000 | 61,500,000 | 129,800,000 | 35 0 0     |

The above exports include gold, the production of which has been as follows :—

| Period         | Millions £ Sterling | Per Annum £ |
|----------------|---------------------|-------------|
| 1851-60 . . .  | 104 ...             | 10,400,000  |
| 1861-70 . . .  | 82 ...              | 8,200,000   |
| 1871-80 . . .  | 72 ...              | 7,200,000   |
| 1881-88 . . .  | 42 ...              | 5,200,000   |
| 38 years . . . | 300                 | 8,000,000   |

The following table shows the growth of trade since 1861 :—

| From                      | Imports, £ |            |            |            |
|---------------------------|------------|------------|------------|------------|
|                           | 1861       | 1871       | 1881       | 1888       |
| Great Britain . . . . .   | 13,500,000 | 12,000,000 | 25,700,000 | 30,100,000 |
| Foreign nations . . . . . | 5,000,000  | 4,600,000  | 7,700,000  | 9,700,000  |
| Intercolonial . . . . .   | 6,600,000  | 13,500,000 | 16,800,000 | 25,500,000 |
| Total . . . . .           | 25,100,000 | 30,100,000 | 50,200,000 | 65,300,000 |
| To                        | Exports, £ |            |            |            |
|                           | 1861       | 1871       | 1881       | 1888       |
| Great Britain . . . . .   | 12,200,000 | 18,500,000 | 24,300,000 | 28,700,000 |
| Foreign nations . . . . . | 4,400,000  | 4,600,000  | 6,800,000  | 5,600,000  |
| Intercolonial . . . . .   | 7,900,000  | 11,600,000 | 17,500,000 | 23,300,000 |
| Total . . . . .           | 24,500,000 | 34,700,000 | 48,600,000 | 57,600,000 |

The export of wool during the same period has been as follows :—

| Period         | Million Lbs. | Value, Million £ | Million Lbs. Yearly | Value, £ Yearly |
|----------------|--------------|------------------|---------------------|-----------------|
| 1851-60 . . .  | 560          | 48               | 56                  | 4,800,000       |
| 1861-70 . . .  | 1,350        | 102              | 135                 | 10,200,000      |
| 1871-80 . . .  | 3,060        | 184              | 306                 | 18,400,000      |
| 1881-88 . . .  | 3,100        | 142              | 390                 | 17,800,000      |
| 38 years . . . | 8,070        | 476              | 212                 | 12,600,000      |

It appears that the wool exports of 38 years exceeded the product of the goldfields in the same term by 176 millions sterling. At present the clip averages a value of 21 millions sterling, or five times that of the gold product.

The statement for ten years ending 1886 showed, including bullion :—

|                           | Millions £ Sterling |            |       |
|---------------------------|---------------------|------------|-------|
|                           | Imports from        | Exports to | Total |
| Great Britain . . . . .   | 274                 | 243        | 517   |
| United States . . . . .   | 18                  | 8          | 26    |
| France . . . . .          | 2                   | 2          | 4     |
| China . . . . .           | 10                  | ...        | 10    |
| Other countries . . . . . | 77                  | 98         | 175   |
| Foreign trade . . . . .   | 381                 | 351        | 732   |
| Intercolonial . . . . .   | 178                 | 137        | 315   |
| Total . . . . .           | 559                 | 488        | 1,047 |

The trade of the several colonies in the same period was :—

|                         | Millions £ Sterling |         |       | Per Inhab. per Annum |
|-------------------------|---------------------|---------|-------|----------------------|
|                         | Imports             | Exports | Total |                      |
| New South Wales . . .   | 188                 | 161     | 349   | £ s. d.<br>47 0 0    |
| Victoria . . . . .      | 171                 | 151     | 322   | 37 0 0               |
| New Zealand . . . . .   | 76                  | 64      | 140   | 28 0 0               |
| South Australia . . . . | 55                  | 52      | 107   | 38 0 0               |
| Queensland . . . . .    | 49                  | 41      | 90    | 42 0 0               |
| Tasmania . . . . .      | 15                  | 14      | 29    | 25 0 0               |
| Western Australia . . . | 5                   | 5       | 10    | 33 0 0               |
| Total . . . . .         | 559                 | 488     | 1,047 | 38 0 0               |

| With                      | Total Trade, £ |            |            |             |
|---------------------------|----------------|------------|------------|-------------|
|                           | 1861           | 1871       | 1881       | 1888        |
| Great Britain . . . . .   | 25,700,000     | 30,500,000 | 50,000,000 | 58,800,000  |
| Foreign nations . . . . . | 9,400,000      | 9,200,000  | 14,500,000 | 15,300,000  |
| Intercolonial . . . . .   | 14,500,000     | 25,100,000 | 34,300,000 | 48,800,000  |
| Total . . . . .           | 49,600,000     | 64,800,000 | 98,800,000 | 122,900,000 |

In the above table foreign includes even British colonies outside of Australia, and intercolonial only the traffic between the seven Australasian colonies.

Excluding intercolonial traffic, the trade of Australia has risen from 40 millions sterling in 1871 to 74 millions in 1888, an increase of 85 per cent. The following table of ratios shows that trade with Great Britain is relatively on the decline, probably the result of Protection tariffs.

| With                      | Ratio of Trade |       |       |       |
|---------------------------|----------------|-------|-------|-------|
|                           | 1861           | 1871  | 1881  | 1888  |
| Great Britain . . . . .   | 51.8           | 47.1  | 50.6  | 48.2  |
| Foreign nations . . . . . | 19.0           | 14.2  | 14.7  | 12.4  |
| Intercolonial . . . . .   | 29.2           | 38.7  | 34.7  | 39.4  |
| Total . . . . .           | 100.0          | 100.0 | 100.0 | 100.0 |

The trade returns of 1889 were as follows:—

|                        | Imports, £ | Exports, £ | Total, £    | £ per Inhab. |
|------------------------|------------|------------|-------------|--------------|
| N. S. Wales            | 22,600,000 | 23,300,000 | 45,900,000  | 41.7         |
| Victoria . . . . .     | 24,200,000 | 12,500,000 | 36,700,000  | 33.4         |
| Queensland . . . . .   | 6,000,000  | 6,900,000  | 12,900,000  | 32.5         |
| S. Australia . . . . . | 6,800,000  | 7,300,000  | 14,100,000  | 44.7         |
| New Zealand . . . . .  | 6,300,000  | 9,300,000  | 15,600,000  | 26.0         |
| Tasmania . . . . .     | 1,600,000  | 1,500,000  | 3,100,000   | 21.0         |
| W. Australia . . . . . | 800,000    | 700,000    | 1,500,000   | 36.0         |
| Total . . . . .        | 68,300,000 | 61,500,000 | 129,800,000 | 35.5         |

The figures for Western Australia are those of 1888.

The foreign and intercolonial trade of the several colonies was distinguished in the returns for 1888 as follows:—

|                             | Imports    | Exports    | Total       | Foreign    | Intercolonial |
|-----------------------------|------------|------------|-------------|------------|---------------|
|                             | £          | £          | £           | £          | £             |
| New South Wales . . . . .   | 20,900,000 | 20,900,000 | 41,800,000  | 23,400,000 | 18,400,000    |
| Victoria . . . . .          | 24,000,000 | 13,900,000 | 37,900,000  | 25,000,000 | 12,900,000    |
| Queensland . . . . .        | 6,700,000  | 6,100,000  | 12,800,000  | 5,600,000  | 7,200,000     |
| South Australia . . . . .   | 5,400,000  | 7,000,000  | 12,400,000  | 7,400,000  | 5,000,000     |
| New Zealand . . . . .       | 5,900,000  | 7,800,000  | 13,700,000  | 10,900,000 | 2,800,000     |
| Tasmania . . . . .          | 1,600,000  | 1,300,000  | 2,900,000   | 800,000    | 2,100,000     |
| Western Australia . . . . . | 800,000    | 700,000    | 1,500,000   | 1,000,000  | 500,000       |
| Total . . . . .             | 65,300,000 | 57,700,000 | 123,000,000 | 74,100,000 | 48,900,000    |

The exports were as follows:—

#### SOUTH AFRICA

|                    | 1860      | 1870      | 1880      | 1888       | 1877-86   |
|--------------------|-----------|-----------|-----------|------------|-----------|
|                    | £         | £         | £         | £          | £         |
| Wool . . . . .     | 1,400,000 | 1,800,000 | 2,900,000 | 2,900,000  | 2,500,000 |
| Diamonds . . . . . | ...       | 200,000   | 3,400,000 | 4,000,000  | 3,000,000 |
| Copper . . . . .   | 100,000   | 150,000   | 300,000   | 900,000    | 400,000   |
| Feathers . . . . . | 20,000    | 100,000   | 900,000   | 300,000    | 800,000   |
| Sundries . . . . . | 680,000   | 750,000   | 1,100,000 | 2,200,000  | 1,100,000 |
| Total . . . . .    | 2,200,000 | 3,000,000 | 8,600,000 | 10,300,000 | 7,800,000 |

The foregoing table shows that, although sheep-farming is prosperous, and wool continues to form a staple product of the colony, the first rank as regards value among the exports now belongs to diamonds, of which there seems to be no decline in number or quality. In twelve years ending 1889 the production of diamonds reached a value of nearly 40 millions sterling. At the same time the yield of copper has risen to importance. The only item which shows a decline is ostrich feathers, an industry which gave great promise ten years ago.

Official returns, comprising Cape Colony and Natal, show as follows:—

| Year | Imports    | Exports    | Total      | Per Inhabitant |
|------|------------|------------|------------|----------------|
|      | £          | £          | £          | £ s. d.        |
| 1851 | 1,800,000  | 700,000    | 2,500,000  | 8 0 0          |
| 1860 | 3,000,000  | 2,200,000  | 5,200,000  | 12 10 0        |
| 1870 | 2,800,000  | 3,000,000  | 5,800,000  | 7 0 0          |
| 1880 | 10,000,000 | 8,600,000  | 18,600,000 | 17 0 0         |
| 1888 | 8,400,000  | 10,300,000 | 18,700,000 | 15 0 0         |

Distinguishing Natal from Cape Colony, the trade stood thus:—

|                 | Imports   |           | Exports   |            |
|-----------------|-----------|-----------|-----------|------------|
|                 | 1860      | 1888      | 1860      | 1888       |
|                 | £         | £         | £         | £          |
| Cape Colony     | 2,600,000 | 5,500,000 | 2,100,000 | 8,900,000  |
| Natal . . . . . | 400,000   | 2,900,000 | 100,000   | 1,400,000  |
| Total . . . . . | 3,000,000 | 8,400,000 | 2,200,000 | 10,300,000 |

The statement for ten years ending 1886 showed :—

|                       | Millions £ Sterling |            |       | Ratio |
|-----------------------|---------------------|------------|-------|-------|
|                       | Imports from        | Exports to | Total |       |
| Great Britain . . .   | 66                  | 72         | 138   | 84.7  |
| Other countries . . . | 19                  | 6          | 25    | 15.3  |
| Total . . .           | 85                  | 78         | 163   | 100.0 |

Exports for 1888 were as follows :—

|                | Cape, £   | Natal, £  | South Africa, £ |
|----------------|-----------|-----------|-----------------|
| Wool . . .     | 2,200,000 | 700,000   | 2,900,000       |
| Diamonds . . . | 4,000,000 | ...       | 4,000,000       |
| Sundries . . . | 2,700,000 | 700,000   | 3,400,000       |
| Total . . .    | 8,900,000 | 1,400,000 | 10,300,000      |

#### WEST AFRICA

This group of colonies comprises Lagos, Gold Coast, Sierra Leone, and Gambia. Official records show the aggregate trade thus :—

| Year | Imports   | Exports   | Total     | Per Inhabitant   |
|------|-----------|-----------|-----------|------------------|
| 1851 | £ 300,000 | £ 300,000 | £ 600,000 | £ s. d.<br>3 0 0 |
| 1860 | 400,000   | 400,000   | 800,000   | 2 0 0            |
| 1870 | 1,000,000 | 1,300,000 | 2,300,000 | 4 10 0           |
| 1880 | 1,300,000 | 1,500,000 | 2,800,000 | 4 14 0           |
| 1888 | 1,200,000 | 1,200,000 | 2,400,000 | 1 12 0           |

The trade of the several colonies in 1887 was :—

|                    | Imports, £ | Exports, £ |
|--------------------|------------|------------|
| Lagos . . .        | 420,000    | 490,000    |
| Gold Coast . . .   | 360,000    | 270,000    |
| Sierra Leone . . . | 310,000    | 310,000    |
| Gambia . . .       | 80,000     | 90,000     |
| Total . . .        | 1,170,000  | 1,160,000  |

The exports were from the West Indies in 1887 as follows :—

|                     | Sugar     | Rum       | Coffee    | Cocoa   | Sundries  | Total       |
|---------------------|-----------|-----------|-----------|---------|-----------|-------------|
| Jamaica . . .       | £ 200,000 | £ 300,000 | £ 210,000 | £ ...   | £ 740,000 | £ 1,510,000 |
| Barbadoes . . .     | 800,000   | ...       | ...       | ...     | 260,000   | 1,060,000   |
| Trinidad . . .      | 850,000   | ...       | ...       | 410,000 | 610,000   | 1,870,000   |
| Guiana . . .        | 1,840,000 | 140,000   | ...       | ...     | 210,000   | 2,190,000   |
| Small islands . . . | ...       | ...       | ...       | ...     | ...       | 1,370,000   |
| Total . . .         | ...       | ...       | ...       | ...     | ...       | 8,000,000   |

The statement for ten years ending 1886 showed :—

#### MILLIONS £ STERLING

|                       | Imports from | Exports to | Total | Ratio |
|-----------------------|--------------|------------|-------|-------|
| Great Britain . . .   | 36           | 49         | 85    | 50.0  |
| United States . . .   | 17           | 15         | 32    | 19.0  |
| Canada . . .          | 6            | 4          | 10    | 6.0   |
| Other countries . . . | 25           | 17         | 42    | 24.0  |
| Total . . .           | 84           | 85         | 169   | 100.0 |

#### INDIA

Imports of British merchandise in the early part of the eighteenth century averaged to India as follows per annum :—

The statement for ten years ending 1886 showed :—

|                       | Millions £ Sterling |            |       | Ratio |
|-----------------------|---------------------|------------|-------|-------|
|                       | Imports from        | Exports to | Total |       |
| Great Britain . . .   | 9                   | 7          | 16    | 58.5  |
| Germany . . .         | 2                   | 2          | 4     | 14.6  |
| Other countries . . . | 2                   | 5          | 7     | 26.9  |
| Total . . .           | 13                  | 14         | 27    | 100.0 |

#### WEST INDIES

Under this term may be comprised the various British possessions, Jamaica, Trinidad, Guiana, Barbadoes, and minor islands. Official records show :—

| Year | Imports     | Exports     | Total       | Per Inhab.        |
|------|-------------|-------------|-------------|-------------------|
| 1851 | £ 4,600,000 | £ 4,500,000 | £ 9,100,000 | £ s. d.<br>10 2 0 |
| 1860 | 5,800,000   | 6,100,000   | 11,900,000  | 10 10 0           |
| 1870 | 6,800,000   | 7,500,000   | 14,300,000  | 11 0 0            |
| 1880 | 8,100,000   | 8,500,000   | 16,600,000  | 11 1 0            |
| 1887 | 6,900,000   | 8,000,000   | 14,900,000  | 9 10 0            |

The exports have been nearly stationary in value during the past twenty years, sugar having fallen greatly in price. Returns show as follows :—

|                | 1851        | 1860        | 1870        | 1887        | 1877-86<br>Mill. £ |
|----------------|-------------|-------------|-------------|-------------|--------------------|
| Sugar . . .    | £ 2,100,000 | £ 3,000,000 | £ 3,800,000 | £ 3,700,000 | 41                 |
| Rum . . .      | 300,000     | 600,000     | 600,000     | 400,000     | 5                  |
| Coffee . . .   | 100,000     | 100,000     | 200,000     | 200,000     | 2                  |
| Cocoa . . .    | 100,000     | 100,000     | 200,000     | 400,000     | 4                  |
| Sundries . . . | 1,900,000   | 2,300,000   | 2,700,000   | 3,300,000   | 33                 |
| Total . . .    | 4,500,000   | 6,100,000   | 7,500,000   | 8,000,000   | 85                 |

1709-18 . . . . . £ 4,800,000  
1719-28 . . . . . 4,400,000  
1729-34 . . . . . 5,000,000

The trade, excluding bullion, has been :—

| Year  | Imports     | Exports     | Total        | Per Inhabitant   |
|-------|-------------|-------------|--------------|------------------|
| 1815  | £ 8,100,000 | £ 2,600,000 | £ 10,700,000 | £ s. d.<br>0 2 6 |
| 1830  | 5,700,000   | 4,100,000   | 9,800,000    | 0 2 0            |
| 1851  | 11,600,000  | 18,200,000  | 29,800,000   | 0 5 0            |
| 1860  | 24,200,000  | 28,000,000  | 52,200,000   | 0 7 0            |
| 1870  | 32,900,000  | 52,500,000  | 85,400,000   | 0 11 0           |
| 1880  | 41,200,000  | 67,200,000  | 108,400,000  | 0 12 0           |
| *1889 | 66,600,000  | 97,000,000  | 163,600,000  | 0 16 0           |

\* The Indian Customs still compute rupees at 24 pence, and hence the values here stated are 33 per cent. too much.



Imports of India were as follows :—

|                               | 1851              | 1870              | 1880              | 1889              | 1877-86           |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                               | £                 | £                 | £                 | £                 | £                 |
| Cotton manufactures . . . . . | 3,600,000         | 13,600,000        | 16,900,000        | 31,500,000        | 19,300,000        |
| Woollen " . . . . .           | 200,000           | 600,000           | 900,000           | 1,600,000         | 1,100,000         |
| Silk " . . . . .              | 100,000           | 500,000           | 800,000           | 1,500,000         | 1,000,000         |
| Metals . . . . .              | 1,800,000         | 3,400,000         | 3,300,000         | 5,200,000         | 4,000,000         |
| Machinery . . . . .           | ...               | 1,800,000         | 1,600,000         | 2,300,000         | 2,200,000         |
| Sugar . . . . .               | ...               | 700,000           | 1,100,000         | 1,800,000         | 1,300,000         |
| Cotton yarn . . . . .         | 1,000,000         | 2,700,000         | 2,700,000         | 3,500,000         | 3,000,000         |
| Coal . . . . .                | ...               | 500,000           | 1,100,000         | 1,900,000         | 1,100,000         |
| Sundries . . . . .            | 4,900,000         | 9,100,000         | 12,800,000        | 17,300,000        | 15,100,000        |
| <b>Total . . . . .</b>        | <b>11,600,000</b> | <b>32,900,000</b> | <b>41,200,000</b> | <b>66,600,000</b> | <b>48,000,000</b> |

For importation of bullion see *Gold and Silver*.

The exports of India were as follows :—

|                        | 1851              | 1870              | 1880              | 1889              | 1877-86           |
|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                        | £                 | £                 | £                 | £                 | £                 |
| Cotton . . . . .       | 3,500,000         | 19,100,000        | 11,100,000        | 15,100,000        | 12,200,000        |
| Opium . . . . .        | 5,500,000         | 11,700,000        | 14,300,000        | 10,500,000        | 12,300,000        |
| Grain . . . . .        | 700,000           | 3,000,000         | 9,500,000         | 15,500,000        | 12,800,000        |
| Jute . . . . .         | 200,000           | 2,200,000         | 5,600,000         | 7,900,000         | 5,400,000         |
| Seeds . . . . .        | 300,000           | 2,300,000         | 4,800,000         | 9,600,000         | 7,300,000         |
| Tea . . . . .          | ...               | 1,100,000         | 3,100,000         | 5,300,000         | 3,400,000         |
| Cotton goods . . . . . | 700,000           | 1,300,000         | 2,800,000         | 6,400,000         | 3,300,000         |
| Dyes . . . . .         | 2,100,000         | 3,600,000         | 3,600,000         | 4,700,000         | 4,500,000         |
| Hides . . . . .        | 300,000           | 1,700,000         | 3,700,000         | 4,800,000         | 4,100,000         |
| Sundries . . . . .     | 4,900,000         | 6,500,000         | 8,700,000         | 17,200,000        | 9,700,000         |
| <b>Total . . . . .</b> | <b>18,200,000</b> | <b>52,500,000</b> | <b>67,200,000</b> | <b>97,000,000</b> | <b>75,000,000</b> |

The statement for ten years ending 1886 showed :—

MILLIONS £ STERLING

|                           | Imports from | Exports to | Total        | Ratio        |
|---------------------------|--------------|------------|--------------|--------------|
| Great Britain . . . . .   | 437          | 323        | 760          | 55.3         |
| Hong-Kong . . . . .       | 33           | 103        | 136          | 10.0         |
| Australia . . . . .       | 10           | 6          | 16           | 1.2          |
| Singapore . . . . .       | 15           | 31         | 46           | 3.3          |
| Mauritius . . . . .       | 10           | 10         | 20           | 1.5          |
| United States . . . . .   | 6            | 28         | 34           | 2.5          |
| China . . . . .           | 9            | 35         | 44           | 3.2          |
| France . . . . .          | 6            | 65         | 71           | 5.2          |
| Other countries . . . . . | 77           | 168        | 245          | 17.8         |
| <b>Total . . . . .</b>    | <b>603</b>   | <b>769</b> | <b>1,372</b> | <b>100.0</b> |

The trade of India has almost doubled since 1870, imports having increased 102 per cent., exports 85 per cent., taking the rupee at 24d.

## CEYLON

Official records are as follows :—

| Year | Imports   | Exports   | Total     | Per Inhabitant |
|------|-----------|-----------|-----------|----------------|
|      | £         | £         | £         | £ s. d.        |
| 1851 | 1,000,000 | 1,100,000 | 2,100,000 | 1 8 0          |
| 1860 | 2,400,000 | 2,300,000 | 4,700,000 | 2 7 0          |
| 1870 | 4,100,000 | 3,800,000 | 7,900,000 | 3 6 0          |
| 1880 | 4,000,000 | 4,200,000 | 8,200,000 | 3 2 0          |
| 1888 | 4,700,000 | 3,200,000 | 7,900,000 | 2 15 0         |

The imports of Ceylon were as follows :—

|                        | 1851             | 1860             | 1870             | 1877-86          | 1888             |
|------------------------|------------------|------------------|------------------|------------------|------------------|
|                        | £                | £                | £                | £                | £                |
| Grain . . . . .        | 500,000          | 700,000          | 1,600,000        | 1,800,000        | 2,000,000        |
| Cotton . . . . .       | 200,000          | 600,000          | 1,000,000        | 400,000          | 400,000          |
| Coal . . . . .         | ...              | 200,000          | 200,000          | 200,000          | 500,000          |
| Sundries . . . . .     | 300,000          | 900,000          | 1,300,000        | 1,400,000        | 1,800,000        |
| <b>Total . . . . .</b> | <b>1,000,000</b> | <b>2,400,000</b> | <b>4,100,000</b> | <b>3,800,000</b> | <b>4,700,000</b> |

The exports were as follows :—

|                        | 1851             | 1860             | 1870             | 1877-86          | 1888             |
|------------------------|------------------|------------------|------------------|------------------|------------------|
|                        | £                | £                | £                | £                | £                |
| Coffee . . . . .       | 1,000,000        | 1,600,000        | 2,800,000        | 1,900,000        | 600,000          |
| Chinchona . . . . .    | ...              | ...              | ...              | 200,000          | 150,000          |
| Oil . . . . .          | ...              | 200,000          | 200,000          | 300,000          | 550,000          |
| Sundries . . . . .     | 100,000          | 500,000          | 800,000          | 1,100,000        | 1,900,000        |
| <b>Total . . . . .</b> | <b>1,100,000</b> | <b>2,300,000</b> | <b>3,800,000</b> | <b>3,500,000</b> | <b>3,200,000</b> |

Sundries for 1888 included £1,020,000 for tea, now the principal export of the island.

The statement for ten years ending 1886 showed—

|                   | Millions £ Sterling |            |       | Ratio |
|-------------------|---------------------|------------|-------|-------|
|                   | Imports from        | Exports to | Total |       |
| India . . . .     | 28                  | 5          | 33    | 42.3  |
| Great Britain . . | 12                  | 22         | 34    | 43.6  |
| Other countries   | 3                   | 8          | 11    | 14.1  |
| Total . . . .     | 43                  | 35         | 78    | 100.0 |

#### STRAITS SETTLEMENT

This colony, formerly known as Singapore, shows the following trade :—

|      | Imports, £ | Exports, £ | Total, £   |
|------|------------|------------|------------|
| 1861 | 7,900,000  | 6,600,000  | 14,500,000 |
| 1870 | 9,700,000  | 7,100,000  | 16,800,000 |
| 1880 | 11,700,000 | 10,500,000 | 22,200,000 |
| 1887 | 21,500,000 | 18,800,000 | 40,300,000 |

Singapore is a great emporium for trade between Europe and the East, and hence its trade is out of all proportion to the population of the colony ; average, £80 per inhabitant.

The imports were as follows :—

|                    | 1861    | 1860      | 1870      | 1887      | 1877-86   |
|--------------------|---------|-----------|-----------|-----------|-----------|
|                    | £       | £         | £         | £         | £         |
| Grain . . . . .    | 330,000 | 770,000   | 660,000   | 570,000   | 600,000   |
| Textiles . . . . . | 110,000 | 170,000   | 280,000   | 170,000   | 200,000   |
| Sundries . . . . . | 460,000 | 1,360,000 | 1,060,000 | 1,660,000 | 1,500,000 |
| Total . . . . .    | 900,000 | 2,300,000 | 2,000,000 | 2,400,000 | 2,300,000 |

The exports were as follows :—

|                    | 1861      | 1860      | 1870      | 1888      | 1877-86   |
|--------------------|-----------|-----------|-----------|-----------|-----------|
|                    | £         | £         | £         | £         | £         |
| Sugar . . . . .    | 1,000,000 | 2,100,000 | 1,900,000 | 2,300,000 | 3,300,000 |
| Sundries . . . . . | 100,000   | 200,000   | 200,000   | 300,000   | 300,000   |
| Total . . . . .    | 1,100,000 | 2,300,000 | 2,100,000 | 2,600,000 | 3,600,000 |

#### CHINA

Official returns are as follows :—

| Year           | Imports, £ | Exports, £ | Total, £   |
|----------------|------------|------------|------------|
| 1876 . . . . . | 20,900,000 | 24,100,000 | 45,000,000 |
| 1880 . . . . . | 23,000,000 | 22,500,000 | 45,500,000 |
| 1888 . . . . . | 26,000,000 | 23,000,000 | 49,000,000 |

The statement for ten years ending 1886 showed :—

|                     | Millions £ Sterling |            |       | Ratio |
|---------------------|---------------------|------------|-------|-------|
|                     | Imports from        | Exports to | Total |       |
| Hong-Kong . . . .   | 84                  | 45         | 129   | 30.7  |
| Great Britain . . . | 45                  | 63         | 108   | 25.6  |
| India . . . . .     | 52                  | 1          | 53    | 12.5  |
| Japan . . . . .     | 11                  | 4          | 15    | 3.6   |
| Other countries . . | 30                  | 84         | 114   | 27.6  |
| Total . . . . .     | 222                 | 197        | 419   | 100.0 |

The statement for ten years ending 1886 showed :—

|                   | Millions £ Sterling |            |       | Ratio |
|-------------------|---------------------|------------|-------|-------|
|                   | Imports from        | Exports to | Total |       |
| Great Britain . . | 36                  | 28         | 64    | 21.5  |
| India . . . . .   | 25                  | 9          | 34    | 11.4  |
| Hong-Kong . . . . | 18                  | 11         | 29    | 9.8   |
| Java . . . . .    | 27                  | 36         | 63    | 21.2  |
| Malacca . . . . . | 17                  | 13         | 30    | 10.1  |
| Siam . . . . .    | 11                  | 10         | 21    | 7.1   |
| Other countries   | 22                  | 34         | 56    | 18.9  |
| Total . . . . .   | 156                 | 141        | 297   | 100.0 |

The trade of 1888, merchandise and bullion, amounted to—imports, 32 ; exports, 27 millions sterling.

#### MAURITIUS

The trade returns show as follows :—

|      | Imports, £ | Exports, £ | Total, £  |
|------|------------|------------|-----------|
| 1851 | 900,000    | 1,200,000  | 2,100,000 |
| 1860 | 2,300,000  | 2,300,000  | 4,600,000 |
| 1870 | 2,000,000  | 2,100,000  | 4,100,000 |
| 1880 | 1,700,000  | 3,000,000  | 4,700,000 |
| 1888 | 1,200,000  | 2,600,000  | 3,800,000 |

The imports were as follows :—

|                    | 1876       | 1886       | 1877-86    | 1888       |
|--------------------|------------|------------|------------|------------|
|                    | £          | £          | £          | £          |
| Opium . . . . .    | 8,400,000  | 6,200,000  | 7,500,000  | 7,600,000  |
| Cotton goods . . . | 6,000,000  | 7,200,000  | 6,600,000  | 10,500,000 |
| Sundries . . . . . | 6,500,000  | 8,500,000  | 8,200,000  | 7,900,000  |
| Total . . . . .    | 20,900,000 | 21,900,000 | 22,300,000 | 26,000,000 |

The exports were as follows :—

|                    | 1876       | 1886       | 1877-86    | 1888       |
|--------------------|------------|------------|------------|------------|
|                    | £          | £          | £          | £          |
| Tea . . . . .      | 11,000,000 | 8,500,000  | 8,900,000  | 7,200,000  |
| Silk . . . . .     | 10,800,000 | 7,200,000  | 6,900,000  | 7,500,000  |
| Sundries . . . . . | 2,300,000  | 3,600,000  | 3,900,000  | 8,300,000  |
| Total . . . . .    | 24,100,000 | 19,300,000 | 19,700,000 | 23,000,000 |

The quantities of tea exported were :—

|                |                  |
|----------------|------------------|
| 1876 . . . . . | 190 million lbs. |
| 1880 . . . . . | 222 " "          |
| 1888 . . . . . | 290 " "          |

## PERSIA

The total trade of the Empire in 1881 was said to reach £7,700,000, but the estimates of the *Times* correspondent for 1889 do not exceed £6,000,000, viz:—

|                | Imports, £ |                | Exports, £ |
|----------------|------------|----------------|------------|
| Cottons . . .  | 1,800,000  | Opium . . .    | 500,000    |
| Silks . . .    | 600,000    | Silk, raw . .  | 400,000    |
| Woolens . . .  | 400,000    | Rice . . .     | 300,000    |
| Sugar . . .    | 300,000    | Fruit . . .    | 100,000    |
| Sundries . . . | 700,000    | Sundries . . . | 900,000    |
| Total . . .    | 3,800,000  | Total . . .    | 2,200,000  |

## PHILIPPINE ISLANDS

The exports of these islands were as follows:—

|              | 1889    | To        | 1888                          |
|--------------|---------|-----------|-------------------------------|
|              | Tons    | £         | £                             |
| Sugar        | 220,000 | 2,200,000 | Great Britain . . 1,700,000   |
| Hemp . . .   | 115,000 | 3,200,000 | Spain . . . . . 600,000       |
| Coffee . . . | 6,000   | 500,000   | Other countries . . 4,300,000 |
| Tobacco . .  | 10,000  | 700,000   |                               |
| Total . . .  | ...     | 6,600,000 | Total . . . . . 6,600,000     |

Imports average about £2,000,000, English cotton goods representing £900,000.

## JAPAN

Official returns are as follows:—

| Year         | Imports, £ | Exports, £ | Total, £   |
|--------------|------------|------------|------------|
| 1876 . . . . | 5,000,000  | 5,700,000  | 10,700,000 |
| 1880 . . . . | 7,600,000  | 5,700,000  | 13,300,000 |
| 1888 . . . . | 10,900,000 | 10,800,000 | 21,700,000 |

The imports and exports in 1888 were:—

|                               | Imports, £ |               | Exports, £ |
|-------------------------------|------------|---------------|------------|
| Cotton yarn . .               | 2,300,000  | Silk . . . .  | 4,800,000  |
| Cotton manu-<br>facture . . . | 500,000    | Tea . . . .   | 1,000,000  |
| Woolen . . . .                | 1,100,000  | Copper . . .  | 600,000    |
| Sugar . . . .                 | 1,100,000  | Rice . . . .  | 1,200,000  |
| Sundries . . .                | 5,900,000  | Sundries . .  | 3,200,000  |
| Total . . . .                 | 10,900,000 | Total . . . . | 10,800,000 |

There have been nine Statistical Congresses, attended by members as follows:—

| Date          | Place            | British | French | German | Russian | Austrian | Italian | Hungarian | Dutch | Various | Total |
|---------------|------------------|---------|--------|--------|---------|----------|---------|-----------|-------|---------|-------|
| 1853          | Brussels . . . . | 16      | 11     | 22     | ...     | 1        | 2       | ...       | 5     | 96      | 153   |
| 1855          | Paris . . . . .  | 22      | 203    | 29     | ...     | 5        | 9       | ...       | 2     | 41      | 311   |
| 1859          | Vienna . . . . . | 4       | 11     | 37     | 3       | 430      | 8       | 24        | 4     | 16      | 537   |
| 1860          | London . . . . . | 478     | 9      | 25     | 12      | 5        | 1       | ...       | 4     | 51      | 585   |
| 1863          | Berlin . . . . . | 13      | 7      | 397    | 13      | 10       | 4       | 2         | 3     | 28      | 477   |
| 1867          | Florence . . . . | 16      | 14     | 17     | 14      | 4        | 665     | ...       | 1     | 20      | 751   |
| 1869          | Hague . . . . .  | 20      | 15     | 18     | 10      | 5        | 9       | 3         | 372   | 36      | 488   |
| 1872          | Petersburgh . .  | 17      | 5      | 23     | 512     | 15       | 10      | 7         | 4     | 45      | 638   |
| 1876          | Pesth . . . . .  | 10      | 12     | 33     | 32      | 42       | 8       | 282       | 3     | 33      | 455   |
| Total . . . . |                  | 596     | 287    | 601    | 596     | 517      | 716     | 318       | 398   | 366     | 4,395 |

Valuable statistical papers were read at the above meetings.

The statement for seven years ending 1886 showed:—

|                     | Millions £ Sterling |            |       | Ratio |
|---------------------|---------------------|------------|-------|-------|
|                     | Imports from        | Exports to | Total |       |
| Great Britain . . . | 20                  | 5          | 25    | 25.8  |
| China . . . . .     | 8                   | 8          | 16    | 16.5  |
| United States . . . | 4                   | 20         | 24    | 24.7  |
| Other countries . . | 13                  | 19         | 32    | 33.0  |
| Total . . . . .     | 45                  | 52         | 97    | 100.0 |

## EGYPT

Official returns are as follows:—

| Year           | Imports, £ | Exports, £ | Total, £   |
|----------------|------------|------------|------------|
| 1824 . . . . . | 1,100,000  | 2,100,000  | 3,200,000  |
| 1874 . . . . . | 5,300,000  | 14,000,000 | 19,300,000 |
| 1880 . . . . . | 6,800,000  | 13,500,000 | 20,300,000 |
| 1889 . . . . . | 7,300,000  | 12,200,000 | 19,500,000 |

The imports of 1889 were as follows:—Textiles, £1,800,000; coal, £450,000; iron and machinery, £500,000; coffee, £300,000; and sundries, £4,250,000.

The exports were as follows:—

|                   | 1876       | 1886       | 1877-86    | 1889       |
|-------------------|------------|------------|------------|------------|
|                   | £          | £          | £          | £          |
| Raw cotton . . .  | 9,200,000  | 7,500,000  | 7,800,000  | 8,800,000  |
| Cotton seed . . . | 1,500,000  | 1,300,000  | 1,400,000  | 1,500,000  |
| Sugar . . . . .   | 500,000    | 500,000    | 600,000    | 500,000    |
| Grain . . . . .   | 1,700,000  | 700,000    | 1,400,000  | 600,000    |
| Sundries . . . .  | 1,200,000  | 900,000    | 1,200,000  | 800,000    |
| Total . . . . .   | 14,100,000 | 10,900,000 | 12,400,000 | 12,200,000 |

Egyptian exports have been for some years declining in value, which is due rather to a fall in prices than to any decrease of quantities produced.

## CONGRESS

The first United States Federal Congress met, 4th March 1789, and the fifty-first on 4th March 1889. The first actual Congress of American delegates took place in 1774, and another was held on July 4, 1776, at which the Act of Independence was signed. Congress now consists of 82 Senators and 330 Representatives, all of whom receive a salary of \$5000 each per annum, besides 20 cents a mile travelling expenses, and \$125 for stationery.

## COPPER

The production of this metal has multiplied fivefold since 1850, shown thus :—

|                   | Fine Copper, Tons |        |        |         |         |
|-------------------|-------------------|--------|--------|---------|---------|
|                   | 1850              | 1860   | 1870   | 1880    | 1888    |
| Great Britain . . | 11,800            | 13,540 | 7,220  | 3,440   | 1,500   |
| France . . . . .  | 2,300             | 2,500  | 4,900  | 5,100   | 3,000   |
| Germany . . . .   | 1,650             | 3,200  | 6,850  | 10,140  | 15,000  |
| Russia . . . . .  | 6,000             | 5,500  | 5,500  | 6,100   | 5,000   |
| Spain . . . . .   | 200               | 300    | 1,100  | 21,300  | 53,000  |
| Sweden . . . . .  | 2,300             | 2,200  | 2,000  | 1,600   | 1,000   |
| Austria, &c. . .  | 1,600             | 1,900  | 2,000  | 2,200   | 2,700   |
| Europe . . . . .  | 25,850            | 9,140  | 29,570 | 49,880  | 81,200  |
| United States . . | 2,700             | 5,530  | 12,650 | 20,260  | 103,000 |
| Chili . . . . .   | 14,300            | 25,100 | 30,200 | 36,800  | 31,000  |
| Australia . . . . | 2,400             | 7,600  | 9,700  | 13,100  | 8,000   |
| Cape Colony . .   | ...               | ...    | 1,000  | 5,000   | 8,000   |
| Venezuela . . . . | 2,000             | 2,000  | 3,000  | 4,000   | 4,000   |
| Japan . . . . .   | 3,000             | 3,000  | 3,000  | 5,000   | 11,000  |
| Other countries . | 2,000             | 3,000  | 5,000  | 8,000   | 15,800  |
| Total . . . . .   | 52,250            | 75,370 | 94,120 | 142,040 | 262,000 |

In 1889 the production in the United States was 107,000 tons fine copper, and the consumption 75,000 tons.

The ratio of copper to copper ore is as follows :—

|                   | Per Cent. of<br>Pure Copper |                       | Per Cent. of<br>Pure Copper |
|-------------------|-----------------------------|-----------------------|-----------------------------|
| Germany . . . . . | 3                           | England . . . . .     | 7                           |
| Austria . . . . . | 4                           | Australia . . . . .   | 12                          |
| France . . . . .  | 5                           | United States . . . . | 18                          |

The British copper trade since 1850 has been as follows :—

| Year            | Tons      |           | Value     |           | Fine Copper per Ton |
|-----------------|-----------|-----------|-----------|-----------|---------------------|
|                 | Im-ported | Ex-ported | Imports   | Exports   |                     |
| 1850 . . . . .  | 51,000    | 11,000    | 1,412,000 | 1,080,000 | 102                 |
| 1851-60 . . . . | 78,000    | 26,000    | 2,254,000 | 2,531,000 | 98                  |
| 1860 . . . . .  | 109,000   | 31,000    | 3,404,000 | 3,153,000 | 107                 |
| 1861-70 . . . . | 133,000   | 46,000    | 4,016,000 | 3,844,000 | 89                  |
| 1870 . . . . .  | 137,000   | 52,000    | 4,039,000 | 3,772,000 | 76                  |
| 1871-80 . . . . | 147,000   | 56,000    | 5,151,000 | 4,413,000 | 78                  |
| 1881 . . . . .  | 182,000   | 65,000    | 4,593,200 | 4,284,000 | 68                  |
| 1888 . . . . .  | 280,000   | 40,000    | 8,600,000 | 3,100,000 | 80                  |

The imports include, besides copper, a quantity of "regulus," or half-smelted ore.

The following table shows the annual yield of copper-mines in Great Britain :—

| Period          | Tons  | Value, £ | Period          | Tons   | Value, £  |
|-----------------|-------|----------|-----------------|--------|-----------|
| 1725-45 . . . . | 560   | 84,000   | 1801-20 . . . . | 5,880  | 720,000   |
| 1746-65 . . . . | 1,030 | 160,000  | 1821-40 . . . . | 13,220 | 1,360,000 |
| 1766-85 . . . . | 2,020 | 290,000  | 1841-60 . . . . | 12,840 | 1,355,000 |
| 1786-1800 . . . | 2,710 | 430,000  | 1861-80 . . . . | 8,070  | 686,000   |

The total value of the output for 100 years ending 1880 was 91 millions sterling. In 1888 the total product of copper in the world was valued at 20 millions sterling per annum. The prices of this metal, however, vary exceedingly; in 1882 it was £67 per ton, falling in 1886 to £40; whereupon a French "ring" drove up the price to £80, but it fell afterwards to £50.

It is remarkable that, although copper-money is no longer in use, the consumption of this metal is more than five times as great as it was forty years ago. This is in great measure explained by the enormous development of telegraph wire, cartridges, and other things in which copper largely enters.

## COTTON

According to Baines and other authorities, the production of raw cotton was as follows :—

|                | Million Lbs.  |               |       |       |         |       |
|----------------|---------------|---------------|-------|-------|---------|-------|
|                | United States | South America | Egypt | India | Various | Total |
| 1791 . . . . . | 2             | 102           | ...   | 130   | 256     | 490   |
| 1801 . . . . . | 48            | 102           | ...   | 160   | 210     | 520   |
| 1811 . . . . . | 80            | 104           | ...   | 170   | 201     | 555   |
| 1821 . . . . . | 180           | 86            | 6     | 175   | 183     | 630   |
| 1831 . . . . . | 385           | 82            | 18    | 180   | 155     | 820   |
| 1840 . . . . . | 878           | 90            | 30    | 212   | 100     | 1,310 |
| 1850 . . . . . | 890           | 90            | 45    | 310   | 100     | 1,435 |
| 1860 . . . . . | 1,880         | 90            | 51    | 420   | 100     | 2,551 |
| 1870 . . . . . | 1,540         | 270           | 240   | 625   | 100     | 2,775 |
| 1880 . . . . . | 2,593         | 86            | 282   | 540   | 100     | 3,601 |
| 1888 . . . . . | 3,420         | 85            | 290   | 888   | 100     | 4,783 |

Ellison's table and others show the consumption to have been at various dates as follows :—

|                   | Millions of Lbs. |      |       |       |       |       |        |
|-------------------|------------------|------|-------|-------|-------|-------|--------|
|                   | 1830             | 1840 | 1850  | 1860  | 1869  | 1880  | 1887-8 |
| United Kingdom .  | 250              | 454  | 588   | 1,140 | 1,101 | 1,404 | 1,530  |
| France . . . . .  | 68               | 116  | 140   | 226   | 220   | 200   | 310    |
| Germany . . . .   | 16               | 26   | 46    | 140   | 147   | 286   | 378    |
| Russia . . . . .  | 4                | 14   | 48    | 87    | 97    | 220   | 369    |
| Austria . . . . . | 20               | 34   | 58    | 94    | 96    | 140   | 235    |
| Italy . . . . .   | 4                | 8    | 16    | 26    | 26    | 64    | 152    |
| Spain . . . . .   | 6                | 14   | 34    | 52    | 50    | 88    | 105    |
| Sweden . . . . .  | 1                | 2    | 8     | 16    | 16    | 25    | 28     |
| Holland . . . . . | 2                | 4    | 5     | 6     | 10    | 20    | 24     |
| Belgium . . . .   | 8                | 16   | 22    | 29    | 35    | 50    | 52     |
| Switzerland . . . | 9                | 18   | 24    | 30    | 39    | 49    | 52     |
| Europe . . . . .  | 388              | 707  | 988   | 1,847 | 1,837 | 2,546 | 3,235  |
| United States . . | 77               | 135  | 288   | 390   | 400   | 768   | 1,010  |
| India . . . . .   | ...              | ...  | ...   | 26    | 35    | 172   | 283    |
| Various . . . . . | 5                | 10   | 10    | 10    | 20    | 60    | 100    |
| Total . . . . .   | 470              | 852  | 1,286 | 2,273 | 2,292 | 3,546 | 4,628  |

The production and consumption of raw cotton in 67 years ending December 1887 were approximately as follows :—

| Period           | Production, Tons Aggregate |            |           |             |            |
|------------------|----------------------------|------------|-----------|-------------|------------|
|                  | United States              | India      | Egypt     | Brazil, &c. | Total      |
| 1821-30 . . . .  | 1,050,000                  | 310,000    | 100,000   | 120,000     | 1,580,000  |
| 1831-40 . . . .  | 2,270,000                  | 480,000    | 120,000   | 120,000     | 2,990,000  |
| 1841-50 . . . .  | 3,950,000                  | 950,000    | 170,000   | 150,000     | 5,220,000  |
| 1851-60 . . . .  | 6,450,000                  | 1,400,000  | 260,000   | 150,000     | 8,260,000  |
| 1861-70 . . . .  | 3,750,000                  | 2,900,000  | 870,000   | 670,000     | 8,190,000  |
| 1871-80 . . . .  | 8,700,000                  | 2,630,000  | 1,290,000 | 305,000     | 12,925,000 |
| 1881-87 . . . .  | 8,680,000                  | 2,240,000  | 910,000   | 230,000     | 12,060,000 |
| 67 years . . . . | 34,850,000                 | 10,910,000 | 3,720,000 | 1,685,000   | 51,165,000 |

It appears that the United States have produced two-thirds of the cotton which has been consumed by the factories of the world in the last 67 years, and that the cotton-crop of the world shows a steady increase, the decade ending 1890 showing 400,000 tons a year more than the preceding. Great Britain consumes one-third of all the cotton produced, the United States being the next largest consumer. In this industry France stood ahead of Germany until the war of 1870.

## Consumption, Tons Aggregate

|                         | 1821-40   | 1841-50   | 1851-60   | 1861-70   | 1871-80    | 1881-87    | Total      |
|-------------------------|-----------|-----------|-----------|-----------|------------|------------|------------|
| Great Britain . . . . . | 2,310,000 | 2,320,000 | 3,830,000 | 3,540,000 | 5,650,000  | 4,550,000  | 22,200,000 |
| France . . . . .        | 660,000   | 610,000   | 830,000   | 760,000   | 950,000    | 940,000    | 4,750,000  |
| Germany . . . . .       | 190,000   | 410,000   | 660,000   | 650,000   | 1,140,000  | 1,220,000  | 4,270,000  |
| Russia . . . . .        | 180,000   | 240,000   | 360,000   | 320,000   | 820,000    | 890,000    | 2,810,000  |
| Austria . . . . .       | 160,000   | 200,000   | 370,000   | 330,000   | 650,000    | 640,000    | 2,350,000  |
| Italy . . . . .         | 40,000    | 50,000    | 90,000    | 120,000   | 310,000    | 410,000    | 1,020,000  |
| Spain . . . . .         | 80,000    | 110,000   | 200,000   | 170,000   | 340,000    | 340,000    | 1,240,000  |
| Sweden . . . . .        | 10,000    | 20,000    | 50,000    | 50,000    | 90,000     | 90,000     | 310,000    |
| Holland . . . . .       | 10,000    | 20,000    | 25,000    | 20,000    | 65,000     | 70,000     | 210,000    |
| Belgium . . . . .       | 150,000   | 120,000   | 130,000   | 120,000   | 200,000    | 170,000    | 890,000    |
| Switzerland . . . . .   | 80,000    | 90,000    | 120,000   | 100,000   | 200,000    | 160,000    | 750,000    |
| Europe . . . . .        | 3,870,000 | 4,190,000 | 6,665,000 | 6,180,000 | 10,415,000 | 9,480,000  | 40,790,000 |
| United States . . . . . | 650,000   | 990,000   | 1,550,000 | 1,970,000 | 2,320,000  | 2,780,000  | 10,260,000 |
| India . . . . .         | 40,000    | 40,000    | 45,000    | 40,000    | 130,000    | 710,000    | 1,025,000  |
| Total . . . . .         | 4,560,000 | 5,220,000 | 8,260,000 | 8,190,000 | 12,865,000 | 12,970,000 | 52,075,000 |

There is an apparent discrepancy in the above table, the consumption of cotton in the period 1881-87 exceeding the production by 910,000 tons, which is explained by the circumstance that cotton yarn is often counted with raw cotton. In the said period the cotton-mills of

Continental Europe figure above for 4,930,000 tons of raw cotton, but this included 910,000 tons of yarn, which was thus counted twice, having been already included as raw cotton in the mills of Great Britain and other countries, that produce more yarn than they require.

The following table shows approximately the output of cotton cloth in English statute miles :—

|                         | 1821-40    | 1841-60    | 1861-70    | 1871-80    | 1881-87    | Total       |
|-------------------------|------------|------------|------------|------------|------------|-------------|
| Great Britain . . . . . | 9,410,000  | 27,450,000 | 16,300,000 | 29,300,000 | 23,300,000 | 105,760,000 |
| France . . . . .        | 3,800,000  | 8,000,000  | 4,300,000  | 5,500,000  | 5,500,000  | 27,100,000  |
| Germany . . . . .       | 1,100,000  | 5,800,000  | 3,500,000  | 6,500,000  | 7,000,000  | 23,900,000  |
| Russia . . . . .        | 1,050,000  | 3,500,000  | 1,800,000  | 4,600,000  | 5,150,000  | 16,100,000  |
| Austria . . . . .       | 900,000    | 3,200,000  | 1,900,000  | 3,600,000  | 3,500,000  | 13,100,000  |
| Italy . . . . .         | 200,000    | 750,000    | 650,000    | 1,700,000  | 2,300,000  | 5,600,000   |
| Spain . . . . .         | 400,000    | 1,700,000  | 900,000    | 1,900,000  | 1,900,000  | 6,800,000   |
| Sweden . . . . .        | 50,000     | 350,000    | 250,000    | 500,000    | 500,000    | 1,650,000   |
| Holland . . . . .       | 100,000    | 200,000    | 100,000    | 350,000    | 400,000    | 1,150,000   |
| Belgium . . . . .       | 800,000    | 1,450,000  | 700,000    | 1,100,000  | 950,000    | 5,000,000   |
| Switzerland . . . . .   | 450,000    | 1,150,000  | 550,000    | 1,100,000  | 900,000    | 4,150,000   |
| Europe . . . . .        | 18,260,000 | 53,550,000 | 30,950,000 | 56,150,000 | 51,400,000 | 210,310,000 |
| United States . . . . . | 3,700,000  | 14,500,000 | 11,200,000 | 13,300,000 | 16,200,000 | 58,900,000  |
| India, &c. . . . .      | 240,000    | 600,000    | 250,000    | 650,000    | 3,550,000  | 5,290,000   |
| Total . . . . .         | 22,200,000 | 68,650,000 | 42,400,000 | 70,100,000 | 71,150,000 | 274,500,000 |

The following summary shows the business for 67 years approximately, viz., 1821-87 :—

|                         | Value, Millions £ |               |       | Tons Cotton Consumed | Miles Cloth Made |
|-------------------------|-------------------|---------------|-------|----------------------|------------------|
|                         | Cot-ton           | Manu-factures | Net   |                      |                  |
| U. Kingdom . . . . .    | 1,595             | 4,461         | 2,866 | 22,200,000           | 105,760,000      |
| France . . . . .        | 355               | 1,037         | 682   | 4,750,000            | 27,100,000       |
| Germany . . . . .       | 317               | 801           | 484   | 4,270,000            | 23,900,000       |
| Russia . . . . .        | 206               | 530           | 324   | 2,810,000            | 16,100,000       |
| Austria . . . . .       | 173               | 443           | 270   | 2,350,000            | 13,100,000       |
| Italy . . . . .         | 75                | 178           | 103   | 1,020,000            | 5,600,000        |
| Spain . . . . .         | 93                | 232           | 139   | 1,240,000            | 6,800,000        |
| Sweden . . . . .        | 24                | 56            | 32    | 310,000              | 1,650,000        |
| Holland . . . . .       | 16                | 39            | 23    | 220,000              | 1,150,000        |
| Belgium . . . . .       | 69                | 193           | 124   | 870,000              | 5,000,000        |
| Switzerland . . . . .   | 56                | 153           | 97    | 750,000              | 4,150,000        |
| Europe . . . . .        | 2,979             | 8,123         | 5,144 | 40,790,000           | 210,310,000      |
| United States . . . . . | 705               | 1,563         | 858   | 10,260,000           | 58,900,000       |
| India, &c. . . . .      | 60                | 141           | 81    | 1,025,000            | 5,290,000        |
| Total . . . . .         | 3,744             | 9,827         | 6,083 | 52,075,000           | 274,500,000      |

The following table shows the latest information of manufacturing industry as regards cotton; the number of operatives in some countries is uncertain :—

|                              | No. of Spindles | Cotton, Million Lbs. | Operatives | Output, £   |
|------------------------------|-----------------|----------------------|------------|-------------|
| Great Britain . . . . .      | 42,740,000      | 1,530                | 504,000    | 101,400,000 |
| United States . . . . .      | 13,500,000      | 1,010                | 200,000    | 60,200,000  |
| France . . . . .             | 4,900,000       | 310                  | 110,000    | 18,600,000  |
| Germany . . . . .            | 5,150,000       | 378                  | 290,000    | 23,000,000  |
| Russia . . . . .             | 4,000,000       | 369                  | 180,000    | 22,200,000  |
| Austria . . . . .            | 2,100,000       | 235                  | 150,000    | 14,100,000  |
| Italy . . . . .              | 1,200,000       | 152                  | 80,000     | 9,100,000   |
| Spain and Portugal . . . . . | 2,200,000       | 120                  | 53,000     | 7,200,000   |
| Belgium . . . . .            | 800,000         | 52                   | 20,000     | 3,100,000   |
| Holland . . . . .            | 300,000         | 24                   | 10,000     | 1,500,000   |
| Scandinavia . . . . .        | 300,000         | 28                   | 10,000     | 1,700,000   |
| Switzerland . . . . .        | 1,900,000       | 52                   | 30,000     | 3,100,000   |
| India . . . . .              | 2,380,000       | 283                  | 81,000     | 14,200,000  |
| Japan . . . . .              | 500,000         | 30                   | 10,000     | 1,600,000   |
| Total . . . . .              | 82,370,000      | 4,573                | 1,728,000  | 281,000,000 |

## COTTON MANUFACTURES OF ALL NATIONS

|          | Tons<br>Cotton | Miles<br>Cloth | Value Millions £ |                   |       |
|----------|----------------|----------------|------------------|-------------------|-------|
|          |                |                | Cot-<br>ton      | Manu-<br>factures | Net   |
| 1821-30  | 1,570,000      | 7,380,000      | 113              | 632               | 519   |
| 1831-40  | 2,990,000      | 14,820,000     | 220              | 874               | 654   |
| 1841-50  | 5,220,000      | 26,050,000     | 267              | 1,055             | 788   |
| 1851-60  | 8,260,000      | 42,600,000     | 500              | 1,440             | 940   |
| 1861-70  | 8,190,000      | 42,400,000     | 987              | 1,810             | 823   |
| 1871-80  | 12,865,000     | 70,100,000     | 915              | 2,234             | 1,319 |
| 1881-87  | 12,970,000     | 71,150,000     | 742              | 1,782             | 1,040 |
| 67 years | 52,075,000     | 274,500,000    | 3,744            | 9,827             | 6,083 |

The world produces and consumes annually more than 10 million miles of cotton cloth. The cost of production was found in 1880 to be:—

|                    | Pence per 100 Yds. |        |
|--------------------|--------------------|--------|
|                    | Calico             | Prints |
| British . . . . .  | 276                | 384    |
| American . . . . . | 424                | 502    |
| Greek . . . . .    | 353                | ...    |
| Chinese . . . . .  | 310                | 510    |
| German . . . . .   | 298                | 408    |
| French . . . . .   | 312                | 425    |

The cotton manufacturing industry is shown as follows, according to Spencer's tables (to 1875):—

|                       | Spindles   |            |            |            |            |            |
|-----------------------|------------|------------|------------|------------|------------|------------|
|                       | 1832       | 1845       | 1861       | 1875       | 1885       | 1888       |
| Great Britain . . . . | 9,000,000  | 17,500,000 | 30,300,000 | 37,500,000 | 44,300,000 | 42,740,000 |
| United States . . . . | 1,200,000  | 2,500,000  | 5,000,000  | 9,500,000  | 13,300,000 | 13,500,000 |
| Continent . . . . .   | 2,800,000  | 7,500,000  | 10,000,000 | 19,500,000 | 22,350,000 | 23,780,000 |
| India, &c. . . . .    | ...        | ...        | 340,000    | 1,000,000  | 2,400,000  | 2,420,000  |
| Total . . . . .       | 13,000,000 | 27,500,000 | 45,640,000 | 67,500,000 | 82,350,000 | 82,640,000 |

The number of spindles has increased more than sixfold since 1832, the production of cotton more than sevenfold.

## GREAT BRITAIN

The principal features of cotton manufacture are shown thus:—

| Year | Raw Cotton,<br>Million Lbs. | Yarn Spun,<br>Million Lbs. | Cloth Produced,<br>Million Yards | Value, Millions £ |                        |       |
|------|-----------------------------|----------------------------|----------------------------------|-------------------|------------------------|-------|
|      |                             |                            |                                  | Manu-<br>factures | Yarn, &c.,<br>Exported | Total |
| 1720 | 2                           | 2                          | 8                                | ...               | ...                    | ...   |
| 1785 | 11                          | 10                         | 40                               | ...               | ...                    | ...   |
| 1800 | 52                          | 47                         | 180                              | ...               | ...                    | ...   |
| 1814 | 95                          | 86                         | 340                              | 28                | 2                      | 30    |
| 1820 | 119                         | 108                        | 425                              | 30                | 3                      | 33    |
| 1830 | 245                         | 223                        | 795                              | 34                | 5                      | 39    |
| 1840 | 452                         | 407                        | 1,445                            | 40                | 8                      | 48    |
| 1850 | 588                         | 529                        | 2,025                            | 43                | 6                      | 49    |
| 1860 | 1,140                       | 1,027                      | 4,150                            | 71                | 10                     | 81    |
| 1870 | 1,101                       | 991                        | 4,647                            | 76                | 15                     | 91    |
| 1880 | 1,404                       | 1,258                      | 6,146                            | 86                | 19                     | 105   |
| 1887 | 1,499                       | 1,346                      | 6,534                            | 82                | 19                     | 101   |

According to Kennedy, Cowell, and others, 10 lbs. raw cotton produce 9 lbs. spun yarn.

The cotton manufactures of Great Britain are almost equal to the aggregate of all other European nations. They constitute, moreover, one of the most important elements of British industry, the output, as shown above, being valued at more than £300,000 a day. If we

The area under cotton in the principal countries is shown thus:—

|                     | Acres      | Crop,<br>Million Lbs. | Lbs. per<br>Acre |
|---------------------|------------|-----------------------|------------------|
| United States . . . | 18,450,000 | 3,420                 | 186              |
| India . . . . .     | 14,530,000 | 888                   | 62               |
| Egypt . . . . .     | 1,060,000  | 290                   | 275              |
| Brazil . . . . .    | 150,000    | 35                    | 230              |
| Other countries . . | 240,000    | 50                    | 208              |
| *Total . . . . .    | 34,260,000 | 4,733                 | 140              |

One man can cultivate 12 acres, or, with machinery, 30 acres. Seed-cotton weighs three times as much as ginned cotton or cotton-wool, the seed forming two-thirds. Thus, in the above table, in the United States a yield of 186 lbs. cotton means that before ginned the crop averaged 560 lbs. seed-cotton per acre.

The average length of fibre is as follows:—

|                      | Inches |                       | Inches |
|----------------------|--------|-----------------------|--------|
| Sea Island . . . . . | 1.61   | Brazilian . . . . .   | 1.17   |
| Egyptian . . . . .   | 1.41   | New Orleans . . . .   | 1.02   |
| Peruvian . . . . .   | 1.30   | East Indian . . . . . | 0.89   |

measure the production of cotton cloth not by yards, but by English statute miles, we find that the mills of Great Britain turn out daily more than 10,000 miles. The daily consumption of raw cotton averages 5,000,000 lbs., say 2200 tons. Each operative consumes yearly as much cotton as 20 acres can produce, and turns out about 7 miles of cotton cloth. This is irrespective of yarn produced for exportation. If all the yarn spun in Great Britain were made into cotton cloth, the output would be nearly one-fourth more.

The quantities of cotton cloth and yarn consumed in Great Britain and exported were approximately as follows:—

| Year | Cotton Cloth, Million Yards |               |       | Yarn, Million Lbs. |               |       |
|------|-----------------------------|---------------|-------|--------------------|---------------|-------|
|      | Home<br>Use                 | Ex-<br>ported | Total | Home<br>Use        | Ex-<br>ported | Total |
| 1814 | 148                         | 192           | 340   | 70                 | 16            | 86    |
| 1820 | 176                         | 249           | 425   | 85                 | 23            | 108   |
| 1830 | 350                         | 445           | 795   | 159                | 64            | 223   |
| 1840 | 654                         | 791           | 1,445 | 289                | 118           | 407   |
| 1850 | 677                         | 1,348         | 2,025 | 405                | 124           | 529   |
| 1860 | 1,385                       | 2,765         | 4,150 | 830                | 197           | 1,027 |
| 1870 | 1,380                       | 3,267         | 4,647 | 805                | 186           | 991   |
| 1880 | 1,650                       | 4,496         | 6,146 | 1,042              | 216           | 1,258 |
| 1889 | 1,630                       | 5,002         | 6,632 | 1,125              | 252           | 1,377 |

\* Ellison estimates the total crop at 5330 million lbs., including 600 millions in China and 150 millions in Central Africa, which are consumed in those countries, and not counted in the above table.

The following table is a summary of British cotton manufacturing industry since 1820 :—

| Period             | Tons Cotton Consumed | Statute Miles of Cloth Made | Value, Millions £ |                   |                  |                  |             |
|--------------------|----------------------|-----------------------------|-------------------|-------------------|------------------|------------------|-------------|
|                    |                      |                             | Raw Cotton        | Manu-<br>factured | Yarn<br>Exported | Total<br>Product | Net Product |
| 1821-30 . . . . .  | 810,000              | 3,480,000                   | 61                | 301               | 41               | 342              | 281         |
| 1831-40 . . . . .  | 1,505,000            | 5,930,000                   | 109               | 322               | 71               | 393              | 284         |
| 1841-50 . . . . .  | 2,320,000            | 9,940,000                   | 112               | 388               | 81               | 469              | 357         |
| 1851-60 . . . . .  | 3,830,000            | 17,510,000                  | 241               | 597               | 80               | 677              | 436         |
| 1861-70 . . . . .  | 3,540,000            | 16,300,000                  | 430               | 608               | 115              | 813              | 383         |
| 1871-80 . . . . .  | 5,650,000            | 29,300,000                  | 390               | 933               | 138              | 1,071            | 681         |
| 1881-87 . . . . .  | 4,550,000            | 23,300,000                  | 252               | 563               | 133              | 696              | 444         |
| 67 years . . . . . | 22,205,000           | 105,760,000                 | 1,595             | 3,802             | 659              | 4,461            | 2,866       |

The quantities and values of cotton goods exported averaged as follows per annum :—

| Period            | Cotton Cloth, Million Yards |         |       | Yarn, Mil-<br>lion Lbs. | Value, £ Sterling |            |            | Value of a<br>Mile of Cloth |
|-------------------|-----------------------------|---------|-------|-------------------------|-------------------|------------|------------|-----------------------------|
|                   | Plain                       | Printed | Total |                         | Cloth             | Yarn, &c.  | Total      |                             |
| 1821-30 . . . . . | 172                         | 168     | 340   | 39                      | 13,100,000        | 4,100,000  | 17,200,000 | £<br>70                     |
| 1831-40 . . . . . | 314                         | 275     | 589   | 90                      | 14,300,000        | 7,100,000  | 21,400,000 | 43                          |
| 1841-50 . . . . . | 584                         | 381     | 965   | 136                     | 16,100,000        | 8,100,000  | 24,200,000 | 31                          |
| 1851-60 . . . . . | 1,252                       | 736     | 1,988 | 171                     | 30,100,000        | 7,950,000  | 38,050,000 | 27                          |
| 1861-70 . . . . . | 1,606                       | 838     | 2,444 | 136                     | 48,100,000        | 11,500,000 | 59,600,000 | 34                          |
| 1871-80 . . . . . | 2,592                       | 1,101   | 3,693 | 222                     | 58,100,000        | 13,800,000 | 71,900,000 | 28                          |
| 1880 . . . . .    | 114                         | 135     | 249   | 23                      | 13,200,000        | 3,300,000  | 16,500,000 | 95                          |
| 1830 . . . . .    | 245                         | 200     | 445   | 64                      | 14,200,000        | 5,200,000  | 19,400,000 | 57                          |
| 1840 . . . . .    | 433                         | 358     | 791   | 118                     | 16,300,000        | 8,400,000  | 24,700,000 | 36                          |
| 1850 . . . . .    | 758                         | 590     | 1,348 | 124                     | 21,900,000        | 6,400,000  | 28,300,000 | 29                          |
| 1860 . . . . .    | 1,790                       | 975     | 2,765 | 197                     | 42,200,000        | 9,800,000  | 52,000,000 | 26                          |
| 1870 . . . . .    | 2,294                       | 973     | 3,267 | 186                     | 56,700,000        | 14,700,000 | 71,400,000 | 31                          |
| 1880 . . . . .    | 3,059                       | 1,437   | 4,496 | 216                     | 57,100,000        | 18,500,000 | 75,600,000 | 23                          |
| 1887 . . . . .    | 3,473                       | 1,431   | 4,904 | 251                     | 51,700,000        | 19,300,000 | 71,000,000 | 19                          |
| 1888 . . . . .    | 3,608                       | 1,430   | 5,038 | 256                     | 52,600,000        | 19,400,000 | 72,000,000 | 19                          |

The birth of the cotton industry may be said to date from 1793, when Whitney's improved gin was invented in the United States. From that time, as shown above, there was a steady and rapid increase, until the American war of 1861 caused a cotton famine, which was estimated to have caused a loss of 66 millions sterling to Great Britain—more properly 98 millions. The cotton-factories of the United Kingdom advanced thus :—

| Year | Number of<br>Factories | Operatives | Spindles   | Power-<br>Looms | Cotton,<br>Million Lbs. | Cotton, Lbs.<br>per Operative |
|------|------------------------|------------|------------|-----------------|-------------------------|-------------------------------|
| 1838 | 1,815                  | 259,000    | 13,000,000 | 109,000         | 410                     | 1,574                         |
| 1850 | 1,952                  | 331,000    | 20,900,000 | 250,000         | 588                     | 1,780                         |
| 1860 | 2,887                  | ...        | 30,400,000 | 400,000         | 1,140                   | ...                           |
| 1870 | 2,483                  | 449,000    | 38,000,000 | 440,000         | 1,101                   | 2,420                         |
| 1880 | 2,674                  | 487,000    | 41,900,000 | 513,000         | 1,404                   | 2,860                         |
| 1885 | 2,635                  | 504,000    | 44,400,000 | 561,000         | 1,500                   | 2,975                         |

In 1889 Mr. Ellison published the following statement :—

|                            | 1850-61         | 1887            |
|----------------------------|-----------------|-----------------|
| Products exported . . .    | £<br>49,030,000 | £<br>70,960,000 |
| Home consumption . . .     | 27,970,000      | 30,440,000      |
| Total value of products .  | 77,000,000      | 101,400,000     |
| Paid for cotton . . . . .  | 29,290,000      | 34,460,000      |
| Wages . . . . .            | 20,990,000      | 29,400,000      |
| Expenses and profits . . . | 26,720,000      | 37,540,000      |
| Total as above . . . . .   | 77,000,000      | 101,400,000     |

In 1869 Mr. Forwood, of Liverpool, published the following comparative statement :—

|                           | 1860         | 1868         |
|---------------------------|--------------|--------------|
|                           | Million Lbs. | Million Lbs. |
| Cotton consumed . . .     | 1,079        | 996          |
| Waste in spinning . . .   | 113          | 120          |
| Yarn produced . . . . .   | 966          | 876          |
| Yarn exported . . . . .   | 197          | 169          |
| Yarn manufactured . . .   | 769          | 707          |
|                           | £            | £            |
| Value of manufactures     | 70,000,000   | 76,600,000   |
| Do. home use . . . . .    | 24,400,000   | 19,200,000   |
| Do. exported . . . . .    | 45,600,000   | 57,400,000   |
| Do. yarn exported . . . . | 9,900,000    | 14,700,000   |
| Total product . . . . .   | 80,600,000   | 91,300,000   |
| Cost of cotton . . . . .  | 28,900,000   | 41,000,000   |
| Wages, &c. . . . .        | 33,600,000   | 34,900,000   |
| Net profit . . . . .      | 18,100,000   | 15,400,000   |

The ratios of the four preceding tables may be shown thus :—

|                | Forwood |       |               | Ellison |       |
|----------------|---------|-------|---------------|---------|-------|
|                | 1860    | 1868  |               | 1850-61 | 1887  |
| Cost of cotton | 35.9    | 44.9  | Cotton . .    | 38.0    | 34.0  |
| Wages, &c. .   | 41.7    | 38.2  | Wages . .     | 27.3    | 29.0  |
| Net profit . . | 22.4    | 16.9  | Balance . .   | 34.7    | 37.0  |
| Total . . . .  | 100.0   | 100.0 | Total . . . . | 100.0   | 100.0 |

Although Mr. Forwood estimated the profits of mill-owners at £15,400,000 per annum, it is believed that this is above the reality.

The consumption of British cotton cloth was approximately as follows :—

|                     | Millions of Yards |       |       |       |       |
|---------------------|-------------------|-------|-------|-------|-------|
|                     | 1820              | 1840  | 1860  | 1880  | 1889  |
| United Kingdom . .  | 176               | 654   | 1,385 | 1,650 | 1,630 |
| United States . . . | 24                | 32    | 227   | 78    | 49    |
| Spanish America . . | 56                | 279   | 527   | 652   | 720   |
| Europe . . . . .    | 128               | 200   | 201   | 365   | 370   |
| Africa . . . . .    | 10                | 75    | 358   | 589   | 630   |
| East Indies . . . . | 11                | 145   | 825   | 1,813 | 2,363 |
| China . . . . .     | 3                 | 30    | 324   | 632   | 557   |
| Various . . . . .   | 17                | 30    | 303   | 367   | 313   |
| Total . . . . .     | 425               | 1,445 | 4,150 | 6,146 | 6,632 |

The customers who took British yarn were as follows :—

|                     | Exported Yarn, Million Lbs. |      |      |      |      |
|---------------------|-----------------------------|------|------|------|------|
|                     | 1820                        | 1840 | 1860 | 1880 | 1889 |
| Europe . . . . .    | 22                          | 92   | 116  | 95   | 133  |
| East Indies . . . . | ...                         | 16   | 31   | 47   | 49   |
| China and Japan . . | ...                         | 2    | 9    | 46   | 36   |
| Various . . . . .   | 1                           | 9    | 41   | 28   | 34   |
| Total . . . . .     | 23                          | 119  | 197  | 216  | 252  |

Ellison shows the progress of British cotton-mills as follows :—

| Period  | Spinnors | Weavers | Yarn Produced, Million Lbs. | Yarn Consumed, Million Lbs. | Lbs. per Spinner | Lbs. per Weaver |
|---------|----------|---------|-----------------------------|-----------------------------|------------------|-----------------|
| 1819-21 | 110,000  | 250,000 | 107                         | 81                          | 968              | 342             |
| 1829-31 | 140,000  | 275,000 | 217                         | 142                         | 1,546            | 521             |
| 1844-46 | 190,000  | 210,000 | 523                         | 348                         | 2,754            | 1,681           |
| 1859-61 | 248,000  | 203,000 | 910                         | 651                         | 3,671            | 3,206           |
| 1886-87 | 245,000  | 255,000 | 1,415                       | 1,162                       | 5,900            | 4,559           |

He estimates the capital employed in cotton-mills in 1887 at 105 millions sterling.

#### FRANCE

The earliest mention of cotton factories is in 1688, when the consumption of raw cotton reached 500,000 lbs. yearly. The next is in 1750, when it was 4 million pounds. The following table shows approximately the principal features of this industry.

| Period   | Tons, Cotton Consumed | Miles Cloth Made | Value, Millions Lbs. |                   |     |
|----------|-----------------------|------------------|----------------------|-------------------|-----|
|          |                       |                  | Cotton               | Manu-<br>factures | Net |
| 1821-30  | 230,000               | 1,300,000        | 17                   | 106               | 89  |
| 1831-40  | 430,000               | 2,500,000        | 33                   | 160               | 127 |
| 1841-50  | 610,000               | 3,300,000        | 33                   | 136               | 103 |
| 1851-60  | 830,000               | 4,700,000        | 50                   | 158               | 108 |
| 1861-70  | 760,000               | 4,300,000        | 95                   | 180               | 85  |
| 1871-80  | 950,000               | 5,500,000        | 71                   | 165               | 94  |
| 1881-87  | 940,000               | 5,500,000        | 56                   | 132               | 76  |
| 67 years | 4,750,000             | 27,100,000       | 355                  | 1,037             | 682 |

The loss of Alsace in 1871 reduced the number of cotton-spindles in France from 6,120,000 to 4,620,000. In 1884 the number had risen to 5,111,000, but this included 227,000 that were idle. There are 1065 cotton-mills in France, with 108,000 operatives, 75,000 power-

looms and 40,000 hand-looms. In ten years ending 1887 the imports of cotton manufactures averaged £2,600,000, the exports £3,600,000 per annum.

#### GERMANY

The consumption of raw cotton and imported yarn has grown sixfold in half a century, viz :—

| Period          | Consumption Yearly, Million Lbs. Fibre | Number of Spindles | Output, £  |
|-----------------|----------------------------------------|--------------------|------------|
| 1836-40 . . . . | 62                                     | 600,000            | 5,600,000  |
| 1861-70 . . . . | 147                                    | 2,260,000          | 14,700,000 |
| 1881-87 . . . . | 378                                    | 5,150,000          | 24,000,000 |

The business of sixty-seven years was approximately as follows :—

| Period  | Tons Cotton Consumed | Miles Cloth Made | Value Millions £ |                   |     |
|---------|----------------------|------------------|------------------|-------------------|-----|
|         |                      |                  | Cotton           | Manu-<br>factures | Net |
| 1821-30 | 70,000               | 400,000          | 5                | 32                | 27  |
| 1831-40 | 120,000              | 700,000          | 9                | 42                | 33  |
| 1841-50 | 410,000              | 2,300,000        | 23               | 92                | 69  |
| 1851-60 | 660,000              | 3,500,000        | 40               | 125               | 85  |
| 1861-70 | 650,000              | 3,500,000        | 81               | 147               | 66  |
| 1871-80 | 1,140,000            | 6,500,000        | 86               | 195               | 109 |
| 1881-87 | 1,220,000            | 7,000,000        | 73               | 168               | 95  |
| Total   | 4,270,000            | 23,900,000       | 317              | 801               | 484 |

Germany gained 1,450,000 spindles by the annexation of Alsace. The imports of cotton manufactures in ten years down to 1888 averaged £900,000, exports £3,600,000 per annum.

#### RUSSIA

In 1824, according to Schubert, the mills consumed 4 million pounds of cotton and yarn yearly. There were then 484 mills, against 129 in 1812.

The industry has grown rapidly of late years, viz :—

| Year           | Million Lbs. Fibre | Spindles  | Output, £  |
|----------------|--------------------|-----------|------------|
| 1840 . . . . . | 44                 | 700,000   | 4,300,000  |
| 1870 . . . . . | 94                 | 2,500,000 | 9,800,000  |
| 1887 . . . . . | 369                | 4,400,000 | 21,000,000 |

The business of 67 years is summed up approximately thus :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |                   |     |
|----------|----------------------|------------------|-------------------|-------------------|-----|
|          |                      |                  | Cot-<br>ton       | Manu-<br>factures | Net |
| 1821-30  | 50,000               | 300,000          | 4                 | 24                | 20  |
| 1831-40  | 130,000              | 750,000          | 10                | 45                | 35  |
| 1841-50  | 240,000              | 1,400,000        | 14                | 56                | 42  |
| 1851-60  | 360,000              | 2,100,000        | 22                | 69                | 47  |
| 1861-70  | 320,000              | 1,800,000        | 40                | 75                | 35  |
| 1871-80  | 820,000              | 4,600,000        | 62                | 138               | 76  |
| 1881-87  | 890,000              | 5,150,000        | 54                | 123               | 69  |
| 67 years | 2,810,000            | 16,100,000       | 206               | 530               | 324 |

In ten years ending 1887 Russia imported cotton goods worth £6,400,000 yearly.



## AUSTRIA

In 1830 the consumption of raw cotton barely reached 20 million lbs. The following table sums up the business approximately :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |               |     |
|----------|----------------------|------------------|-------------------|---------------|-----|
|          |                      |                  | Cot-ton           | Manu-factures | Net |
| 1821-30  | 60,000               | 350,000          | 5                 | 30            | 25  |
| 1831-40  | 100,000              | 550,000          | 7                 | 31            | 24  |
| 1841-50  | 200,000              | 1,100,000        | 11                | 44            | 33  |
| 1851-60  | 370,000              | 2,100,000        | 22                | 69            | 47  |
| 1861-70  | 330,000              | 1,900,000        | 41                | 77            | 36  |
| 1871-80  | 650,000              | 3,600,000        | 49                | 108           | 59  |
| 1881-87  | 640,000              | 3,500,000        | 38                | 84            | 46  |
| 67 years | 2,350,000            | 13,100,000       | 173               | 443           | 270 |

Imports and exports of cotton manufactures in the last ten years were even.

## ITALY

The annual consumption of cotton in 1830 was only 4 million lbs. The business of 67 years sums up thus :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |               |     |
|----------|----------------------|------------------|-------------------|---------------|-----|
|          |                      |                  | Cot-ton           | Manu-factures | Net |
| 1821-30  | 10,000               | 50,000           | 1                 | 6             | 5   |
| 1831-40  | 30,000               | 150,000          | 2                 | 9             | 7   |
| 1841-50  | 50,000               | 250,000          | 3                 | 12            | 9   |
| 1851-60  | 90,000               | 500,000          | 6                 | 18            | 12  |
| 1861-70  | 120,000              | 650,000          | 15                | 27            | 12  |
| 1871-80  | 310,000              | 1,700,000        | 23                | 51            | 28  |
| 1881-87  | 410,000              | 2,300,000        | 25                | 55            | 30  |
| 67 years | 1,020,000            | 5,600,000        | 75                | 178           | 103 |

A statement published in 1877 showed that the mills had 54,000 operatives, 14,000 looms, 880,000 spindles, steam-power 3000 horse, water-mills 10,000 horse. In ten years ending 1887 Italy imported cotton manufactures worth £2,100,000 yearly.

## SPAIN

In 1769 the first cotton factory was built in Spain. A statement published in 1833 showed 2840 mills, with 810,000 spindles, 60,000 operatives, consuming 11 million lbs. cotton and yarn; product, 55 million yards cloth. The business of 67 years was approximately as follows :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |               |     |
|----------|----------------------|------------------|-------------------|---------------|-----|
|          |                      |                  | Cot-ton           | Manu-factures | Net |
| 1821-30  | 30,000               | 150,000          | 3                 | 15            | 12  |
| 1831-40  | 50,000               | 250,000          | 4                 | 15            | 11  |
| 1841-50  | 110,000              | 600,000          | 6                 | 24            | 18  |
| 1851-60  | 200,000              | 1,100,000        | 12                | 36            | 24  |
| 1861-70  | 170,000              | 900,000          | 21                | 39            | 18  |
| 1871-80  | 340,000              | 1,900,000        | 26                | 57            | 31  |
| 1881-87  | 340,000              | 1,900,000        | 21                | 46            | 25  |
| 67 years | 1,240,000            | 6,800,000        | 93                | 232           | 139 |

A statement in 1886 gave 53,000 operatives, 33,000 looms, 1,800,000 spindles, and goods manufactured to the yearly value of £12,400,000, that is, at an average of sixpence per yard of calico. The value is absurd, a fictitious one, being the result of enormous import duties.

In ten years ending 1887 Spain imported £400,000 worth of cotton goods yearly, and Portugal £700,000.

As regards Portugal, the consumption is close on 10 million lbs. cotton and yarn yearly; output, £600,000; spindles, 140,000.

## SWEDEN

In 1830 the output of the mills was valued at £200,000 a year. The business may be summed up thus :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |               |     |
|----------|----------------------|------------------|-------------------|---------------|-----|
|          |                      |                  | Cot-ton           | Manu-factures | Net |
| 1821-50  | 30,000               | 150,000          | 2                 | 8             | 6   |
| 1851-60  | 50,000               | 250,000          | 3                 | 9             | 6   |
| 1861-70  | 50,000               | 250,000          | 6                 | 11            | 5   |
| 1871-80  | 90,000               | 500,000          | 7                 | 15            | 8   |
| 1881-87  | 90,000               | 500,000          | 6                 | 13            | 7   |
| 67 years | 310,000              | 1,650,000        | 24                | 56            | 32  |

Denmark and Norway have no cotton factories, but consume imported goods. In ten years ending 1887 the net imports of cotton manufactured goods averaged thus :—

|                   |   |           |
|-------------------|---|-----------|
| Denmark           | £ | 2,200,000 |
| Sweden and Norway | £ | 600,000   |
| Total             | £ | 2,800,000 |

Thus the total consumption of cotton goods in Scandinavia approaches a value of 5 millions sterling per annum.

## HOLLAND

The industry may be briefly summed up as follows :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |               |     |
|----------|----------------------|------------------|-------------------|---------------|-----|
|          |                      |                  | Cot-ton           | Manu-factures | Net |
| 1821-50  | 30,000               | 150,000          | 2                 | 8             | 6   |
| 1851-60  | 25,000               | 150,000          | 2                 | 6             | 4   |
| 1861-70  | 20,000               | 100,000          | 3                 | 5             | 2   |
| 1871-80  | 65,000               | 350,000          | 5                 | 11            | 6   |
| 1881-87  | 70,000               | 400,000          | 4                 | 9             | 5   |
| 67 years | 210,000              | 1,150,000        | 16                | 39            | 23  |

## BELGIUM

The business of 67 years was approximately as follows :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |               |     |
|----------|----------------------|------------------|-------------------|---------------|-----|
|          |                      |                  | Cot-ton           | Manu-factures | Net |
| 1821-30  | 40,000               | 200,000          | 3                 | 16            | 13  |
| 1831-40  | 110,000              | 600,000          | 8                 | 36            | 28  |
| 1841-50  | 120,000              | 700,000          | 7                 | 28            | 21  |
| 1851-60  | 130,000              | 750,000          | 8                 | 25            | 17  |
| 1861-70  | 120,000              | 700,000          | 15                | 29            | 14  |
| 1871-80  | 200,000              | 1,100,000        | 15                | 33            | 18  |
| 1881-87  | 170,000              | 950,000          | 13                | 26            | 13  |
| 67 years | 890,000              | 5,000,000        | 69                | 193           | 124 |

The report for 1835 showed that 60,000 operatives turned out goods to the value of £3,400,000 sterling. At present Belgium produces a little more cotton goods than she requires, the net exports for ten years ending 1887 averaging £200,000.

## SWITZERLAND

The business since 1820 sums up approximately thus :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |                   |     |
|----------|----------------------|------------------|-------------------|-------------------|-----|
|          |                      |                  | Cotton            | Manu-<br>factures | Net |
| 1821-40  | 80,000               | 450,000          | 6                 | 33                | 27  |
| 1841-50  | 90,000               | 500,000          | 5                 | 20                | 15  |
| 1851-60  | 120,000              | 650,000          | 7                 | 21                | 14  |
| 1861-70  | 100,000              | 550,000          | 13                | 24                | 11  |
| 1871-80  | 200,000              | 1,100,000        | 15                | 33                | 18  |
| 1881-87  | 160,000              | 900,000          | 10                | 22                | 12  |
| 67 years | 750,000              | 4,150,000        | 56                | 153               | 97  |

## UNITED STATES

The first cotton-mill was founded at Providence, Rhode

The growth of this manufacture is shown as follows :—

| Year           | No. of Mills | Spindles   | Looms   | Operatives | Cotton, Million Lbs. | Capital, Mill. Stg. | Wages, Mill. Stg. | Cotton, Mill. Stg. | Product, Mill. Stg. |
|----------------|--------------|------------|---------|------------|----------------------|---------------------|-------------------|--------------------|---------------------|
| 1830 . . . . . | 801          | 1,240,000  | 33,000  | 62,000     | 77                   | £ 8                 | £ 2               | £                  | £ 8                 |
| 1840 . . . . . | ...          | 2,200,000  | ...     | 72,000     | 135                  | ...                 | ...               | ...                | 10                  |
| 1850 . . . . . | 1,094        | 3,000,000  | ...     | 92,000     | 288                  | 15                  | 3                 | 7                  | 14                  |
| 1860 . . . . . | 1,091        | 5,240,000  | 126,000 | 122,000    | 390                  | 21                  | 5                 | 12                 | 24                  |
| 1870 . . . . . | 956          | 7,130,000  | 157,000 | 135,000    | 400                  | 25                  | 7                 | 19                 | 30                  |
| 1880 . . . . . | 756          | 10,650,000 | 226,000 | 173,000    | 768                  | 43                  | 9                 | 21                 | 44                  |
| 1888 . . . . . | ...          | 13,500,000 | ...     | ...        | 1,010                | ...                 | ...               | ...                | 60                  |

The industry in the United States may be summed up thus approximately :—

| Period   | Tons Cotton Consumed | Miles Cloth Made | Value, Millions £ |                   |     |
|----------|----------------------|------------------|-------------------|-------------------|-----|
|          |                      |                  | Cotton            | Manu-<br>factures | Net |
| 1821-30  | 160,000              | 900,000          | 11                | 43                | 32  |
| 1831-40  | 490,000              | 2,800,000        | 31                | 109               | 78  |
| 1841-50  | 990,000              | 5,700,000        | 49                | 160               | 111 |
| 1851-60  | 1,550,000            | 8,800,000        | 84                | 218               | 134 |
| 1861-70  | 1,970,000            | 11,200,000       | 223               | 376               | 153 |
| 1871-80  | 2,320,000            | 13,300,000       | 157               | 337               | 180 |
| 1881-87  | 2,780,000            | 16,200,000       | 150               | 320               | 170 |
| 67 years | 10,260,000           | 58,900,000       | 705               | 1,563             | 858 |

In ten years ending 1887, the imports of cotton manufactures averaged £5,800,000, the exports £2,500,000. The consumption between home-made and imported goods in 1887 amounted to £52,300,000 sterling.

The cotton crop proceeds from 11 States, and is given by Ellison as follows :—

|                 | Million Lbs. |      |      |       |       |       |       |
|-----------------|--------------|------|------|-------|-------|-------|-------|
|                 | 1800         | 1820 | 1840 | 1860  | 1870  | 1880  | 1888  |
| North Carolina  | 4            | 10   | 52   | 58    | 58    | 175   | 177   |
| South Carolina  | 16           | 44   | 62   | 141   | 90    | 235   | 267   |
| Georgia . . .   | 10           | 40   | 163  | 281   | 190   | 366   | 463   |
| Virginia . . .  | 5            | 8    | 10   | 22    | 1     | 26    | 6     |
| Tennessee . .   | 1            | 18   | 27   | 119   | 73    | 149   | 176   |
| Alabama . . .   | ...          | 20   | 117  | 396   | 172   | 315   | 456   |
| Mississippi . . | ...          | 10   | 196  | 481   | 226   | 433   | 524   |
| Louisiana . . . | ...          | 10   | 152  | 311   | 140   | 228   | 220   |
| Texas . . . . . | ...          | ...  | ...  | 172   | 140   | 362   | 807   |
| Arkansas . . .  | ...          | ...  | ...  | 151   | 99    | 274   | 297   |
| Florida . . . . | ...          | ...  | 12   | 26    | 16    | 25    | 30    |
| Total crop . .  | 36           | 160  | 797  | 2,158 | 1,205 | 2,588 | 3,423 |
| Exported . . .  | 20           | 128  | 661  | 1,760 | 806   | 1,820 | 2,385 |
| Consumption . . | 16           | 32   | 136  | 398   | 399   | 768   | 1,038 |

The above figures from 1840 to 1870 differ somewhat from those of the Agricultural Report, as on page 42.

Island, in 1790, and power-looms were first used at Waltham in 1815. The consumption of raw cotton in 1810 was 5 million lbs.

Mr. Atkinson's report on the cotton-mills of Massachusetts shows, since 1830, as follows :—

| Year           | Average Wages per Operative | Yards Cloth per Operative | Cost of Work, Pence per 100 Yards |
|----------------|-----------------------------|---------------------------|-----------------------------------|
| 1830 . . . . . | £ 34                        | 8,300                     | 98                                |
| 1840 . . . . . | 36                          | 9,600                     | 91                                |
| 1850 . . . . . | 40                          | 12,200                    | 78                                |
| 1860 . . . . . | 41                          | 21,800                    | 46                                |
| 1870 . . . . . | 49                          | 19,900                    | 59                                |
| 1880 . . . . . | 54                          | 28,000                    | 47                                |
| 1884 . . . . . | 60                          | 28,000                    | 54                                |

## INDIA

The first cotton-mill was established at Bombay in 1851; there were 51 mills in 1876, with 40,000 operatives and 1,240,000 spindles, since which year 46 mills have been built, besides 10 more now in course of construction. In June 1889 there were 124 mills, with 92,000 operatives, 19,000 looms, 2,760,000 spindles, consuming yearly 353 million lbs. The capital employed is about £8,800,000 sterling. Cotton-growing covers an area of 14,530,000 acres, of which 5½ millions in Bombay and Scinde: about 30 per cent. of the crop is exported, the rest consumed in India.

## CRIME

The following table is from Professor Bodio's international records of crime, mostly for the years 1876-84 :—

|               | Number of Crimes, Annual Average          |          |         |         |         |
|---------------|-------------------------------------------|----------|---------|---------|---------|
|               | Murder                                    | Wounding | Robbery | Various | Total   |
| France . . .  | 701                                       | 21,404   | 36,140  | 3,610   | 61,855  |
| Germany . .   | 610                                       | 54,250   | 31,480  | 10,550  | 96,890  |
| Italy . . .   | 2,902                                     | 48,620   | 49,860  | 1,420   | 102,802 |
| Spain . . .   | 1,330                                     | 7,310    | 9,513   | 245     | 18,398  |
| Total . . .   | 5,543                                     | 131,584  | 126,993 | 15,825  | 279,945 |
|               | Number of Criminals Tried, Annual Average |          |         |         |         |
|               | Murder                                    | Wounding | Robbery | Various | Total   |
| England . .   | 294                                       | 902      | 59,220  | 642     | 61,058  |
| Scotland . .  | 40                                        | 510      | 10,840  | 64      | 11,454  |
| Ireland . . . | 96                                        | 506      | 5,260   | 64      | 5,926   |
| U. Kingdom    | 430                                       | 1,918    | 75,320  | 770     | 78,438  |
| France . . .  | 816                                       | 25,780   | 45,940  | 4,340   | 76,876  |
| Germany . .   | 602                                       | 70,502   | 143,810 | 7,780   | 222,694 |
| Hungary . .   | 1,682                                     | 7,920    | 14,520  | 2,452   | 26,574  |
| Italy . . .   | 3,712                                     | 59,210   | 62,910  | 1,540   | 127,372 |
| Spain . . .   | 1,807                                     | 8,985    | 12,430  | 280     | 23,502  |
| Belgium . .   | 117                                       | 11,740   | 7,880   | 925     | 20,662  |
| Total . . .   | 9,166                                     | 186,055  | 362,810 | 18,087  | 576,118 |

|                | Number of Criminals Condemned,<br>Annual Average |               |         |         |         |                | Criminals Condemned Yearly per Million<br>Inhabitants |               |         |         |       |
|----------------|--------------------------------------------------|---------------|---------|---------|---------|----------------|-------------------------------------------------------|---------------|---------|---------|-------|
|                | Murder                                           | Wound-<br>ing | Robbery | Various | Total   |                | Murder                                                | Wound-<br>ing | Robbery | Various | Total |
| England . . .  | 148                                              | 696           | 43,100  | 432     | 44,376  | England . . .  | 6                                                     | 27            | 1,665   | 17      | 1,715 |
| Scotland . . . | 19                                               | 434           | 10,020  | 53      | 10,526  | Scotland . . . | 5                                                     | 116           | 2,680   | 14      | 2,815 |
| Ireland . . .  | 54                                               | 324           | 3,410   | 44      | 3,832   | Ireland . . .  | 11                                                    | 62            | 662     | 9       | 744   |
| U. Kingdom     | 221                                              | 1,454         | 56,530  | 529     | 58,734  | U. Kingdom     | 6                                                     | 40            | 1,615   | 15      | 1,676 |
| France . . .   | 582                                              | 23,910        | 41,830  | 3,880   | 70,202  | France . . .   | 16                                                    | 634           | 1,110   | 102     | 1,862 |
| Germany . . .  | 505                                              | 57,420        | 102,260 | 6,364   | 166,549 | Germany . . .  | 11                                                    | 1,265         | 2,260   | 141     | 3,677 |
| Austria . . .  | 540                                              | 51,160        | ...     | 2,060   | 53,760  | Austria . . .  | 23                                                    | 2,320         | ...     | 92      | 2,435 |
| Hungary . . .  | 1,180                                            | 5,265         | 10,270  | 1,210   | 17,925  | Hungary . . .  | 67                                                    | 298           | 586     | 68      | 1,019 |
| Italy . . .    | 2,720                                            | 44,220        | 47,220  | 1,160   | 95,320  | Italy . . .    | 95                                                    | 1,540         | 1,662   | 41      | 3,338 |
| Spain . . .    | 1,265                                            | 7,180         | 9,920   | 172     | 18,537  | Spain . . .    | 83                                                    | 432           | 592     | 10      | 1,117 |
| Belgium . . .  | 80                                               | 9,710         | 6,110   | 764     | 16,664  | Belgium . . .  | 14                                                    | 1,760         | 1,110   | 136     | 3,020 |
| Total . . .    | 7,093                                            | 200,319       | 274,140 | 16,139  | 497,691 |                |                                                       |               |         |         |       |

The ratios of criminals in the United Kingdom are over-stated by Professor Bodio : see official returns, p. 164.

The number of criminals and offenders in various countries in 1872 per million inhabitants, according to the *Bulletin Statistique*, was as follows :—

|               | Convictions per Million Inhabitants<br>of each Sex |         |            | Detained in all Prisons, per Million<br>Inhabitants of each Sex |         |            |
|---------------|----------------------------------------------------|---------|------------|-----------------------------------------------------------------|---------|------------|
|               | Males                                              | Females | Both Sexes | Males                                                           | Females | Both Sexes |
| England . . . | 800                                                | 108     | 450        | 2,020                                                           | 460     | 1,220      |
| Ireland . . . | 323                                                | 115     | 216        | 950                                                             | 342     | 639        |
| France . . .  | 1,060                                              | 174     | 612        | 2,100                                                           | 422     | 1,260      |
| Russia . . .  | 1,600                                              | 292     | 952        | ...                                                             | ...     | ...        |
| Saxony . . .  | 1,515                                              | 336     | 914        | 2,440                                                           | 512     | 1,455      |
| Austria . . . | 915                                                | 153     | 526        | 1,910                                                           | 274     | 1,070      |
| Italy . . .   | 1,960                                              | 54      | 1,010      | 5,140                                                           | 267     | 2,710      |
| Sweden . . .  | 1,634                                              | 372     | 983        | 2,180                                                           | 470     | 1,296      |
| Denmark . . . | 906                                                | 256     | 575        | 1,390                                                           | 386     | 879        |
| Holland . . . | 858                                                | 82      | 464        | 1,635                                                           | 207     | 910        |
| Belgium . . . | 394                                                | ...     | ...        | 1,207                                                           | ...     | ...        |

The number of days of imprisonment suffered yearly (1872) by 10,000 inhabitants was as follows :—

|               | Males | Females | Both Sexes |
|---------------|-------|---------|------------|
| England . . . | 74    | 17      | 45         |
| Ireland . . . | 36    | 13      | 24         |
| France . . .  | 66    | 15      | 41         |
| Saxony . . .  | 80    | 20      | 54         |
| Italy . . .   | 72    | 20      | 47         |
| Sweden . . .  | 67    | 14      | 40         |
| Denmark . . . | 50    | 13      | 31         |
| Holland . . . | 31    | 3       | 17         |
| Belgium . . . | 41    | 6       | 23         |

The percentage of old offenders in the number of convicts is :—

|                   | Per 100<br>Males | Per 100<br>Females | Both<br>Sexes |
|-------------------|------------------|--------------------|---------------|
| England . . .     | 41               | 63                 | 44            |
| Ireland . . .     | 53               | 76                 | 58            |
| France . . .      | ...              | ...                | 41            |
| Wurtemberg . . .  | ...              | ...                | 50            |
| Russia . . .      | 8                | 6                  | 7             |
| Austria . . .     | 59               | 51                 | 57            |
| Italy . . .       | 26               | 13                 | 24            |
| Spain . . .       | 18               | 11                 | 16            |
| Sweden . . .      | 43               | 32                 | 40            |
| Denmark . . .     | 26               | 24                 | 25            |
| Holland . . .     | ...              | ...                | 80            |
| Belgium . . .     | ...              | ...                | 46            |
| Switzerland . . . | ...              | ...                | 45            |

The latest returns of prison population (not including officials) show as follows :—

|                            | Number  | Per<br>100,000<br>Popula-<br>tion | Of 1000<br>Criminals |         | Year |
|----------------------------|---------|-----------------------------------|----------------------|---------|------|
|                            |         |                                   | Males                | Females |      |
| England . . .              | 25,100  | 90                                | 853                  | 147     | 1887 |
| Scotland . . .             | 2,074   | 52                                | 848                  | 152     | 1887 |
| Ireland . . .              | 3,300   | 66                                | 828                  | 172     | 1881 |
| United Kingdom             | 30,474  | 80                                | 845                  | 155     | ...  |
| France . . .               | 60,836  | 158                               | 876                  | 124     | 1885 |
| Russia . . .               | 108,840 | 120                               | 907                  | 93      | 1887 |
| Austria proper . . .       | 11,224  | 50                                | 870                  | 130     | 1886 |
| Hungary . . .              | 6,278   | 38                                | 905                  | 95      | 1886 |
| Italy . . .                | 68,828  | 230                               | 920                  | 80      | 1887 |
| Belgium . . .              | 5,711   | 98                                | 890                  | 110     | 1887 |
| Holland . . .              | 3,653   | 82                                | 896                  | 104     | 1882 |
| Sweden and<br>Norway . . . | 2,794   | 40                                | 843                  | 157     | 1887 |
| United States . . .        | 59,258  | 120                               | 914                  | 86      | 1880 |
| Canada . . .               | 3,024   | 64                                | ...                  | ...     | 1887 |
| India . . .                | 76,510  | 38                                | 966                  | 34      | 1887 |
| Japan . . .                | 63,828  | 160                               | 950                  | 50      | 1887 |
| Cape Colony . . .          | 2,232   | 150                               | 910                  | 90      | 1888 |
| Jamaica . . .              | 749     | 150                               | ...                  | ...     | 1888 |
| Singapore . . .            | 1,276   | 228                               | ...                  | ...     | 1888 |

The percentage of criminals as regards sex in Germany is 826 males to 174 females, and in Denmark 754 to 246. The prison population of Italy is relatively three times as great as in the United Kingdom.

The percentage of criminals punished yearly for insubordination or misconduct in prison was (1871) :—

|                 | Per 100 Males | Per 100 Females |               | Per 100 Males | Per 100 Females |
|-----------------|---------------|-----------------|---------------|---------------|-----------------|
| Great Britain . | 51            | 31              | Sweden . .    | 8             | 8               |
| France . . .    | 46            | 34              | Denmark . .   | 8             | 4               |
| Prussia . . .   | 21            | 14              | Holland . .   | 24            | 14              |
| Austria . . .   | 44            | 13              | Belgium . .   | 14            | ...             |
| Italy . . .     | 38            | 30              | Switzerland . | 18            | 21              |

The classification of crime differs so much in countries that it is almost impossible to make comparisons. As regards murder, some countries include infanticide and all cases of criminal homicide. Statistics on this subject will be found under the various countries in the following pages. Dr. Lombroso found skulls of Italian criminals had 10 per cent. less than ordinary capacity. Dr. Bordier found the reverse in France. Dugdall considers crime in a manner hereditary, and cites the case of Jukes, an Englishman, who emigrated to North America in 1720, and whose descendants numbered 709 persons, including 76 criminals, 128 prostitutes, 142 vagabonds, and 131 blind, insane, and otherwise infirm.

## UNITED KINGDOM

The annual average of committals from 1840 was as follows :—

| Period        | Annual Average of Committals |          |         |                | Number per 100,000 Inhabitants |          |         |                |
|---------------|------------------------------|----------|---------|----------------|--------------------------------|----------|---------|----------------|
|               | England                      | Scotland | Ireland | United Kingdom | England                        | Scotland | Ireland | United Kingdom |
| 1840-49 . . . | 27,910                       | 4,045    | 25,220  | 57,175         | 164                            | 149      | 302     | 204            |
| 1850-59 . . . | 23,924                       | 3,860    | 13,640  | 41,424         | 126                            | 130      | 227     | 151            |
| 1860-69 . . . | 19,230                       | 3,315    | 5,060   | 27,605         | 91                             | 104      | 91      | 92             |
| 1870-79 . . . | 15,290                       | 3,110    | 4,412   | 22,812         | 64                             | 89       | 84      | 69             |
| 1880-89 . . . | 14,100                       | 2,450    | 3,320   | 19,870         | 50                             | 70       | 66      | 55             |

The annual average of convictions was :—

| Period        | Annual Average |          |         |                | Percentage of Convictions to Committals |          |         |                |
|---------------|----------------|----------|---------|----------------|-----------------------------------------|----------|---------|----------------|
|               | England        | Scotland | Ireland | United Kingdom | England                                 | Scotland | Ireland | United Kingdom |
| 1840-49 . . . | 21,280         | 3,029    | 11,730  | 36,039         | 75                                      | 75       | 47      | 63             |
| 1850-59 . . . | 18,291         | 2,902    | 7,705   | 28,898         | 76                                      | 74       | 58      | 70             |
| 1860-69 . . . | 14,530         | 2,463    | 2,918   | 19,911         | 76                                      | 74       | 58      | 72             |
| 1870-79 . . . | 11,720         | 2,190    | 2,492   | 16,402         | 78                                      | 71       | 56      | 72             |
| 1880-89 . . . | 10,800         | 1,910    | 1,760   | 14,470         | 77                                      | 77       | 53      | 72             |

The number of criminal convictions has declined 37 per cent. in the last 22 years, viz. :—

| Year           | Number of Convictions |          |         |                | Per 100,000 Inhabitants |          |         |                |
|----------------|-----------------------|----------|---------|----------------|-------------------------|----------|---------|----------------|
|                | England               | Scotland | Ireland | United Kingdom | England                 | Scotland | Ireland | United Kingdom |
| 1867 . . . . . | 14,207                | 2,510    | 2,733   | 19,450         | 64                      | 75       | 50      | 63             |
| 1877 . . . . . | 11,542                | 2,009    | 2,300   | 16,251         | 48                      | 60       | 45      | 48             |
| 1889 . . . . . | 9,348                 | 1,723    | 1,225   | 12,296         | 32                      | 43       | 25      | 33             |

The number of offenders of all descriptions in the three kingdoms in 1880 was as follows :—

| Guilty of             | England | Scotland | Ireland | United Kingdom | Per 10,000 Inhabitants |          |         |                |
|-----------------------|---------|----------|---------|----------------|------------------------|----------|---------|----------------|
|                       |         |          |         |                | England                | Scotland | Ireland | United Kingdom |
| Crimes and offences . | 203,600 | 80,900   | 55,100  | 339,600        | 80                     | 220      | 104     | 100            |
| Drunkenness . . .     | 172,900 | 26,900   | 88,000  | 287,800        | 68                     | 73       | 166     | 85             |
| Misdemeanour . . .    | 301,400 | 26,700   | 101,400 | 429,500        | 118                    | 72       | 191     | 126            |
| Total . . . . .       | 677,900 | 134,500  | 244,500 | 1,056,900      | 266                    | 365      | 461     | 311            |

Similar returns for 1887 showed as follows :—

| Guilty of             | England | Scotland | Ireland | United Kingdom | Per 10,000 Inhabitants |          |         |                |
|-----------------------|---------|----------|---------|----------------|------------------------|----------|---------|----------------|
|                       |         |          |         |                | England                | Scotland | Ireland | United Kingdom |
| Crimes and offences . | 163,359 | 73,650   | 34,978  | 271,987        | 58                     | 185      | 70      | 73             |
| Drunkenness . . .     | 162,772 | 17,621   | 79,476  | 259,869        | 58                     | 45       | 160     | 70             |
| Misdemeanour . . .    | 366,683 | 29,133   | 105,209 | 501,025        | 99                     | 75       | 210     | 135            |
| Total . . . . .       | 692,814 | 120,404  | 219,663 | 1,032,881      | 215                    | 305      | 440     | 278            |

In 1887 there were 237 persons tried for wilful murder, viz., 163 in England, 23 in Scotland, and 51 in Ireland, the last being for the most part connected with agrarian troubles.

The prison population in 1880 was as follows :—

|               | England | Scotland | Great Britain |
|---------------|---------|----------|---------------|
| Males . . .   | 23,791  | 2,063    | 25,854        |
| Females . . . | 4,533   | 1,008    | 5,541         |
| Total . . .   | 28,324  | 3,071    | 31,395        |

|               | Per 100,000 Inhabitants |          |               |
|---------------|-------------------------|----------|---------------|
|               | England                 | Scotland | Great Britain |
| Males . . .   | 189                     | 114      | 179           |
| Females . . . | 34                      | 52       | 36            |
| General . . . | 109                     | 83       | 105           |

In England there are 84 male to 16 female offenders ; in Scotland 67 of the former to 33 of the latter.

#### ENGLAND AND WALES

There are no records of the number of criminals before the present century. Henry VIII. put to death 71,400 persons as criminals during his reign, but most of them were either virtuous or unoffending persons. He hanged 300 beggars in one year for soliciting alms. In the first half of the present century 2734 persons were hanged in England.

|                        |      |
|------------------------|------|
| For murder . . .       | 616  |
| For burglary . . .     | 1235 |
| For incendiarism . . . | 147  |
| For forgery, &c. . .   | 736  |
| Total . . .            | 2734 |

Hantute's table of convictions compared with the number of executions shows thus :—

| Period          | Convictions Yearly | Executed Yearly | Per 1000 Convictions |
|-----------------|--------------------|-----------------|----------------------|
| 1801-20 . . . . | 9,600              | 85              | 9.0                  |
| 1821-30 . . . . | 18,100             | 67              | 3.7                  |
| 1831-50 . . . . | 25,000             | 18              | 0.7                  |

In one year (1820) no fewer than 46 persons were hanged for forging Bank of England notes, some of which were afterwards asserted to be good. In twenty years ending 1880 there were 279 criminals executed for murder in the United Kingdom, say fourteen yearly.

The number of homicides in England and Wales in 1880 was as follows :—

|                        | Number of Victims |        |       |
|------------------------|-------------------|--------|-------|
|                        | Male              | Female | Total |
| Willful murder . . . . | 43                | 54     | 97    |
| Manslaughter . . . .   | 115               | 58     | 173   |
| Infanticide . . . .    | 48                | 56     | 104   |
| Total . . . .          | 206               | 168    | 374   |

Judicial statistics for ten years ending December 1888 in England and Wales show thus :—

|                                  |      |
|----------------------------------|------|
| Murders committed . . . .        | 1766 |
| No trace of criminal . . . .     | 1094 |
| Persons tried for murder . . . . | 672  |
| Acquitted . . . .                | 231  |
| Found insane . . . .             | 142  |
| Sentenced to death . . . .       | 299  |
| Executed . . . .                 | 154  |

Of those sentenced to death, fifty were women, of whom only nine were executed.

The total number of offenders punished in 1887 was as follows :—

|                       |         |
|-----------------------|---------|
| Criminals . . . .     | 163,359 |
| Misdemeanants . . . . | 529,455 |
| Total . . . .         | 692,814 |

The nationality of the criminals was as follows :—

|                 |                |
|-----------------|----------------|
| English . . . . | 135,770 = 83.1 |
| Welsh . . . .   | 5,193 = 3.2    |
| Scotch . . . .  | 3,103 = 1.9    |
| Irish . . . .   | 15,928 = 9.7   |
| Foreign . . . . | 3,365 = 2.1    |
| Total . . . .   | 163,359 100.0  |

The nationality of criminals in 1887 compares with similar returns for 25 years down to 1881 thus :—

|                 | 1857-71 | 1872-81 | 1887  |
|-----------------|---------|---------|-------|
| English . . . . | 78.2    | 78.7    | 83.1  |
| Welsh . . . .   | 2.6     | 3.0     | 3.2   |
| Scotch . . . .  | 2.1     | 2.3     | 1.9   |
| Irish . . . .   | 14.4    | 13.6    | 9.7   |
| Foreign . . . . | 2.7     | 2.4     | 2.1   |
| Total . . . .   | 100.0   | 100.0   | 100.0 |

The nature of the crimes for which they were punished in 1887 was :—

|                              |       |                      |         |
|------------------------------|-------|----------------------|---------|
| Murder . . . .               | 163   | Grave crimes . . . . | 5,863   |
| Shooting or stabbing . . . . | 970   | Robbery . . . .      | 47,223  |
| Burglary . . . .             | 3,852 | Assault . . . .      | 75,873  |
| Attacks on women . . . .     | 878   | Sundry . . . .       | 34,400  |
| Total . . . .                | 5,863 | Total . . . .        | 163,359 |

The sentences passed on the criminals were :—

|                         |         |
|-------------------------|---------|
| Death . . . .           | 35      |
| Penal servitude . . . . | 948     |
| Imprisonment . . . .    | 162,376 |
| Total . . . .           | 163,359 |

In 1880 the ratio of ages in local prisons was as follows :—

|                        |       |
|------------------------|-------|
| Under 21 years . . . . | 20.6  |
| 21 to 40 . . . .       | 54.7  |
| 41 to 60 . . . .       | 20.8  |
| Over 60 . . . .        | 3.9   |
| Total . . . .          | 100.0 |

The sexes of all classes of offenders and misdemeanants in 1887 showed :—

|                 |         |
|-----------------|---------|
| Males . . . .   | 568,280 |
| Females . . . . | 124,534 |
| Total . . . .   | 692,814 |

As regards criminals the classification was as follows :—

|                        | Number  | Ratio |
|------------------------|---------|-------|
| Able to read . . . .   | 119,993 | 68.6  |
| Unable to read . . . . | 43,366  | 31.4  |
| Total . . . .          | 163,359 | 100.0 |
| Shopkeepers, &c. . . . | 8,445   | 5.2   |
| Mechanics . . . .      | 23,310  | 14.3  |
| Operatives . . . .     | 48,353  | 29.6  |
| Vagrants, &c. . . .    | 83,251  | 50.9  |
| Total . . . .          | 163,359 | 100.0 |

There are 60 local prisons which admitted in 1887 :—

|                                     | Number  | Ratio |
|-------------------------------------|---------|-------|
| New offenders . . . . .             | 96,112  | 55.6  |
| Convicted up to ten times . . . . . | 62,024  | 36.0  |
| Convicted over ten times . . . . .  | 14,311  | 8.4   |
| Total . . . . .                     | 172,447 | 100.0 |

The proportion of sexes showed as follows :—

|                   | Number  | Ratio |
|-------------------|---------|-------|
| Males . . . . .   | 131,812 | 76.7  |
| Females . . . . . | 40,635  | 23.3  |
| Total . . . . .   | 172,447 | 100.0 |

The record for 1887 showed thus :—

|                                    | Local Prisons | Convict Prisons |
|------------------------------------|---------------|-----------------|
| Served time . . . . .              | 156,406       | 2,038           |
| Committed suicide . . . . .        | 12            | 4               |
| Died . . . . .                     | 117           | 73              |
| Sent to lunatic asylums . . . . .  | 169           | 5               |
| Sent to convict prisons . . . . .  | 1,347         | ...             |
| Remaining, December 31st . . . . . | 14,396        | 6,413           |
| Total . . . . .                    | 172,447       | 8,533           |

Of those who served their time out in convict prisons and were liberated, only 617 really finished the term of sentences, 1421 being released on "ticket-of-leave."

The cost of maintenance and the proceeds of labour in the sixty local and ten convict prisons in 1887 showed :—

|                           | Maintenance | Labour Proceeds |
|---------------------------|-------------|-----------------|
| Local prisons . . . . .   | £ 340,000   | £ 116,000       |
| Convict prisons . . . . . | 245,000     | 145,000         |
| Total . . . . .           | 585,000     | 261,000         |

The mean prison population and the cost per criminal were :—

|                           | Criminals, Number | Cost per Annum     |
|---------------------------|-------------------|--------------------|
| Local prisons . . . . .   | 15,119            | £ s. d.<br>22 10 0 |
| Convict prisons . . . . . | 6,800             | 36 14 0            |
| Total . . . . .           | 21,919            | 26 12 0            |

The cost in 1868 averaged £33 per criminal.

The criminal population of England and Wales is shown thus :—

|                                       |        |
|---------------------------------------|--------|
| In prison . . . . .                   | 21,919 |
| In reformatories . . . . .            | 3,230  |
| Adult criminals at large . . . . .    | 28,730 |
| Juvenile criminals at large . . . . . | 4,870  |
| Total . . . . .                       | 58,749 |

As regards the inmates of convict prisons, 11 per cent. of the men and 34 per cent. of the women have been convicted ten times or upwards. During the year 1889 there were 1512 juvenile convicts sent to reformatories.

## SCOTLAND

The prison population has been as follows :—

| Year           | Males | Females | Total | Per 100,000 Inhabitants |
|----------------|-------|---------|-------|-------------------------|
| 1840 . . . . . | 1,362 | 686     | 2,048 | 80                      |
| 1850 . . . . . | 2,042 | 1,017   | 3,059 | 108                     |
| 1860 . . . . . | 1,106 | 1,059   | 2,165 | 71                      |
| 1870 . . . . . | 1,726 | 1,099   | 2,825 | 83                      |
| 1888 . . . . . | 2,065 | 1,008   | 3,073 | 83                      |
| 1887 . . . . . | ...   | ...     | 2,074 | 52                      |

The record for 1887 was composed thus :—

|                      |        |
|----------------------|--------|
| Murder . . . . .     | 23     |
| Burglary . . . . .   | 948    |
| Robbery . . . . .    | 11,119 |
| Assault, &c. . . . . | 61,560 |

Total . . . . . 73,650

The classification of offences and misdemeanours being different from that used in England and Ireland, the number of crimes and offences appears unduly high. The local and convict prisons admitted in 1887 offenders of both sexes to the number of 46,108; the cost of prison maintenance reaching £127,000, or about £40 per inmate.

## IRELAND

The record for 1887 showed as follows for persons tried :—

|                       |     |                       |         |
|-----------------------|-----|-----------------------|---------|
| Murder . . . . .      | 51  | Crimes . . . . .      | 1,213   |
| Shooting, &c. . . . . | 171 | Offences . . . . .    | 33,765  |
| Burglary . . . . .    | 135 | Drunkenness . . . . . | 79,476  |
| Assault, &c. . . . .  | 856 | Sundry . . . . .      | 105,209 |

Crimes . . . . . 1,213 Total . . . . . 219,663

The following classifications are given :—

|                          | Per Cent. |       |
|--------------------------|-----------|-------|
|                          | Men       | Women |
| Able to read . . . . .   | 70        | 53    |
| Unable to read . . . . . | 30        | 47    |
| Total . . . . .          | 100       | 100   |

There are 4 convict and 26 local prisons, the admissions to which showed :—

|                                    | Per Cent. |       |
|------------------------------------|-----------|-------|
|                                    | Men       | Women |
| New offenders . . . . .            | 47        | 24    |
| Convicted up to 10 times . . . . . | 37        | 23    |
| Convicted over 10 times . . . . .  | 16        | 53    |
| Total . . . . .                    | 100       | 100   |

The maintenance of the prisons in 1887 cost £124,000.

## FRANCE

Official returns since 1826 are as follows :—

| Period            | Convictions Yearly for Crime | For Crimes and Offences |
|-------------------|------------------------------|-------------------------|
| 1831-40 . . . . . | 5,486                        | 55,100                  |
| 1841-50 . . . . . | 4,970                        | 97,200                  |
| 1851-60 . . . . . | 3,572                        | 119,500                 |
| 1871-80 . . . . . | 3,650                        | 132,500                 |
| 1883-87 . . . . . | 3,105                        | 206,400                 |

The number of crimes and offences compared with population was as follows :—

| Period  | Per Million Inhabitants |          |       | Convicts in Penal Servitude |                         |
|---------|-------------------------|----------|-------|-----------------------------|-------------------------|
|         | Crimes                  | Offences | Total | Number                      | Per Million Inhabitants |
| 1830-40 | 230                     | 2,080    | 2,310 | 16,820                      | 511                     |
| 1841-60 | 195                     | 3,610    | 3,805 | 18,330                      | 515                     |
| 1861-70 | 110                     | 3,870    | 3,980 | 18,210                      | 489                     |
| 1871-80 | 120                     | 4,320    | 4,440 | 16,630                      | 458                     |
| 1883-87 | 81                      | 5,390    | 5,471 | 13,380                      | 352                     |

The annual ratio of some of the graver crimes is shown as follows :—

| Period            | Arson | Infanti-<br>cide | Assault<br>on Girls | Murder |
|-------------------|-------|------------------|---------------------|--------|
| 1826-30 . . . . . | 87    | 120              | 136                 | 10     |
| 1831-40 . . . . . | 122   | 184              | 196                 | 64     |
| 1841-50 . . . . . | 194   | 247              | 383                 | 80     |
| 1851-60 . . . . . | 225   | 347              | 638                 | 116    |
| 1861-70 . . . . . | 202   | 343              | 744                 | 116    |
| 1871-80 . . . . . | 180   | 296              | 758                 | 70     |

Before 1860 the law against criminal assaults regarded only girls under eleven, but since that year it was extended to the age of thirteen. The above return of murders only comprises those of the most aggravated character; the real number is much greater. In 1880, for example, there were 645 murders and homicides, against 808 in the United Kingdom.

The classification of criminals since 1826 has been as follows :—

| Period            | Sexes per Cent. |         | Percentage of Age |       |         | Per Cent. |           | Per Cent.    |        |
|-------------------|-----------------|---------|-------------------|-------|---------|-----------|-----------|--------------|--------|
|                   | Males           | Females | Under 21          | 21-40 | Over 40 | Married   | Unmarried | Able to Read | Unable |
| 1826-30 . . . . . | 81              | 19      | 18                | 58    | 24      | ...       | ...       | 39           | 61     |
| 1831-40 . . . . . | 83              | 17      | 17                | 60    | 23      | 42        | 58        | 42           | 58     |
| 1841-50 . . . . . | 83              | 17      | 17                | 57    | 26      | 45        | 55        | 48           | 52     |
| 1851-60 . . . . . | 82              | 18      | 16                | 56    | 28      | 47        | 53        | 56           | 44     |
| 1861-70 . . . . . | 84              | 16      | 16                | 54    | 30      | 46        | 54        | 61           | 39     |
| 1871-80 . . . . . | 83              | 17      | 18                | 54    | 28      | 45        | 55        | 67           | 33     |

The proportion of "recidivists" or old offenders has increased as follows :—

|                |              |                |              |
|----------------|--------------|----------------|--------------|
| 1826 . . . . . | 10 per cent. | 1870 . . . . . | 41 per cent. |
| 1850 . . . . . | 28 "         | 1880 . . . . . | 48 "         |

The number of criminals to each class in society was as follows :—

|                     | Per Million Persons |        |
|---------------------|---------------------|--------|
|                     | Male                | Female |
| Unmarried . . . . . | 400                 | 90     |
| Married . . . . .   | 200                 | 30     |
| Widowed . . . . .   | 240                 | 40     |

In eight years ending 1868 the number to each class was as follows :—

| Criminals per Million           |     |                                 |     |
|---------------------------------|-----|---------------------------------|-----|
| Husband with child . . . . .    | 186 | Widower with child . . . . .    | 237 |
| Wife with child . . . . .       | 32  | Widow with child . . . . .      | 44  |
| Husband without child . . . . . | 287 | Widower without child . . . . . | 262 |
| Wife without child . . . . .    | 60  | Widow without child . . . . .   | 35  |

The following table shows the total number of persons tried :—

| Year | Tried         |         |           | Con-<br>demned | Per 1000<br>Population |
|------|---------------|---------|-----------|----------------|------------------------|
|      | Law<br>Courts | Police  | Total     |                |                        |
| 1831 | 372,000       | 105,000 | 477,000   | 426,000        | 13.3                   |
| 1840 | 373,000       | 228,000 | 601,000   | 549,000        | 16.1                   |
| 1850 | 486,000       | 306,000 | 792,000   | 736,000        | 21.0                   |
| 1860 | 431,000       | 509,000 | 940,000   | 894,000        | 24.2                   |
| 1870 | 337,000       | 234,000 | 571,000   | 549,000        | 14.4                   |
| 1880 | 598,000       | 424,000 | 1,022,000 | 995,000        | 26.5                   |
| 1885 | 675,000       | 467,000 | 1,142,000 | 1,111,000      | 29.4                   |

The prison population at various dates was thus :—

| Year           | Galleys | Prisons | Refor-<br>matories | Total  |
|----------------|---------|---------|--------------------|--------|
| 1852 . . . . . | 6,800   | 47,000  | 6,400              | 60,200 |
| 1860 . . . . . | 3,600   | 42,100  | 8,600              | 54,300 |
| 1870 . . . . . | 2,600   | 33,600  | 6,800              | 43,000 |
| 1880 . . . . . | 11,700  | 40,600  | 9,000              | 61,300 |
| 1884 . . . . . | 13,400  | 40,000  | 7,000              | 60,400 |

The prison population in 1885 was :—

|                   |        |                          |        |
|-------------------|--------|--------------------------|--------|
| Males . . . . .   | 53,299 | Prisons . . . . .        | 47,456 |
| Females . . . . . | 7,537  | Penal colonies . . . . . | 13,380 |

Total . . 60,836 Total . . 60,836

In December 1880 there were 13,927 at the galleys, viz. :—

|                               |       |   |                |
|-------------------------------|-------|---|----------------|
| First offenders . . . . .     | 2,891 | = | 20.9 per cent. |
| Up to 3 convictions . . . . . | 4,733 | = | 34.0 "         |
| Over 3 convictions . . . . .  | 6,303 | = | 45.1 "         |

Total . . 13,927 = 100.0 "

|                     | Per Million |         |
|---------------------|-------------|---------|
|                     | Males       | Females |
| Unmarried . . . . . | 590         | 100     |
| Married . . . . .   | 200         | 35      |
| Widowed . . . . .   | 270         | 50      |

| Age               | Per Million |         |            |
|-------------------|-------------|---------|------------|
|                   | Males       | Females | Both Sexes |
| 7-21 . . . . .    | 230         | 50      | 90         |
| 21-40 . . . . .   | 370         | 75      | 240        |
| 41-60 . . . . .   | 180         | 35      | 130        |
| Over 60 . . . . . | 100         | 10      | 60         |

The general ratio was 100 criminals in rural population and 220 in towns per million inhabitants.

The rank and position of French criminals was :—

|                          |             |
|--------------------------|-------------|
| Men of fortune . . . . . | 6 per cent. |
| Servants . . . . .       | 13 "        |
| Tradesmen . . . . .      | 14 "        |
| Artisans, &c. . . . .    | 67 "        |

100.0 " \*

Criminals under sixteen years of age in 1859 were :—

| Guilty of          | Boys  | Girls | Total |
|--------------------|-------|-------|-------|
| Murder . . . .     | 6     | 3     | 9     |
| Wounding . . . .   | 269   | 50    | 319   |
| Robbery, &c. . . . | 6,887 | 1,706 | 8,593 |
| Total . . . .      | 7,162 | 1,759 | 8,921 |

The number of criminals of all ages tried annually in the term of five years ending 1880 was as follows :—

Males . . . 3,682 = 200 per million of population  
Females . . . 692 = 40 " " "

Total . 4,374 = 120 " " "

In a period of 47 years ending 1880 sentence of death was passed on 1775 murderers, of whom 205 were women ; they were as follows :—

|                 |     |                  |       |
|-----------------|-----|------------------|-------|
| 1833-40 . . . . | 326 | 1861-70 . . . .  | 193   |
| 1841-50 . . . . | 485 | 1871-80 . . . .  | 272   |
| 1851-60 . . . . | 499 | 48 years . . . . | 1,775 |

The ratio of age of the above murderers was :—

|                  | Number | Ratio |
|------------------|--------|-------|
| Under 21 . . . . | 106    | 6.2   |
| 21-40 . . . .    | 1,182  | 66.2  |
| 41-60 . . . .    | 420    | 24.1  |
| Over 60 . . . .  | 67     | 3.5   |
| Total . . . .    | 1,775  | 100.0 |

The condemned persons belonged to the following States :—

| Against              | Prussia | Bavaria | Saxony | Wurtemberg | Baden  | Duchies | Total   |
|----------------------|---------|---------|--------|------------|--------|---------|---------|
| Person . . . .       | 79,839  | 24,147  | 5,786  | 4,968      | 3,891  | 15,388  | 134,019 |
| Property . . . .     | 97,864  | 20,433  | 10,675 | 5,636      | 5,170  | 18,745  | 158,523 |
| Public order . . . . | 39,011  | 5,084   | 3,976  | 3,013      | 1,435  | 7,939   | 60,458  |
| Total . . . .        | 216,714 | 49,664  | 20,437 | 13,617     | 10,496 | 42,072  | 353,000 |

Of the above offenders 102,800, say 29 per cent., had been previously convicted. The number of persons convicted compared with the population over twelve years of age gave the following ratios per 10,000 :—

| Against          | 1882 | 1883 | 1884 | 1885 | 1886 |
|------------------|------|------|------|------|------|
| Person . . . .   | 34   | 35   | 39   | 39   | 41   |
| Property . . . . | 53   | 51   | 51   | 49   | 48   |
| Order . . . .    | 16   | 16   | 17   | 17   | 18   |
| Total . . . .    | 103  | 102  | 107  | 105  | 107  |

The ratios in 1886 were as follows :—

|                     | Offenders per 10,000 Population over 12 Years Old ; against— |          |       |       |
|---------------------|--------------------------------------------------------------|----------|-------|-------|
|                     | Person                                                       | Property | Order | Total |
| Prussia . . . .     | 40                                                           | 49       | 20    | 109   |
| Bavaria . . . .     | 62                                                           | 53       | 13    | 128   |
| Saxony . . . .      | 26                                                           | 47       | 18    | 91    |
| Wurtemberg . . . .  | 35                                                           | 40       | 22    | 97    |
| Baden . . . .       | 34                                                           | 45       | 13    | 92    |
| Hesse . . . .       | 39                                                           | 32       | 12    | 83    |
| Mecklenburg . . . . | 20                                                           | 31       | 16    | 67    |
| Oldenburg . . . .   | 20                                                           | 34       | 14    | 68    |
| Brunswick . . . .   | 31                                                           | 43       | 15    | 89    |
| Hamburg . . . .     | 28                                                           | 61       | 25    | 114   |
| Bremen . . . .      | 35                                                           | 72       | 36    | 143   |
| Alsace . . . .      | 41                                                           | 32       | 25    | 98    |

Only 1067 were actually executed, 671 being commuted, and 37 dying in prison, for the most part of suicide.

In the year 1885 the number of prisoners sent to hospital was equal to 67 per cent. among the men and 60 per cent. among women.

Prison diet consists of 5 oz. of bread and 13 oz. vegetables and potatoes daily, with a meat ration of 4 oz. twice a week.

#### GERMANY

In 1886 the criminal records of the Empire were :—

|                      | Accused | Condemned | Under 18 Years of Age | Condemned |        |
|----------------------|---------|-----------|-----------------------|-----------|--------|
|                      |         |           |                       | Men       | Women  |
| Murder . . . .       | 337     | 298       | 18                    | 231       | 67     |
| Assault . . . .      | 56,785  | 42,586    | 720                   | 31,188    | 11,398 |
| Burglary . . . .     | 19,325  | 15,983    | 509                   | 13,880    | 2,103  |
| Robbery . . . .      | 104,206 | 88,816    | 17,266                | 64,668    | 24,148 |
| Fraud . . . .        | 17,628  | 13,609    | 1,195                 | 10,825    | 2,784  |
| Perjury . . . .      | 3,330   | 2,948     | 345                   | 2,425     | 523    |
| Embezzlement . . . . | 18,025  | 14,731    | 1,514                 | 11,639    | 3,092  |
| Various . . . .      | 213,171 | 174,029   | 9,946                 | 156,578   | 17,451 |
| Total . . . .        | 432,807 | 353,000   | 31,513                | 291,434   | 61,566 |

It appears that women formed less than 18 per cent. of the total number of convicts, but as regards robbery their ratio was much higher, namely, 27 per cent. Convicts under 18 years of age were 9 per cent. of the total.

In a term of 14 years ending 1852 the number of criminals and offenders in Saxony averaged yearly as follows :—

| Age             | Per Million Persons |         |
|-----------------|---------------------|---------|
|                 | Males               | Females |
| 16-20 . . . .   | 900                 | 180     |
| 21-30 . . . .   | 2,100               | 400     |
| 31-40 . . . .   | 2,300               | 600     |
| 41-50 . . . .   | 1,300               | 250     |
| 51-60 . . . .   | 800                 | 160     |
| Over 60 . . . . | 300                 | 60      |

The number of male criminals and offenders per million male inhabitants rose as follows in Saxony :—

| Period          | Per Million |
|-----------------|-------------|
| 1832-44 . . . . | 1,170       |
| 1845-54 . . . . | 1,280       |
| 1872 . . . .    | 1,515       |

In a period of 10 years ending 1879, the number of criminals found guilty of wilful murder in Prussia, Bavaria, and Austria was :—

|                 | Number | Per Annum |
|-----------------|--------|-----------|
| Prussia . . . . | 484    | 48        |
| Bavaria . . . . | 245    | 25        |
| Austria . . . . | 816    | 82        |
| Total . . . .   | 1,945  | 195       |



Only 23 of the above assassins suffered death, namely, 16 in Austria and 7 in Bavaria.

In Prussia during a term of 14 years ending 1874 the number of murders yearly committed showed as compared with population thus:—

Committed by men . . . 30 per million  
Committed by women . . . 10 „ „

## RUSSIA

Statistics for 1887 may be summed up thus:—

| Before               | Convictions | Sentence            |           |
|----------------------|-------------|---------------------|-----------|
| Senate . . . . .     | 10,800      | Exile . . . . .     | 20,590    |
| Supreme courts . . . | 172,100     | Penal servitude . . | 58,020    |
| Divisional . . . . . | 207,000     | Hard labour, &c. .  | 1,097,190 |
| Police . . . . .     | 785,900     |                     |           |
| Total . . . . .      | 1,175,800   | Total . . . . .     | 1,175,800 |

The prison population was made up thus:—

|                   |                  |                     |
|-------------------|------------------|---------------------|
| Convicts . 82,570 | Males . 98,710   | In Russia . 75,350  |
| Untried . 26,270  | Females . 10,130 | Siberia, &c. 33,490 |
| Total . 108,840   | Total . 108,840  | Total . 108,840     |

## AUSTRIA

The criminal records of Austria proper in 1886 showed:—

| For       | Supreme Court |           | For        | Police and other Courts |           |
|-----------|---------------|-----------|------------|-------------------------|-----------|
|           | Accused       | Condemned |            | Accused                 | Condemned |
| Murder .  | 379           | 274       | Fraud .    | 25,030                  | 13,083    |
| Assault . | 5,702         | 4,787     | Theft .    | 184,182                 | 124,521   |
| Fraud .   | 3,920         | 2,689     | Assault .  | 148,186                 | 98,843    |
| Robbery . | 17,383        | 15,054    | Disorder . | 130,753                 | 87,881    |
| Various . | 8,750         | 6,902     | Sundry .   | 549,952                 | 234,115   |
| Total .   | 36,134        | 29,706    | Total .    | 1,038,103               | 558,443   |

The sentences passed on the condemned persons were:—

| Supreme Court          |        | Lower Courts       |         |
|------------------------|--------|--------------------|---------|
| Death . . . . .        | 5      | 8 to 30 days . . . | 83,663  |
| Galley for life . . .  | 27     | Over 30 days . . . | 13,254  |
| 5 to 20 years . . . .  | 574    | Fined . . . . .    | 368,311 |
| 1 to 5 years . . . . . | 4,147  | Reprimanded . . .  | 980     |
| Under 12 months . .    | 24,953 | ... . . . .        | ...     |
| Total . . . . .        | 29,706 | Total . . . . .    | 558,443 |

The age and condition of the greater criminals were:—

|                    | Age    |                   | Males  | Females | Total  |
|--------------------|--------|-------------------|--------|---------|--------|
| Under 20 . . . . . | 5,287  | Single . . . . .  | 15,113 | 2,318   | 17,431 |
| 20 to 30 . . . . . | 12,370 | Married . . . . . | 9,767  | 1,553   | 11,320 |
| 30 to 60 . . . . . | 11,328 | Widowed . . . . . | 572    | 383     | 955    |
| Over 60 . . . . .  | 721    | ... . . . .       | ...    | ...     | ...    |
| Total . . . . .    | 29,706 | Total . . . . .   | 25,452 | 4,254   | 29,706 |

The reformatories contain 3046 boys and 279 girls. The ratios of sex among all persons condemned in 1886 were:—

|                   | Supreme Court | Lower Courts |
|-------------------|---------------|--------------|
| Males . . . . .   | 85.7          | 81.5         |
| Females . . . . . | 14.3          | 18.5         |
| Total . . . . .   | 100.0         | 100.0        |

Prison population was as follows:—

|                   | 1882   | 1886   |
|-------------------|--------|--------|
| Males . . . . .   | 10,139 | 9,785  |
| Females . . . . . | 1,598  | 1,439  |
| Total . . . . .   | 11,737 | 11,224 |

There are 21 penal establishments, of which six are for women.

## HUNGARY

The records for 1886 show the number of persons condemned as follows:—

|                      | Males   | Females | Total   |
|----------------------|---------|---------|---------|
| Supreme court . . .  | 17,817  | 2,393   | 20,210  |
| Divisional . . . . . | 44,113  | 14,891  | 59,004  |
| Correctional . . . . | 29,583  | 6,501   | 36,084  |
| Police . . . . .     | 220,026 | 35,032  | 255,058 |
| Total . . . . .      | 311,539 | 58,817  | 370,356 |

The crimes tried and sentences passed at the Supreme Court were:—

| Crimes             | Sentences                       |
|--------------------|---------------------------------|
| Murder . . . . .   | 190                             |
| Incendiarism . . . | 132                             |
| Assault . . . . .  | 2,502                           |
| Robbery . . . . .  | 4,905                           |
| Various . . . . .  | 12,481                          |
| Total . . . . .    | 20,210                          |
|                    | Death . . . . . 20              |
|                    | Imprisonment over 5 years . 771 |
|                    | „ 1 to 5 years . 5,119          |
|                    | „ 6 to 12 months . 5,505        |
|                    | „ under 6 months . 8,795        |
| Total . . . . .    | 20,210                          |

The convictions in the Divisional and Correctional Courts were as follows:—

|                    | Divisional |         |        | Correctional |         |        |
|--------------------|------------|---------|--------|--------------|---------|--------|
|                    | Males      | Females | Total  | Males        | Females | Total  |
| Theft . . . . .    | 8,830      | 2,021   | 10,851 | 7,766        | 1,455   | 9,221  |
| Assault . . . . .  | 7,304      | 541     | 7,845  | 6,114        | 406     | 6,520  |
| Disorder . . . . . | 9,256      | 1,815   | 11,071 | 7,224        | 1,204   | 8,428  |
| Fraud . . . . .    | 2,552      | 580     | 3,132  | 1,156        | 221     | 1,380  |
| Various . . . . .  | 16,171     | 9,934   | 26,105 | 7,323        | 3,212   | 10,535 |
| Total . . . . .    | 44,113     | 14,891  | 59,004 | 29,583       | 6,501   | 36,084 |

The sentences passed in the above courts and that of Police were:—

| Imprisonment         | Divisional | Correctional | Police  | Total   |
|----------------------|------------|--------------|---------|---------|
| Over 6 months . . .  | ...        | 885          | ...     | 885     |
| 1 to 6 months . . .  | 3,340      | 2,656        | 2,230   | 8,226   |
| 14 to 30 days . . .  | 7,934      | 6,242        | 5,080   | 19,256  |
| 1 to 14 days . . . . | 24,505     | 26,301       | 44,850  | 95,656  |
| Fined . . . . .      | 23,225     | ...          | 134,400 | 157,625 |
| Reprimanded . . . .  | ...        | ...          | 68,498  | 68,498  |
| Total . . . . .      | 59,004     | 36,084       | 255,058 | 350,146 |

Criminals condemned at the Supreme Court and offenders at the Divisional Court were classified thus according to age:—

| Age                | Criminals |         |        | Offenders |         |        |
|--------------------|-----------|---------|--------|-----------|---------|--------|
|                    | Males     | Females | Total  | Males     | Females | Total  |
| Under 20 . . . . . | 2,574     | 393     | 2,967  | 4,592     | 1,333   | 5,925  |
| 20-30 . . . . .    | 7,923     | 925     | 8,848  | 19,054    | 6,129   | 25,183 |
| 30-60 . . . . .    | 6,950     | 1,013   | 7,963  | 19,654    | 7,192   | 26,846 |
| Over 60 . . . . .  | 370       | 62      | 432    | 813       | 237     | 1,050  |
| Total . . . . .    | 17,817    | 2,393   | 20,210 | 44,113    | 14,891  | 59,004 |



## CRIME

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## CRIME

## SCANDINAVIA

The convictions for 1881 and 1887 show as follows :—

| Tried for    | Sweden |        | Norway |        |
|--------------|--------|--------|--------|--------|
|              | 1881   | 1887   | 1881   | 1887   |
| Crimes . .   | 9,608  | 9,157  | 3,318  | 2,932  |
| Offences . . | 48,598 | 45,404 | 25,369 | 22,664 |
| Total . .    | 58,206 | 54,561 | 28,687 | 25,596 |
| Males . .    | 54,792 | 51,491 | 26,684 | 23,639 |
| Females . .  | 3,414  | 3,070  | 2,003  | 1,957  |
| Total . .    | 58,206 | 54,561 | 28,687 | 25,596 |

Denmark showed 3525 persons convicted of crime in 1885, including 872 women.

## EGYPT

The records for five years are as follows :—

|                | 1888   | Average<br>Four Years |
|----------------|--------|-----------------------|
| Crimes . . .   | 1,144  | 530                   |
| Offences . . . | 32,236 | 17,710                |
| Total . . .    | 33,380 | 18,240                |

The above does not include Upper Egypt.

## AUSTRALIA

Official returns are as follows :—

| Year        | Per 10,000 Pop. |                 |                  |
|-------------|-----------------|-----------------|------------------|
|             | Arrests         | Com-<br>mittals | Con-<br>victions |
| 1861. . . . | 53,570          | 2,745           | 1,656            |
| 1871. . . . | 68,800          | 2,617           | 1,557            |
| 1881. . . . | 117,130         | 3,361           | 2,024            |
| 1888. . . . | 130,250         | 3,630           | 2,212            |

Arrests include all manner of crimes and offences ; com-  
mittals only crimes. The several colonies showed thus  
in 1888 :—

|                   | Arrests | Com-<br>mittals | Con-<br>victions | Convictions<br>per 10,000<br>Population |
|-------------------|---------|-----------------|------------------|-----------------------------------------|
| New South Wales   | 42,580  | 1,423           | 915              | 8.3                                     |
| Victoria . . .    | 37,310  | 873             | 557              | 5.1                                     |
| Queensland . .    | 18,430  | 538             | 275              | 7.0                                     |
| South Australia . | 6,600   | 190             | 91               | 2.9                                     |
| New Zealand . .   | 10,170  | 499             | 308              | 5.1                                     |
| Tasmania . . .    | 6,160   | 107             | 66               | 4.4                                     |
| Total . . .       | 130,250 | 3,630           | 2,212            | 6.2                                     |

## CANADA

The records for 1888 may be summed up thus :—

| Crimes        |       | Offences       |        |
|---------------|-------|----------------|--------|
| Accused . .   | 5,867 | Fined . .      | 31,276 |
| Acquitted . . | 2,120 | Imprisoned . . | 2,626  |
| Convicted . . | 3,747 | Total . .      | 33,902 |

The prison population in December 1887 was 3024,  
or 64 per 100,000 inhabitants.

## CAPE COLONY

The official returns for 1888 were as follows :—

| Prison Population |       |             |       | Convictions in 1888 |        |
|-------------------|-------|-------------|-------|---------------------|--------|
| Coloured . .      | 2,012 | Males . .   | 2,032 | Crimes . .          | 1,408  |
| White . . .       | 220   | Females . . | 200   | Offences . .        | 39,172 |
| Total . . .       | 2,232 | Total . . . | 2,232 | Total . .           | 40,580 |

The prison population was equal to 150 per 100,000  
inhabitants.

## INDIA

The returns for all classes of criminals and offenders  
in 1887 compare with those for 1881 as follows :—

|                    | 1881      | 1887      |
|--------------------|-----------|-----------|
| Tried . . . .      | 1,172,000 | 1,377,000 |
| Acquitted . . . .  | 527,000   | 703,000   |
| Convicted . . . .  | 645,000   | 674,000   |
| Fined . . . .      | 468,000   | 500,000   |
| Imprisoned . . . . | 177,000   | 174,000   |

The prison population in the same years was as  
follows :—

|                 | 1881   | 1887   |
|-----------------|--------|--------|
| Males . . . .   | 83,429 | 73,940 |
| Females . . . . | 3,888  | 2,570  |
| Total . . . .   | 87,317 | 76,510 |

There were 15,259 criminals whipped in 1887, against  
75,200 in 1878. The prison population is only 38 per  
100,000 inhabitants, or less than half the ratio that pre-  
vails in the United Kingdom.

## ALGERIA

In 1886 the records showed as follows :—

| Convictions             | Sentence |
|-------------------------|----------|
| Criminal courts . . . . | 12,408   |
| Police courts . . . .   | 59,981   |
| Total . . . .           | 72,389   |
| Imprisonment . . . .    | 17,502   |
| Fine . . . .            | 54,887   |
| Total . . . .           | 72,389   |

## MINOR COLONIES

|                 | Crimes | Offences | Total  | Per<br>Million<br>Inhab. | Year |
|-----------------|--------|----------|--------|--------------------------|------|
| Mauritius . . . | 129    | 13,707   | 13,836 | 381                      | 1888 |
| Jamaica . . .   | 2,412  | 8,119    | 10,531 | 176                      | 1887 |
| Singapore . . . | 227    | 36,111   | 36,338 | 179                      | 1888 |
| Hong-Kong . .   | 99     | 9,932    | 10,031 | 478                      | 1888 |
| Ceylon . . . .  | 1,330  | 12,961   | 14,291 | 48                       | 1886 |

## UNITED STATES

The number of offenders in prison at the following  
dates, according to Census returns, was :—

| Year         | Number | Per Million<br>Inhabitants |
|--------------|--------|----------------------------|
| 1850 . . . . | 6,737  | 292                        |
| 1860 . . . . | 19,086 | 610                        |
| 1870 . . . . | 32,901 | 875                        |
| 1880 . . . . | 59,258 | 1,180                      |

The Census of 1880 classified offenders as follows :—

|             |        |            |        |             |        |
|-------------|--------|------------|--------|-------------|--------|
| Males . . . | 54,190 | Americans  | 46,348 | White . . . | 42,280 |
| Females . . | 5,068  | Foreigners | 12,910 | Coloured    | 16,978 |
| Total . . . | 59,258 | Total      | 59,258 | Total . . . | 59,258 |

The *Chicago Tribune* gives the following statistics of murders and executions in the United States since 1884 :—

| Year        | Murders | Legal Executions | Lynchings |
|-------------|---------|------------------|-----------|
| 1884 . . .  | 3,377   | 103              | 219       |
| 1885 . . .  | 1,808   | 108              | 181       |
| 1886 . . .  | 1,499   | 83               | 133       |
| 1887 . . .  | 2,335   | 79               | 123       |
| 1888 . . .  | 2,184   | 87               | 144       |
| 1889 . . .  | 3,567   | 98               | 175       |
| Total . . . | 14,770  | 558              | 975       |

There are four States in which capital punishment is not allowed: Maine, Rhode Island, Wisconsin, and Michigan.

### CURIOSITIES

Prices paid in recent times have been for—

*Books*.—Mr. Quaritch paid £4900 for a Latin Psalter, and £3900 for a Mazarin Bible at Syson Hall sale.

*Coins*.—In 1889 a silver penny of William the Conqueror fetched £32, a half-crown of Elizabeth £44, and one of Charles I. £35 sterling.

*Letters and Autographs*.—In 1889 at public sale in London the following prices were paid :—

|                   |    |                 |    |                 |    |
|-------------------|----|-----------------|----|-----------------|----|
| Addison . . .     | 5  | Franklin . . .  | 6  | Pope . . .      | 16 |
| Bolingbroke . .   | 9  | Gibbon . . .    | 6  | Quincey . . .   | 7  |
| Bruce (trav.) . . | 6  | Hood . . .      | 6  | Richelieu . . . | 5  |
| Burke . . .       | 8  | Hume . . .      | 5  | Schiller . . .  | 6  |
| Burns . . .       | 18 | Irving, W. . .  | 2  | Scott . . .     | 17 |
| Byron . . .       | 7  | Johnson, S. . . | 6  | Shelley . . .   | 19 |
| Carlyle . . .     | 4  | Kean, E. . .    | 9  | Smollett . . .  | 8  |
| Coleridge . . .   | 3  | Keats . . .     | 14 | Sterne . . .    | 8  |
| Dickens . . .     | 9  | Lamb, C. . .    | 6  | Tennyson . . .  | 7  |
| Disraeli . . .    | 5  | Nelson . . .    | 11 | Thackeray . .   | 6  |
| Elizabeth, Q. . . | 11 | Newton . . .    | 64 | Washington . .  | 10 |
| Elliot, G. . .    | 11 | Poe, E. . .     | 6  |                 |    |

*Manuscripts*.—That of Burns's poem "Scots Wha Hae" was sold in London in May 1890 for £70; that of Wilkie Collins's novel "The Woman in White," on the same occasion, for £320.

*Postage Stamps*.—A collection was sold in Paris in 1880 for £8000 sterling; the purchaser was said to be the Duchess Galiera, otherwise known for her princely donations to the poor of Genoa.

*Violins*.—At a sale in Paris in 1887 the following prices were paid :—

|                    | Date | £     |
|--------------------|------|-------|
| Stradivarius . . . | 1689 | 760   |
| " . . .            | 1691 | 480   |
| Ruggeri . . .      | 1650 | 1,280 |

A violin bow by Tourte fetched £44 sterling.

*Walking-Stick*.—That of George IV. was sold at auction in July 1890 for £18 sterling.

### CUSTOMS

The following table shows the customs revenue of nations :—

|                       | Amount, £   |             | Ratio to Total Commerce |           | Shillings per Inhabitant |           |
|-----------------------|-------------|-------------|-------------------------|-----------|--------------------------|-----------|
|                       | 1871-80     | 1887        | 1871-80                 | 1887      | 1871-80                  | 1887      |
|                       |             |             | Per Cent                | Per Cent. | Per Cent.                | Per Cent. |
| United Kingdom . . .  | 20,110,000  | 19,900,000  | 3.36                    | 3.10      | 12.5                     | 10.5      |
| France . . .          | 10,320,000  | 13,400,000  | 3.78                    | 4.45      | 5.7                      | 7.0       |
| Germany . . .         | 8,640,000   | 12,700,000  | 3.28                    | 4.10      | 4.0                      | 4.5       |
| Russia . . .          | 10,525,000  | 10,200,000  | 10.02                   | 10.20     | 3.0                      | 2.2       |
| Austria . . .         | 2,610,000   | 3,000,000   | 2.38                    | 2.40      | 1.5                      | 1.6       |
| Italy . . .           | 5,080,000   | 10,000,000  | 5.80                    | 11.10     | 3.6                      | 6.5       |
| Spain . . .           | 4,410,000   | 3,600,000   | 12.10                   | 6.00      | 5.5                      | 4.2       |
| Portugal . . .        | 1,790,000   | 3,400,000   | 15.22                   | 41.00     | 8.5                      | 18.0      |
| Belgium . . .         | 780,000     | 1,200,000   | 0.87                    | 1.10      | 3.1                      | 4.0       |
| Holland . . .         | 415,000     | 400,000     | 0.36                    | 0.20      | 2.2                      | 2.0       |
| Denmark . . .         | 950,000     | 1,200,000   | 5.42                    | 5.70      | 10.0                     | 12.0      |
| Sweden and Norway . . | 2,390,000   | 2,600,000   | 7.05                    | 6.10      | 7.6                      | 8.0       |
| Europe . . .          | 68,020,000  | 81,600,000  | 3.90                    | 4.10      | 4.4                      | 5.5       |
| United States . . .   | 26,030,000  | 44,600,000  | 13.10                   | 15.00     | 12.0                     | 15.0      |
| Canada . . .          | 2,715,000   | 4,800,000   | 8.23                    | 11.20     | 13.0                     | 18.5      |
| Australia . . .       | 4,250,000   | 7,500,000   | 6.11                    | 7.50      | 34.0                     | 45.0      |
| Brazil . . .          | 6,680,000   | 9,200,000   | 20.32                   | 21.00     | 13.1                     | 15.0      |
| India . . .           | 2,220,000   | 3,200,000   | 2.33                    | 2.20      | 0.2                      | 0.3       |
| Egypt . . .           | 780,000     | 800,000     | 4.51                    | 4.00      | 4.0                      | 4.0       |
| The world . . .       | 110,695,000 | 151,700,000 | 5.10                    | 5.60      | 3.9                      | 5.2       |

The British customs revenue is shown as follows :—

| Year       | £          | Ratio to Commerce | Shillings per Inhabitant |
|------------|------------|-------------------|--------------------------|
| 1580 . . . | 14,000     | 0.42              | 0.1                      |
| 1614 . . . | 178,000    | 4.22              | 0.8                      |
| 1684 . . . | 530,000    | 6.70              | 2.0                      |
| 1720 . . . | 1,555,000  | 10.40             | 5.1                      |
| 1800 . . . | 6,788,000  | 10.02             | 13.0                     |
| 1827 . . . | 21,009,000 | 23.10             | 18.1                     |
| 1844 . . . | 24,277,000 | 20.05             | 18.0                     |
| 1866 . . . | 21,276,000 | 4.95              | 14.2                     |
| 1881 . . . | 19,184,000 | 3.36              | 11.4                     |
| 1888 . . . | 20,100,000 | 2.93              | 10.5                     |

In 1883 the incidence of British Customs was estimated :—

|                  | Amount Paid by Classes |           |            | Total Amount |
|------------------|------------------------|-----------|------------|--------------|
|                  | Rich                   | Middle    | Working    |              |
|                  | £                      | £         | £          | £            |
| Spirits . . .    | 170,000                | 1,350,000 | 2,703,000  | 4,223,000    |
| Wine . . .       | 455,000                | 885,000   | 26,000     | 1,366,000    |
| Tea . . .        | 160,000                | 1,288,000 | 2,526,000  | 3,974,000    |
| Coffee . . .     | 11,000                 | 90,000    | 212,000    | 313,000      |
| Fruits . . .     | 35,000                 | 285,000   | 190,000    | 510,000      |
| Tobacco, &c. . . | 370,000                | 2,890,000 | 5,620,000  | 8,890,000    |
| Total . . .      | 1,201,000              | 6,808,000 | 11,267,000 | 19,276,000   |

The incidence per head on each class was as follows:—

|               | Rich |    |    | Middle |    |    | Working |    |    | Total |    |    |
|---------------|------|----|----|--------|----|----|---------|----|----|-------|----|----|
|               | £    | s. | d. | £      | s. | d. | £       | s. | d. | £     | s. | d. |
| Spirits . . . | 0    | 2  | 11 | 0      | 2  | 10 | 0       | 2  | 3  | 0     | 2  | 5  |
| Wine . . .    | 0    | 7  | 10 | 0      | 1  | 10 | 0       | 0  | 0  | 0     | 0  | 10 |
| Tea . . .     | 0    | 2  | 9  | 0      | 2  | 9  | 0       | 2  | 1  | 0     | 2  | 3  |
| Coffee . . .  | 0    | 0  | 2  | 0      | 0  | 2  | 0       | 0  | 2  | 0     | 0  | 2  |
| Fruits . . .  | 0    | 0  | 7  | 0      | 0  | 7  | 0       | 0  | 2  | 0     | 0  | 3  |
| Tobacco, &c.  | 0    | 6  | 5  | 0      | 5  | 6  | 0       | 5  | 0  | 0     | 5  | 5  |
| Total . . .   | 1    | 0  | 8  | 0      | 13 | 8  | 0       | 9  | 8  | 0     | 11 | 4  |

The working classes form 69 per cent., the middle class 28 per cent., and the upper class 3 per cent. of the population of the United Kingdom, as appears from the Probate returns (1877).

The duties *ad valorem* on English cotton goods in foreign countries in 1884 were:—

|                              | Per Cent. |                            | Per Cent. |
|------------------------------|-----------|----------------------------|-----------|
| China, Guiana . . .          | 5         | Belgium, Greece . . .      | 15        |
| India, Queensland . . .      | 5         | Holland, New Zealand . . . | 15        |
| Turkey . . .                 | 7         | Austria . . .              | 18        |
| Cape, Feejee . . .           | 10        | Canada . . .               | 20        |
| Tasmania, S. Australia . . . | 10        | Victoria, Chili . . .      | 25        |
| Uruguay, W. Indies . . .     | 12        | Brazil . . .               | 30        |
| Newfoundland . . .           | 13        | Argentine Republic . . .   | 40        |

The following table shows the British tariff at various epochs:—

| DUTIES EXPRESSED IN SHILLINGS |      |      |      |      |
|-------------------------------|------|------|------|------|
|                               | 1787 | 1819 | 1884 | 1888 |
| Bacon, cwt.                   | 47   | 56   | 28   | ...  |
| Books . . .                   | 20   | 100  | 100  | ...  |
| Butter . . .                  | 23   | 20   | 20   | ...  |
| Cheese . . .                  | 13   | 10   | 10   | ...  |
| Cocoa . . .                   | 240  | 280  | 19   | 9    |
| Coffee . . .                  | 224  | 280  | 140  | 14   |
| Cotton . . .                  | 9    | 9    | 3    | ...  |
| Eggs . . .                    | 3    | 6    | 6    | ...  |
| Paper . . .                   | 7    | 94   | 28   | ...  |
| Potatoes . . .                | 4    | 2    | 2    | ...  |
| Rice . . .                    | 7    | 15   | 15   | ...  |
| Soap . . .                    | 44   | 90   | 90   | ...  |
| Spirits, gallon . . .         | 6    | 22   | 22   | 10   |
| Sugar, cwt.                   | 27   | 63   | 63   | ...  |
| Tallow . . .                  | ...  | 3    | 1    | ...  |
| Tea . . .                     | 45   | 224  | 240  | 56   |
| Tobacco . . .                 | 392  | 448  | 784  | 392  |
| Wine, gallon . . .            | 5    | 14   | 53   | 1    |
| Wool, cwt.                    | ...  | 56   | 9    | ...  |

Blanks in the above table signify duty-free. Grain was subject to import-dues on a sliding scale, according to market prices in Great Britain, down to 1846.

The customs revenue of China in 1883 reached 6 millions sterling.

## D.

## DAIRY

The subjoined table shows approximately the number of milch cows and the dairy products of various countries. English cows average 400 gallons of milk yearly, and the butter produce of a good cow is about 140 lbs. In Holland each cow gives about 80 lbs. of butter, and 180 lbs. cheese. New York cows average 330 lbs. cheese, Canadian 280 lbs., and Parma 300 lbs. It takes a gallon of milk to make a pound of cheese.

|                      | Milch Cows | Tons Butter and Cheese | Value of Butter, Cheese, and Milk |
|----------------------|------------|------------------------|-----------------------------------|
|                      |            |                        | £                                 |
| United Kingdom . . . | 3,400,000  | 110,000                | 31,200,000                        |
| France . . .         | 4,800,000  | 160,000                | 47,000,000                        |
| Germany . . .        | 6,800,000  | 200,000                | 55,300,000                        |
| Russia . . .         | 7,900,000  | 220,000                | 47,700,000                        |
| Austria . . .        | 4,600,000  | 130,000                | 34,500,000                        |
| Italy . . .          | 1,600,000  | 50,000                 | 14,400,000                        |
| Spain . . .          | 1,000,000  | 30,000                 | 9,300,000                         |
| Portugal . . .       | 200,000    | 6,000                  | 1,900,000                         |
| Sweden . . .         | 800,000    | 40,000                 | 7,000,000                         |
| Norway . . .         | 400,000    | 10,000                 | 3,000,000                         |
| Denmark . . .        | 900,000    | 60,000                 | 6,400,000                         |
| Holland . . .        | 900,000    | 80,000                 | 9,500,000                         |
| Belgium . . .        | 600,000    | 30,000                 | 5,000,000                         |
| Switzerland . . .    | 400,000    | 40,000                 | 4,800,000                         |
| Roumania . . .       | 1,200,000  | 20,000                 | 4,800,000                         |
| Servia . . .         | 300,000    | 10,000                 | 2,000,000                         |
| Turkey . . .         | 300,000    | 10,000                 | 2,000,000                         |
| Europe . . .         | 36,100,000 | 1,206,000              | 285,800,000                       |
| United States . . .  | 15,900,000 | 610,000                | 79,000,000                        |
| Canada . . .         | 1,300,000  | 100,000                | 7,500,000                         |
| Australia . . .      | 600,000    | 30,000                 | 4,000,000                         |
| Total . . .          | 53,900,000 | 1,946,000              | 376,300,000                       |

The following table shows approximately the consumption of butter and cheese in various countries:—

|                     | Consumption, Tons |          |           | Lbs. per Inhab. |
|---------------------|-------------------|----------|-----------|-----------------|
|                     | Native            | Imported | Total     |                 |
| U. Kingdom . . .    | 110,000           | 218,000  | 328,000   | 19              |
| France . . .        | 145,000           | ...      | 145,000   | 8               |
| Germany . . .       | 185,000           | ...      | 185,000   | 8               |
| Russia . . .        | 210,000           | ...      | 210,000   | 5               |
| Austria . . .       | 130,000           | ...      | 130,000   | 7               |
| Italy . . .         | 50,000            | 10,000   | 60,000    | 4               |
| Spain . . .         | 30,000            | ...      | 30,000    | 3               |
| Portugal . . .      | 6,000             | 1,000    | 7,000     | 3               |
| Sweden . . .        | 25,000            | ...      | 25,000    | 11              |
| Norway . . .        | 10,000            | 3,000    | 13,000    | 14              |
| Denmark . . .       | 20,000            | ...      | 20,000    | 22              |
| Holland . . .       | 30,000            | ...      | 30,000    | 15              |
| Belgium . . .       | 30,000            | 10,000   | 40,000    | 15              |
| Switzerland . . .   | 15,000            | ...      | 15,000    | 11              |
| Roumania, &c.       | 40,000            | ...      | 40,000    | 9               |
| Europe . . .        | 1,036,000         | 242,000  | 1,278,000 | 9               |
| United States . . . | 560,000           | ...      | 560,000   | 20              |
| Canada . . .        | 50,000            | ...      | 50,000    | 22              |
| Australia . . .     | 30,000            | ...      | 30,000    | 17              |
| Total . . .         | 1,676,000         | 242,000  | 1,918,000 | 11              |

## UNITED KINGDOM

The annual production of milk in the United Kingdom exceeds 400 gallons per cow, say 1400 million gallons, of which 400 millions are used for making butter and cheese, 600 millions as milk for the table at an average of 16 gallons per inhabitant, and 400 millions in fattening calves, &c. The consumption in London is only a little over 6 gallons per inhabitant. At the churning competition of England in 1889 the average production of

butter was 4 per cent., that is 2½ gallons milk to one pound of butter.

The consumption of dairy products in the United Kingdom has been approximately as follows:—

| Year | Native Butter and Cheese, Tons | Tons Imported |        |         | Total Consumption | Lbs. per Inhabitant |
|------|--------------------------------|---------------|--------|---------|-------------------|---------------------|
|      |                                | Butter        | Cheese | Total   |                   |                     |
| 1850 | 90,000                         | 15,000        | 15,000 | 30,000  | 120,000           | 10                  |
| 1860 | 95,000                         | 37,000        | 26,000 | 63,000  | 158,000           | 12                  |
| 1870 | 100,000                        | 52,000        | 46,000 | 98,000  | 198,000           | 14                  |
| 1880 | 105,000                        | 104,000       | 79,000 | 183,000 | 288,000           | 18                  |
| 1889 | 110,000                        | 136,000       | 82,000 | 218,000 | 328,000           | 19                  |

The item of imported butter in 1889 was made up of 83,000 tons real butter and 53,000 tons margarine.

A farm in Cheshire of fifty milch cows has been found to produce 9½ tons of cheese, equal to 420 lbs. per cow, valued at £750 sterling. The farm covered 200 acres, of which 15 were under wheat, and the farmer's balance-sheet was as follows:—

|                  | Payments, £ |            | Receipts, £ |  |
|------------------|-------------|------------|-------------|--|
| Rent . . . .     | 400         | Cheese . . | 750         |  |
| Taxes . . . .    | 60          | Pigs . . . | 150         |  |
| Labour (7 hands) | 296         | Sheep . .  | 133         |  |
| Sundries . . .   | 268         | Wheat . .  | 180         |  |
| Total . . .      | 1,024       | Total . .  | 1,213       |  |

This left the farmer a balance of £189 to support his family.

#### FRANCE

In 1883 the production of milk reached 1660 million gallons, or about 350 per cow. French economists think that about 40 per cent., say 660 million gallons, is used for making butter and cheese, the product of which would be about 360 million lbs. or 160,000 tons. The value of milk is officially put down at 7d. per gallon.

#### UNITED STATES

The following table shows the official returns of butter and cheese for various years, and an estimate for 1890:—

| Year | Milk Cows  | Cheese, Tons | Butter, Tons | Total Product | Consumed | Lbs. per Inhab. |
|------|------------|--------------|--------------|---------------|----------|-----------------|
| 1850 | 6,400,000  | 47,000       | 138,000      | 185,000       | 178,000  | 16              |
| 1860 | 8,600,000  | 46,000       | 205,000      | 251,000       | 237,000  | 17              |
| 1870 | 10,100,000 | 68,000       | 228,000      | 296,000       | 268,000  | 15              |
| 1880 | 12,030,000 | 121,000      | 347,000      | 468,000       | 394,000  | 17              |
| 1890 | 15,950,000 | 160,000      | 450,000      | 610,000       | 560,000  | 20              |

#### DEATHS

The death-rates per 1000 inhabitants yearly were:—

|                  | 1861-70 | 1871-80 |
|------------------|---------|---------|
| England . . . .  | 22.6    | 21.3    |
| Scotland . . . . | 22.1    | 21.8    |
| Ireland . . . .  | 16.8    | 18.3    |
| United Kingdom   | 21.4    | 21.0    |
| France . . . .   | 22.9    | 24.3    |
| Germany . . . .  | ...     | 27.1    |
| Austria Proper . | 30.4    | 31.2    |
| Hungary . . . .  | 38.7    | 40.1    |
| Italy . . . .    | 30.1    | 29.7    |
| Spain . . . .    | ...     | 29.7    |
| Belgium . . . .  | 22.8    | 22.6    |
| Holland . . . .  | 24.9    | 24.3    |
| Denmark . . . .  | 20.1    | 19.3    |
| Sweden . . . .   | 20.0    | 18.4    |
| Switzerland . .  | 24.0    | 24.0    |

The rates in the principal cities (1878-80) were:—

|                 |      |                |      |                |      |
|-----------------|------|----------------|------|----------------|------|
| Alexandria . .  | 34.2 | Dublin . . .   | 27.1 | New York . .   | 26.2 |
| Amsterdam . .   | 23.7 | Edinburgh . .  | 20.2 | Nottingham .   | 22.4 |
| Baltimore . .   | 21.1 | Geneva . . .   | 21.2 | Oldham . . .   | 22.8 |
| Belfast . . .   | 28.2 | Glasgow . . .  | 25.3 | Palermo . . .  | 28.5 |
| Berlin . . . .  | 27.6 | Hamburg . . .  | 24.5 | Paris . . . .  | 28.6 |
| Birmingham .    | 19.8 | Havana . . .   | 45.7 | Philadelphia . | 20.3 |
| Bombay . . .    | 33.7 | Hull . . . .   | 23.8 | Portsmouth .   | 19.7 |
| Bordeaux . . .  | 26.7 | Leeds . . . .  | 21.6 | Quebec . . .   | 22.9 |
| Boston . . . .  | 23.5 | Leicester . .  | 21.8 | Rio Janeiro .  | 39.4 |
| Bradford . . .  | 21.1 | Leipzig . . .  | 26.1 | Rome . . . .   | 26.8 |
| Breslau . . . . | 32.5 | Liverpool . .  | 26.7 | Rotterdam . .  | 23.3 |
| Brighton . . .  | 19.0 | London . . .   | 21.1 | Rouen . . . .  | 31.3 |
| Bristol . . . . | 19.6 | Lyons . . . .  | 24.7 | St. Louis . .  | 19.3 |
| Brooklyn . . .  | 25.6 | Madras . . .   | 38.8 | St. Petersburg | 51.4 |
| Brussels . . .  | 23.9 | Madrid . . .   | 37.4 | San Francisco  | 18.1 |
| Bucharest . .   | 24.5 | Manchester .   | 25.5 | Sheffield . .  | 21.6 |
| Buda-Pesth . .  | 35.2 | Marseilles . . | 28.0 | Stockholm . .  | 24.7 |
| Buenos Ayres .  | 30.1 | Mexico . . .   | 30.9 | Sunderland . . | 20.9 |
| Calcutta . . .  | 31.1 | Milan . . . .  | 30.6 | Turin . . . .  | 25.6 |
| Chicago . . . . | 27.2 | Montreal . .   | 37.2 | Valparaiso . . | 64.6 |
| Christiania . . | 18.8 | Munich . . .   | 32.8 | Venice . . . . | 22.7 |
| Copenhagen . .  | 22.1 | Naples . . .   | 33.1 | Vera Cruz . .  | 70.5 |
| Cork . . . .    | 26.1 | Newcastle . .  | 21.8 | Vienna . . .   | 29.0 |
| Dresden . . .   | 25.4 | New Orleans .  | 22.7 | Zurich . . .   | 25.6 |

The following table shows the death-rate for ages per 1000 inhabitants:—

|                 | Under 5 | 5-10 | 10-25 | 25-45 | 45-55 | 55-65 | 65-75 |
|-----------------|---------|------|-------|-------|-------|-------|-------|
| England . . .   | 63.6    | 6.6  | 5.5   | 10.2  | 17.4  | 31.8  | 64.3  |
| United States   | 58.8    | 10.1 | 5.4   | 10.8  | 17.6  | 27.2  | 51.4  |
| France . . . .  | 75.6    | 9.2  | 8.8   | 12.7  | 16.6  | 28.3  | 66.3  |
| Prussia . . . . | ...     | 9.2  | 6.4   | 11.5  | 18.6  | 33.0  | 64.5  |
| Austria . . .   | 111.7   | 9.8  | 6.6   | 11.3  | 21.1  | 41.5  | 92.8  |
| Switzerland .   | ...     | 8.5  | 6.3   | 11.6  | 19.3  | 38.4  | 82.5  |
| Italy . . . .   | 110.6   | 11.6 | 7.8   | 11.7  | 17.3  | 33.1  | 70.1  |
| Spain . . . .   | 106.2   | 11.7 | 8.8   | 12.9  | 23.8  | 42.0  | 95.0  |
| Belgium . . .   | 68.1    | 12.7 | 8.1   | 12.9  | 19.0  | 32.3  | 74.5  |
| Sweden . . .    | 57.6    | 8.0  | 4.8   | 8.2   | 14.7  | 27.4  | 62.6  |
| Medium . . .    | 81.5    | 9.7  | 6.8   | 11.4  | 18.5  | 33.5  | 72.4  |

Under another classification of ages the *Demography* (1877) gives as follows:—

|                 | Under 1 | 1-5  | 5-10 | 10-20 | 20-40 | Over 60 | General | Period  |
|-----------------|---------|------|------|-------|-------|---------|---------|---------|
| Norway . . . .  | 116     | 29.1 | 7.2  | 6.5   | 11.0  | 58.9    | 18.4    | 1860-68 |
| Sweden . . . .  | 150     | 31.1 | 6.9  | 5.9   | 12.6  | 70.0    | 20.5    | 1861-70 |
| Denmark . . .   | 150     | 23.4 | 7.4  | 6.8   | 13.0  | 71.4    | 21.6    | 1860-69 |
| France . . . .  | 216     | 34.7 | 7.2  | 8.6   | 12.9  | 68.2    | 22.8    | 1856-65 |
| England . . .   | 191     | 36.7 | 6.7  | 8.2   | 15.7  | 67.9    | 22.8    | 1857-66 |
| Belgium . . .   | 186     | 36.1 | 7.7  | 8.5   | 13.4  | 79.1    | 23.3    | 1851-60 |
| Holland . . .   | 211     | 36.4 | 8.0  | 8.0   | 15.4  | 70.1    | 25.0    | 1860-68 |
| Prussia . . . . | 220     | 46.0 | 7.2  | 7.0   | 15.4  | 72.7    | 25.8    | "       |
| Bavaria . . .   | 372     | 39.8 | 7.4  | 8.8   | 17.3  | 81.5    | 29.5    | "       |
| Spain . . . .   | 226     | 67.8 | 8.2  | 8.2   | 17.0  | 95.0    | 29.6    | "       |
| Italy . . . .   | 254     | 53.7 | 8.2  | 8.1   | 17.4  | 88.2    | 30.1    | "       |
| Austria . . .   | 303     | 40.6 | 7.3  | 8.1   | 17.1  | 84.0    | 32.4    | "       |
| Russia . . . .  | 312     | 54.7 | 9.7  | 8.6   | 19.4  | 78.1    | 36.8    | "       |
| Scotland . . .  | 157     | 34.4 | 7.1  | 9.3   | 16.4  | 67.9    | 22.3    | "       |
| Portugal . . .  | 139     | 36.0 | 7.2  | 6.0   | 13.5  | 80.0    | ...     | 1860-62 |

According to the above table the countries which have the highest and the lowest death-rates at various ages are as follow:—

| Age, Years       | Highest  | Lowest  |
|------------------|----------|---------|
| Under 1 . . . .  | Bavaria  | Norway  |
| 1-5 . . . .      | Spain    | Denmark |
| 5-15 . . . .     | Russia   | England |
| 15-30 . . . .    | Scotland | Sweden  |
| 30-60 . . . .    | Russia   | Norway  |
| Over 60 . . . .  | Spain    | Norway  |
| All ages . . . . | Russia   | Norway  |

## DEATH-RATE AT CERTAIN AGES PER 1000

| Age | England | Scotland | France | Belgium | Spain | Switzerland | Austria Proper | Prussia | Sweden | Italy |
|-----|---------|----------|--------|---------|-------|-------------|----------------|---------|--------|-------|
| 5   | 12.5    | 13.0     | 11.2   | 11.4    | 30.4  | 13.2        | 28.3           | 17.5    | 15.9   | 23.3  |
| 10  | 4.3     | 5.7      | 5.4    | 4.3     | 7.9   | 4.5         | 8.5            | 6.5     | 6.2    | 8.0   |
| 15  | 4.1     | 5.9      | 5.4    | 4.6     | 6.4   | 4.4         | 6.2            | 4.6     | 4.5    | 5.9   |
| 20  | 5.5     | 7.3      | 7.4    | 6.4     | 7.7   | 6.3         | 8.7            | 6.1     | 5.2    | 7.8   |
| 25  | 6.9     | 8.2      | 9.1    | 7.7     | 8.2   | 7.7         | 11.6           | 7.6     | 6.1    | 8.8   |
| 30  | 8.2     | 8.9      | 9.8    | 8.6     | 9.0   | 8.7         | 11.5           | 9.7     | 6.8    | 8.8   |
| 35  | 10.2    | 10.4     | 10.1   | 9.4     | 10.1  | 10.1        | 11.4           | 10.7    | 7.4    | 9.7   |
| 40  | 11.9    | 11.6     | 11.1   | 11.1    | 12.3  | 11.9        | 14.1           | 10.9    | 8.7    | 10.4  |
| 45  | 14.7    | 14.5     | 12.6   | 12.4    | 14.1  | 14.0        | 16.2           | 11.6    | 9.9    | 12.9  |
| 50  | 17.0    | 16.9     | 15.5   | 16.3    | 16.3  | 17.5        | 22.3           | 18.0    | 13.0   | 15.4  |
| 55  | 24.4    | 23.9     | 20.1   | 19.4    | 18.0  | 24.4        | 27.1           | 24.3    | 15.5   | 22.0  |
| 60  | 30.4    | 29.6     | 28.3   | 30.5    | 31.1  | 36.1        | 40.9           | 37.1    | 24.9   | 29.8  |
| 65  | 47.2    | 45.3     | 41.5   | 39.4    | 41.6  | 52.3        | 52.0           | 50.1    | 32.3   | 48.2  |
| 70  | 60.7    | 57.9     | 62.9   | 66.6    | 70.4  | 79.4        | 84.3           | 80.3    | 56.9   | 71.8  |
| 75  | 96.7    | 92.9     | 92.2   | 88.4    | 93.5  | 116.2       | 110.2          | 107.1   | 76.5   | 112.6 |
| 80  | 125.5   | 121.0    | 135.6  | 143.5   | 124.1 | 167.5       | 172.9          | 151.1   | 130.0  | 146.4 |

The percentage of death at various ages was as follows :—

| Age          | France  | Prussia | Austria Pr. | Italy   | Switzerland | Belgium | Holland | Sweden  | Brussels |
|--------------|---------|---------|-------------|---------|-------------|---------|---------|---------|----------|
|              | 1866-72 | 1868-73 | 1868-74     | 1872-74 | 1873-74     | 1865-74 | 1870-73 | 1868-73 | ...      |
| Under 1 year | 18.5    | 21.1    | 32.4        | 26.4    | 26.3        | 20.2    | 29.1    | 21.3    | 21.3     |
| 1-5          | 11.0    | 24.5    | 16.1        | 21.3    | 7.7         | 16.7    | 15.7    | 13.6    | 18.1     |
| 5-10         | 3.2     | 4.1     | 4.2         | 4.5     | 2.5         | 4.7     | 3.9     | 4.7     | 3.7      |
| 10-15        | 1.8     | 1.9     | 1.9         | 2.1     | 1.6         | 2.1     | 2.2     | 2.1     | 1.9      |
| 15-20        | 2.6     | 2.3     | 2.1         | 2.2     | 2.1         | 2.4     | 2.3     | 2.2     | 2.0      |
| 20-30        | 7.7     | 5.7     | 5.4         | 5.6     | 5.8         | 6.3     | 5.6     | 5.3     | 17.1     |
| 30-40        | 6.5     | 6.1     | 5.7         | 5.2     | 6.5         | 6.1     | 5.9     | 5.9     |          |
| 40-50        | 6.9     | 6.8     | 6.3         | 5.5     | 7.3         | 6.3     | 6.0     | 7.2     | 8.9      |
| 50-60        | 8.7     | 7.9     | 7.8         | 6.5     | 9.4         | 7.2     | 6.8     | 8.4     | 8.7      |
| 60-70        | 12.6    | 9.5     | 8.7         | 8.8     | 13.7        | 10.8    | 8.8     | 10.8    | 8.8      |
| 70-80        | 13.9    | 7.5     | 6.7         | 8.1     | 12.5        | 11.4    | 9.6     | 12.6    | 9.5      |
| 80-90        | 6.0     | 2.4     | 2.4         | 3.4     | 4.4         | 5.2     | 3.8     | 5.4     |          |
| Over 90      | 0.6     | 0.2     | 0.3         | 0.4     | 0.3         | 0.6     | 0.3     | 0.5     | ...      |
| Total        | 100.0   | 100.0   | 100.0       | 100.0   | 100.0       | 100.0   | 100.0   | 100.0   | 100.0    |

The ratio of deaths in quarters of the year was :—

|              | Quarter ending |           |            |           | Year  |
|--------------|----------------|-----------|------------|-----------|-------|
|              | March 31st     | June 30th | Sept. 30th | Dec. 31st |       |
| Amsterdam    | 298            | 235       | 223        | 244       | 1,000 |
| Berlin       | 216            | 252       | 325        | 207       | 1,000 |
| Birmingham   | 306            | 224       | 235        | 235       | 1,000 |
| Bombay       | 288            | 257       | 233        | 222       | 1,000 |
| Buda-Pesth   | 272            | 278       | 238        | 212       | 1,000 |
| Calcutta     | 254            | 233       | 207        | 306       | 1,000 |
| Christiania  | 260            | 220       | 237        | 283       | 1,000 |
| Dublin       | 318            | 224       | 200        | 258       | 1,000 |
| Edinburgh    | 294            | 240       | 222        | 244       | 1,000 |
| Florence     | 292            | 242       | 233        | 233       | 1,000 |
| Glasgow      | 319            | 245       | 216        | 220       | 1,000 |
| Hamburg      | 294            | 232       | 252        | 222       | 1,000 |
| Liverpool    | 303            | 225       | 232        | 240       | 1,000 |
| London       | 287            | 231       | 226        | 256       | 1,000 |
| Manchester   | 297            | 237       | 224        | 242       | 1,000 |
| Milan        | 308            | 295       | 231        | 166       | 1,000 |
| Munich       | 282            | 261       | 231        | 225       | 1,000 |
| Naples       | 306            | 245       | 228        | 221       | 1,000 |
| New York     | 258            | 228       | 301        | 213       | 1,000 |
| Paris        | 272            | 266       | 229        | 233       | 1,000 |
| Philadelphia | 262            | 253       | 270        | 215       | 1,000 |
| Rome         | 286            | 182       | 246        | 286       | 1,000 |
| Turin        | 322            | 250       | 205        | 223       | 1,000 |
| Vienna       | 280            | 277       | 304        | 239       | 1,000 |

Deaths according to seasons \* are as follows :—

|                | Spring | Summer | Autumn | Winter | Total |
|----------------|--------|--------|--------|--------|-------|
| Algiers        | 142    | 235    | 353    | 270    | 1,000 |
| Amsterdam      | 260    | 227    | 241    | 272    | 1,000 |
| Austria        | 288    | 205    | 227    | 280    | 1,000 |
| Bagdad         | 270    | 213    | 257    | 260    | 1,000 |
| Belgium        | 279    | 218    | 220    | 283    | 1,000 |
| Berlin         | 250    | 239    | 248    | 263    | 1,000 |
| Biscay         | 223    | 206    | 238    | 333    | 1,000 |
| Brussels       | 274    | 235    | 225    | 266    | 1,000 |
| Constantinople | 263    | 238    | 231    | 268    | 1,000 |
| Denmark        | 288    | 230    | 215    | 267    | 1,000 |
| England        | 275    | 240    | 238    | 247    | 1,000 |
| France         | 260    | 227    | 243    | 270    | 1,000 |
| Geneva         | 265    | 218    | 240    | 277    | 1,000 |
| Germany        | 277    | 230    | 237    | 256    | 1,000 |
| Holland        | 220    | 227    | 315    | 238    | 1,000 |
| Iceland        | 201    | 339    | 252    | 208    | 1,000 |
| Italy          | 230    | 257    | 253    | 260    | 1,000 |
| Lisbon         | 240    | 239    | 250    | 271    | 1,000 |
| London         | 250    | 237    | 241    | 272    | 1,000 |
| Norway         | 288    | 219    | 223    | 270    | 1,000 |
| Paris          | 312    | 262    | 216    | 210    | 1,000 |
| Rome           | 204    | 228    | 262    | 306    | 1,000 |
| St. Petersburg | 294    | 264    | 216    | 226    | 1,000 |
| Scotland       | 275    | 228    | 220    | 277    | 1,000 |
| Sicily         | 194    | 312    | 257    | 237    | 1,000 |
| Sweden         | 283    | 215    | 222    | 280    | 1,000 |
| Switzerland    | 271    | 238    | 216    | 275    | 1,000 |

\* In the following table Spring is supposed to begin March 1st, Summer June 1st, Autumn September 1st, and Winter December 1st.

The ratio according to months, taking the year as 1200, are :—

| Month               | London | France | Germany | Sweden | Denmark | Scotland | Belgium | Italy | Greece | Finland |
|---------------------|--------|--------|---------|--------|---------|----------|---------|-------|--------|---------|
| January . . . . .   | 103    | 114    | 104     | 114    | 113     | 112      | 119     | 109   | 105    | 96      |
| February . . . . .  | 99     | 112    | 100     | 115    | 106     | 114      | 122     | 106   | 102    | 105     |
| March . . . . .     | 124    | 110    | 113     | 116    | 119     | 113      | 121     | 100   | 91     | 114     |
| April . . . . .     | 91     | 107    | 109     | 115    | 114     | 111      | 112     | 94    | 90     | 129     |
| May . . . . .       | 84     | 95     | 110     | 108    | 113     | 105      | 101     | 81    | 85     | 138     |
| June . . . . .      | 99     | 88     | 94      | 92     | 96      | 96       | 93      | 85    | 97     | 115     |
| July . . . . .      | 89     | 87     | 94      | 83     | 91      | 90       | 84      | 108   | 107    | 95      |
| August . . . . .    | 95     | 97     | 89      | 82     | 88      | 87       | 85      | 115   | 105    | 85      |
| September . . . . . | 113    | 102    | 94      | 82     | 83      | 84       | 89      | 106   | 104    | 76      |
| October . . . . .   | 84     | 96     | 92      | 87     | 86      | 85       | 86      | 99    | 106    | 78      |
| November . . . . .  | 92     | 94     | 98      | 98     | 89      | 95       | 89      | 99    | 103    | 83      |
| December . . . . .  | 127    | 98     | 103     | 108    | 102     | 108      | 99      | 98    | 105    | 86      |
| Year . . . . .      | 1,200  | 1,200  | 1,200   | 1,200  | 1,200   | 1,200    | 1,200   | 1,200 | 1,200  | 1,200   |

| Month               | Amsterdam | Lisbon | Berlin | St. Petersburg | Dantzic | Paris Hospital | Geneva | Algiers | Rome  | Brussels |
|---------------------|-----------|--------|--------|----------------|---------|----------------|--------|---------|-------|----------|
| January . . . . .   | 111       | 113    | 117    | 90             | 98      | 82             | 113    | 118     | 113   | 107      |
| February . . . . .  | 109       | 101    | 114    | 97             | 103     | 90             | 112    | 78      | 101   | 113      |
| March . . . . .     | 114       | 99     | 100    | 104            | 96      | 125            | 112    | 77      | 91    | 114      |
| April . . . . .     | 105       | 100    | 101    | 122            | 116     | 135            | 111    | 50      | 76    | 108      |
| May . . . . .       | 93        | 90     | 100    | 127            | 111     | 114            | 94     | 43      | 77    | 106      |
| June . . . . .      | 93        | 91     | 95     | 115            | 101     | 118            | 89     | 61      | 81    | 99       |
| July . . . . .      | 94        | 99     | 93     | 102            | 93      | 107            | 84     | 101     | 99    | 96       |
| August . . . . .    | 85        | 97     | 99     | 99             | 91      | 90             | 89     | 121     | 94    | 87       |
| September . . . . . | 96        | 100    | 100    | 91             | 94      | 102            | 98     | 126     | 90    | 85       |
| October . . . . .   | 96        | 101    | 94     | 82             | 98      | 81             | 94     | 151     | 107   | 90       |
| November . . . . .  | 97        | 99     | 103    | 86             | 103     | 76             | 96     | 146     | 118   | 95       |
| December . . . . .  | 107       | 110    | 84     | 85             | 96      | 80             | 108    | 128     | 153   | 100      |
| Year . . . . .      | 1,200     | 1,200  | 1,200  | 1,200          | 1,200   | 1,200          | 1,200  | 1,200   | 1,200 | 1,200    |

Wappaeus gives the following table on the subject :—

| Month               | Sardinia | Bavaria | Saxony  | Belgium | Holland | Denmark | Norway  | Sweden  | France  |
|---------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
|                     | 1828-37  | 1844-51 | 1847-59 | 1841-50 | 1840-49 | 1845-54 | 1845-55 | 1851-55 | 1831-40 |
| January . . . . .   | 114      | 114     | 115     | 125     | 119     | 108     | 118     | 99      | 107     |
| February . . . . .  | 116      | 123     | 103     | 122     | 109     | 111     | 114     | 115     | 111     |
| March . . . . .     | 107      | 128     | 105     | 121     | 110     | 118     | 114     | 121     | 123     |
| April . . . . .     | 105      | 119     | 106     | 114     | 102     | 118     | 118     | 118     | 114     |
| May . . . . .       | 86       | 98      | 104     | 101     | 97      | 111     | 113     | 107     | 97      |
| June . . . . .      | 84       | 88      | 92      | 96      | 94      | 97      | 95      | 85      | 87      |
| July . . . . .      | 91       | 83      | 88      | 85      | 91      | 97      | 84      | 76      | 84      |
| August . . . . .    | 108      | 86      | 97      | 84      | 95      | 88      | 84      | 82      | 92      |
| September . . . . . | 102      | 88      | 98      | 87      | 99      | 80      | 88      | 102     | 102     |
| October . . . . .   | 91       | 88      | 92      | 83      | 91      | 83      | 88      | 95      | 91      |
| November . . . . .  | 98       | 92      | 99      | 85      | 91      | 91      | 92      | 101     | 84      |
| December . . . . .  | 98       | 93      | 101     | 97      | 102     | 98      | 92      | 99      | 108     |
| Year . . . . .      | 1,200    | 1,200   | 1,200   | 1,200   | 1,200   | 1,200   | 1,200   | 1,200   | 1,200   |

The death-rate distinguishing married and single shows thus :—

#### DEATHS YEARLY PER 10,000 OF EACH CLASS

##### Men

| Age             | France, 1856-65 |         | Belgium, 1851-60 |         | Holland, 1850-59 |         | Average |         |
|-----------------|-----------------|---------|------------------|---------|------------------|---------|---------|---------|
|                 | Single          | Married | Single           | Married | Single           | Married | Single  | Married |
| 15-20 . . . . . | 69              | 513     | 64               | 119     | 64               | 121     | 66      | 251     |
| 20-30 . . . . . | 117             | 75      | 88               | 82      | 106              | 76      | 104     | 78      |
| 31-40 . . . . . | 124             | 71      | 96               | 80      | 144              | 102     | 121     | 84      |
| 41-50 . . . . . | 180             | 105     | 144              | 118     | 220              | 150     | 181     | 124     |
| 51-60 . . . . . | 288             | 186     | 225              | 197     | 365              | 258     | 293     | 214     |
| 61-70 . . . . . | 515             | 385     | 430              | 406     | 605              | 465     | 517     | 418     |
| 71-80 . . . . . | 990             | 902     | 840              | 870     | 1,110            | 940     | 980     | 903     |



## Women

| Age             | France, 1856-65 |         | Belgium, 1851-60 |         | Holland, 1850-59 |         | Average |         |
|-----------------|-----------------|---------|------------------|---------|------------------|---------|---------|---------|
|                 | Single          | Married | Single           | Married | Single           | Married | Single  | Married |
| 15-20 . . . . . | 75              | 119     | 84               | 132     | 67               | 140     | 75      | 130     |
| 20-30 . . . . . | 86              | 95      | 83               | 126     | 78               | 126     | 82      | 115     |
| 31-40 . . . . . | 104             | 94      | 91               | 117     | 115              | 143     | 103     | 118     |
| 41-50 . . . . . | 145             | 104     | 122              | 119     | 160              | 141     | 142     | 121     |
| 51-60 . . . . . | 240             | 167     | 212              | 175     | 280              | 200     | 244     | 181     |
| 61-70 . . . . . | 490             | 380     | 440              | 355     | 525              | 415     | 485     | 383     |
| 71-80 . . . . . | 1,150           | 905     | 920              | 750     | 1,030            | 870     | 1,033   | 842     |

The general rates for single and married of both sexes show thus :—

| Age             | Scotland |         | France |         | Belgium |         | Holland |         | Average |         |
|-----------------|----------|---------|--------|---------|---------|---------|---------|---------|---------|---------|
|                 | Single   | Married | Single | Married | Single  | Married | Single  | Married | Single  | Married |
| 15-20 . . . . . | ...      | ...     | 72     | 316     | 74      | 126     | 65      | 130     | 70      | 191     |
| 20-30 . . . . . | 136      | 72      | 101    | 85      | 86      | 104     | 92      | 101     | 104     | 90      |
| 31-40 . . . . . | 160      | 102     | 114    | 82      | 93      | 99      | 130     | 122     | 124     | 101     |
| 41-50 . . . . . | 198      | 155     | 162    | 105     | 133     | 119     | 190     | 145     | 171     | 131     |
| 51-60 . . . . . | 274      | 228     | 264    | 176     | 218     | 186     | 322     | 230     | 270     | 205     |
| 61-70 . . . . . | 524      | 440     | 502    | 382     | 435     | 380     | 565     | 440     | 506     | 410     |
| 71-80 . . . . . | ...      | ...     | 1,070  | 903     | 880     | 810     | 1,070   | 905     | 1,007   | 873     |

The above does not include widowed persons.

The deaths according to sex for ten years ending 1874 were :—

## DEATHS OF MALES TO 100 FEMALES

|                   |                   |                     |
|-------------------|-------------------|---------------------|
| England . . . 107 | Austria . . . 107 | Hungary . . . 108   |
| France . . . 107  | Sweden . . . 104  | Switzerland . . 108 |
| Prussia . . . 107 | Holland . . . 104 | Italy . . . 106     |
| Bavaria . . . 107 | Belgium . . . 106 | Average . . . 106   |

The following table shows the percentage of deaths according to condition for ten years ending 1874 :—

|                   | France | Prussia | Belgium | Holland | Sweden | Italy |
|-------------------|--------|---------|---------|---------|--------|-------|
| Single . . . . .  | 505    | 641     | 594     | 628     | 552    | 652   |
| Married . . . . . | 305    | 231     | 250     | 232     | 267    | 216   |
| Widowed . . . . . | 190    | 128     | 156     | 140     | 181    | 132   |
| Total . . . . .   | 1,000  | 1,000   | 1,000   | 1,000   | 1,000  | 1,000 |

According to Dr. Gairdner, overcrowding increases the death-rate notably, viz. :—

| Population per Square Mile | Deaths per 1000 Inhabitants Yearly |
|----------------------------|------------------------------------|
| 100-150 . . . . .          | 16                                 |
| 150-300 . . . . .          | 20                                 |
| Over 300 . . . . .         | 24                                 |

The following table shows death-rate with distinction of sex and age :—

| Age             | Per 10,000 of each Class |         |               |         |                 |         |
|-----------------|--------------------------|---------|---------------|---------|-----------------|---------|
|                 | France, 1857-65          |         | Belgium, 1856 |         | Sweden, 1861-70 |         |
|                 | Males                    | Females | Males         | Females | Males           | Females |
| 1-5 . . . . .   | 348                      | 344     | 237           | 250     | 235             | 225     |
| 5-10 . . . . .  | 85                       | 89      | 73            | 72      | 54              | 49      |
| 10-20 . . . . . | 60                       | 69      | 77            | 92      | 53              | 46      |
| 20-30 . . . . . | 96                       | 91      | 129           | 110     | 75              | 62      |
| 30-40 . . . . . | 87                       | 98      | 168           | 154     | 107             | 90      |
| 40-50 . . . . . | 123                      | 115     | 177           | 195     | 162             | 122     |
| 50-60 . . . . . | 208                      | 186     | 298           | 225     | 280             | 214     |
| 60-70 . . . . . | 427                      | 410     | 660           | 575     | 630             | 530     |
| 70-80 . . . . . | 1,000                    | 1,000   | 1,210         | 1,170   | 1,310           | 1,150   |

The following table was published about 1870, showing the death-rate of clergymen in various countries :—

|                                     | Age   |       |       |
|-------------------------------------|-------|-------|-------|
|                                     | 25-45 | 45-65 | 25-65 |
| Church of England . . . . .         | 5.4   | 15.8  | 10.1  |
| Catholic priests, English . . . . . | 9.7   | 26.9  | 15.7  |
| German Protestant clergy . . . . .  | 5.8   | 20.0  | 11.8  |
| Population of Germany . . . . .     | 9.7   | 25.9  | 16.8  |
| Austrian Catholic priests . . . . . | 8.0   | 21.8  | 15.2  |
| Austrian Greek clergy . . . . .     | 8.7   | 22.1  | 15.1  |
| English male population . . . . .   | 11.5  | 25.2  | 18.4  |

It is observed in most countries that the death-rate among the poor is much heavier than in the classes of easy fortune. Professor Conrad's table is as follows :—

|                         | Ratio of Deaths |        |         |
|-------------------------|-----------------|--------|---------|
|                         | Affluent        | Middle | Working |
| Still-born . . . . .    | 28              | 53     | 53      |
| 0-1 year . . . . .      | 118             | 240    | 206     |
| 1-5 years . . . . .     | 95              | 192    | 220     |
| 5-15 " . . . . .        | 48              | 49     | 58      |
| 15-20 " . . . . .       | 35              | 24     | 21      |
| 20-30 " . . . . .       | 86              | 63     | 64      |
| 30-60 " . . . . .       | 247             | 204    | 222     |
| Over 60 years . . . . . | 343             | 175    | 156     |
| Total . . . . .         | 1,000           | 1,000  | 1,000   |

## INFANT MORTALITY

The annual death-rate of infants under twelve months was in the years 1876-80 as follows :—

| Per 1000 Living   |                   |                   |  |
|-------------------|-------------------|-------------------|--|
| England . . . 145 | Bavaria . . . 298 | Italy . . . 209   |  |
| France . . . 163  | Wurtemberg 302    | Switzerland . 189 |  |
| Prussia . . . 205 | Austria . . . 249 | Sweden . . . 126  |  |

The influence of season on the death-rate of infants is shown in the ratio of deaths thus :—

|                  | Deaths under Two Years of Age |         |       |       |        |         |         |        |
|------------------|-------------------------------|---------|-------|-------|--------|---------|---------|--------|
|                  | Holland                       | Belgium | Nice  | Genoa | Naples | Palermo | Algiers | Bagdad |
| Spring . . . . . | 246                           | 279     | 226   | 224   | 230    | 202     | 205     | 212    |
| Summer . . . . . | 235                           | 203     | 307   | 242   | 307    | 318     | 278     | 353    |
| Autumn . . . . . | 254                           | 216     | 222   | 244   | 209    | 241     | 285     | 222    |
| Winter . . . . . | 265                           | 302     | 245   | 290   | 254    | 239     | 232     | 213    |
| Total . . . . .  | 1,000                         | 1,000   | 1,000 | 1,000 | 1,000  | 1,000   | 1,000   | 1,000  |

|                    | Deaths under Thirty Days |        |        |        |       |
|--------------------|--------------------------|--------|--------|--------|-------|
|                    | Spring                   | Summer | Autumn | Winter | Year  |
| Austria . . . . .  | 250                      | 246    | 255    | 249    | 1,000 |
| Belgium . . . . .  | 259                      | 193    | 246    | 302    | 1,000 |
| France . . . . .   | 239                      | 225    | 267    | 269    | 1,000 |
| Florence . . . . . | 253                      | 183    | 182    | 382    | 1,000 |
| Geneva . . . . .   | 280                      | 177    | 210    | 333    | 1,000 |
| Genoa . . . . .    | 253                      | 169    | 214    | 364    | 1,000 |
| Holland . . . . .  | 246                      | 212    | 248    | 294    | 1,000 |
| Hungary . . . . .  | 231                      | 216    | 271    | 282    | 1,000 |
| Levant . . . . .   | 285                      | 162    | 178    | 375    | 1,000 |
| Milan . . . . .    | 231                      | 214    | 225    | 330    | 1,000 |
| Naples . . . . .   | 263                      | 202    | 187    | 348    | 1,000 |
| Sicily . . . . .   | 228                      | 205    | 240    | 328    | 1,000 |

According to Lombard and other authorities, deaths of children under five form the following proportions in 1000 deaths of all ages :—

|                       |     |                   |     |
|-----------------------|-----|-------------------|-----|
| France . . . . .      | 295 | Prussia . . . . . | 456 |
| Switzerland . . . . . | 340 | Italy . . . . .   | 477 |
| Sweden . . . . .      | 349 | Austria . . . . . | 485 |
| Belgium . . . . .     | 369 | Russia . . . . .  | 554 |
| Holland . . . . .     | 448 |                   |     |

The following table shows how many of 1000 infants born died in each of the first five years of life :—

| Period                      | 1st Year | 2nd Year | 3rd Year | 4th Year | 5th Year | Total | Number Surviving |
|-----------------------------|----------|----------|----------|----------|----------|-------|------------------|
| England, 1866-75 . . . . .  | 154      | 54       | 24       | 16       | 11       | 259   | 741              |
| Italy, . . . . .            | 223      | 91       | 38       | 26       | 19       | 397   | 603              |
| Austria prop. . . . .       | 259      | 56       | 32       | 21       | 17       | 385   | 615              |
| Belgium, . . . . .          | 174      | 53       | 29       | 17       | 12       | 285   | 715              |
| Prussia, . . . . .          | 218      | 56       | 29       | 18       | 13       | 334   | 666              |
| Sweden, . . . . .           | 137      | 42       | 21       | 15       | 12       | 227   | 773              |
| Scotland, 1876-80 . . . . . | 123      | 55       | 28       | 19       | 14       | 239   | 761              |
| Switzerland, . . . . .      | 190      | 32       | 14       | 9        | 7        | 252   | 748              |
| Bavaria, 1860-69 . . . . .  | 324      | 40       | 19       | 13       | 10       | 406   | 594              |

According to the latest tables published, the number of children of 1000 born who live to complete their fifth year is as follows :—\*

|                       |                           |                        |
|-----------------------|---------------------------|------------------------|
| In                    | In                        | In                     |
| Russia . . . . . 425  | Prussia . . . . . 684     | England . . . . . 762  |
| Spain . . . . . 571   | Switzerland . . . . . 748 | Scotland . . . . . 780 |
| Austria . . . . . 614 | France . . . . . 751      | Sweden . . . . . 783   |
| Bavaria . . . . . 622 | Denmark . . . . . 755     | Ireland . . . . . 837  |
| Italy . . . . . 632   | Belgium . . . . . 756     | Norway . . . . . 838   |

The death-rate of illegitimate children is 55 per cent. extra in Switzerland, and 100 per cent. in France over the normal rate. In Paris it is observed that for 100 children who die if suckled by the mother, 220 die if given out to nurse ; also that 230 spoon-fed children die for 100

\* This table, except as regards Ireland and Russia, is for the years 1881-83. Brun makes the number of children in Russia who complete their fifth year 460 per thousand ; later writers only 425.

reared at the breast. The death-rate of foundlings in the first year was as follows : Marseilles, 38 ; St. Petersburg, 40 ; Lyons, 42 ; Paris, 57 per cent.

The following table from the archives of 1881 shows the deaths of infants at Rome and Berlin during the years 1877-80 :—

| At               | Die per 1000 Born |              |                 |              |
|------------------|-------------------|--------------|-----------------|--------------|
|                  | Under 30 Days     |              | Under 12 Months |              |
|                  | Lawful            | Illegitimate | Lawful          | Illegitimate |
| Rome . . . . .   | 52                | 164          | 174             | 329          |
| Berlin . . . . . | 57                | 262          | 133             | 452          |

The following table is from Sir Lyon Playfair and the Swedish returns, showing how many of 1000 infants born in each class will survive to complete their fifth year :—

| Condition              | England | Sweden | Medium |
|------------------------|---------|--------|--------|
| Rich . . . . .         | 820     | 750    | 785    |
| Middle class . . . . . | 640     | 630    | 635    |
| Poor . . . . .         | 450     | 560    | 505    |

Dr. Bianco gives similar tables for Turin.

According to Drysdale, the death-rate of infants in 1889 was 11 per cent. in the wealthy parishes of London, and 38 per cent. among the poor of the East End.

#### DEATHS FROM VIOLENCE

The following table was published in 1840 :—

#### PER MILLION INHABITANTS YEARLY

| Period  | Country           | Suicides | Accidents, &c. | Total Violent Deaths |
|---------|-------------------|----------|----------------|----------------------|
| 1810-30 | Sweden . . . . .  | 51       | 626            | 677                  |
| 1820-34 | Prussia . . . . . | 90       | 396            | 486                  |
| 1838-39 | England . . . . . | 64       | 682            | 746                  |
| 1839    | France . . . . .  | 81       | 187            | 268                  |

In or about the year 1880 the number of violent deaths in various countries was as follows :—

|                          | Number  | Ratio per 1000 Deaths |
|--------------------------|---------|-----------------------|
| United Kingdom . . . . . | 23,822  | 33.1                  |
| France . . . . .         | 16,373  | 19.7                  |
| Germany . . . . .        | 24,592  | 21.4                  |
| Russia . . . . .         | 18,500  | 7.4                   |
| Austria proper . . . . . | 10,150  | 16.0                  |
| Italy . . . . .          | 6,656   | 8.3                   |
| Spain . . . . .          | 4,700   | 9.6                   |
| Switzerland . . . . .    | 2,550   | 38.2                  |
| Belgium . . . . .        | 2,577   | 22.0                  |
| Denmark . . . . .        | 1,054   | 28.1                  |
| Sweden . . . . .         | 2,740   | 31.6                  |
| Norway . . . . .         | 1,290   | 37.7                  |
| Europe . . . . .         | 115,004 | 16.2                  |
| United States . . . . .  | 22,740  | 41.1                  |

The following table of violent deaths was published in 1865 :—

|                         | Period  | No. per Million<br>Inhabitants per<br>Annum | Per 1000 Deaths |         |         | Females to<br>100 Males |
|-------------------------|---------|---------------------------------------------|-----------------|---------|---------|-------------------------|
|                         |         |                                             | Males           | Females | General |                         |
| England . . . . .       | 1850-64 | 692                                         | 28              | 10      | 19      | 36                      |
| Belgium . . . . .       | 1840-49 | 332                                         | 22              | 7       | 14      | 33                      |
| Norway . . . . .        | 1851-55 | 679                                         | ...             | ...     | 40      | ...                     |
| Sweden . . . . .        | 1856-60 | 420                                         | 32              | 9       | 21      | 27                      |
| United States . . . . . | 1860    | 575                                         | 60              | 30      | 46      | 50                      |
| France . . . . .        | 1854-60 | 450                                         | 26              | 6       | 16      | 22                      |
| Bavaria . . . . .       | 1857-61 | 236                                         | 12              | 4       | 8       | 32                      |
| Hanover . . . . .       | 1852-57 | 396                                         | 27              | 7       | 17      | 26                      |
| Prussia . . . . .       | 1851-60 | 407                                         | 22              | 7       | 15      | 29                      |
| Saxony . . . . .        | 1852-58 | 298                                         | 13              | 3       | 8       | 25                      |

The following table was published in 1875 :—

|                          | Period  | Annual Average |         |          |        | Per Million<br>Inhabitants | Per 1000<br>Deaths |
|--------------------------|---------|----------------|---------|----------|--------|----------------------------|--------------------|
|                          |         | Accidents      | Murders | Suicides | Total  |                            |                    |
| England . . . . .        | 1865-73 | 15,083         | 413     | 1,470    | 16,966 | 763                        | 34.2               |
| Italy . . . . .          | 1865-74 | 6,704          | 2,165   | 801      | 9,670  | 370                        | 12.3               |
| Prussia . . . . .        | 1865-73 | 10,430         | 414     | 3,211    | 14,055 | 601                        | 21.4               |
| Bavaria . . . . .        | 1868-74 | 1,617          | 157     | 436      | 2,210  | 450                        | 14.4               |
| Austria proper . . . . . | 1866-74 | 6,575          | 698     | 1,610    | 8,883  | 426                        | 13.5               |
| Belgium . . . . .        | 1870-74 | 1,974          | 82      | 364      | 2,420  | 466                        | 20.1               |
| Sweden . . . . .         | 1865-73 | 2,100          | 88      | 342      | 2,530  | 603                        | 32.0               |

The ratio of violent deaths was stated to be :—

|                     | England | Italy | Prussia | Bavaria | Austria | Belgium | Sweden | Seven<br>Countries |
|---------------------|---------|-------|---------|---------|---------|---------|--------|--------------------|
| Accidents . . . . . | 88.7    | 69.4  | 74.1    | 73.2    | 74.1    | 81.5    | 83.0   | 78.5               |
| Murders . . . . .   | 2.5     | 22.3  | 2.9     | 7.0     | 7.8     | 3.4     | 3.5    | 7.1                |
| Suicides . . . . .  | 8.8     | 8.3   | 23.0    | 19.8    | 18.1    | 15.1    | 13.5   | 14.4               |
| Total . . . . .     | 100.0   | 100.0 | 100.0   | 100.0   | 100.0   | 100.0   | 100.0  | 100.0              |

If we take the returns of the United Kingdom for 1886 and the latest information regarding other countries, estimating the United States with its actual population at the latest ascertained ratios, we can have a conspectus of all the violent deaths approximately that occur every year. Hungary and Holland are missing, and the number of murders in Russia, Denmark, and Norway is unknown. The table stands thus :—

|                          | Number Yearly |          |         |         | Per Million<br>Inhabitants | Per 10,000<br>Deaths | Percentage of<br>Males in 100<br>Violent Deaths |
|--------------------------|---------------|----------|---------|---------|----------------------------|----------------------|-------------------------------------------------|
|                          | Accidents     | Suicides | Murders | Total   |                            |                      |                                                 |
| England . . . . .        | 14,830        | 2,254    | 311     | 17,414  | 622                        | 324                  | 72                                              |
| Scotland . . . . .       | 2,164         | 261      | 19      | 2,444   | 614                        | 328                  | 71                                              |
| Ireland . . . . .        | 1,611         | 116      | 131     | 1,860   | 380                        | 207                  | 70                                              |
| United Kingdom . . . . . | 18,605        | 2,631    | 461     | 21,718  | 590                        | 310                  | 71                                              |
| France . . . . .         | 13,205        | 7,070    | 701     | 20,976  | 540                        | 250                  | 75                                              |
| Germany . . . . .        | 17,800        | 8,480    | 610     | 26,890  | 570                        | 224                  | 76                                              |
| Austria proper . . . . . | 6,433         | 3,543    | 663     | 10,639  | 450                        | 163                  | 74                                              |
| Italy . . . . .          | 5,430         | 1,397    | 2,902   | 9,729   | 324                        | 120                  | 75                                              |
| Russia . . . . .         | 16,800        | 2,520    | ...     | 19,320  | 220                        | 70                   | ...                                             |
| Spain . . . . .          | 3,670         | 255      | 1,330   | 5,255   | 280                        | 115                  | 80                                              |
| Belgium . . . . .        | 2,039         | 441      | 86      | 2,566   | 430                        | 214                  | 82                                              |
| Sweden . . . . .         | 2,210         | 347      | 105     | 2,662   | 602                        | 356                  | 73                                              |
| Denmark . . . . .        | 640           | 516      | ...     | 1,156   | 578                        | 290                  | ...                                             |
| Norway . . . . .         | 1,360         | 146      | ...     | 1,506   | 753                        | 480                  | ...                                             |
| Switzerland . . . . .    | 1,400         | 650      | 88      | 2,138   | 713                        | 356                  | ...                                             |
| Europe . . . . .         | 89,592        | 27,996   | 6,946   | 124,535 | 410                        | 168                  | ...                                             |
| United States . . . . .  | 36,000        | 2,100    | 2,462   | 40,562  | 620                        | 370                  | ...                                             |
| Total . . . . .          | 125,592       | 30,096   | 9,408   | 165,117 | 450                        | 190                  | ...                                             |

The ratio of accidental deaths yearly per million inhabitants in or about 1880 was as follows:—

|               | Number per Million Inhabitants | Ratio of Sexes |        | Percentage of Accidental Deaths |       | Accidental in 10,000 Deaths |
|---------------|--------------------------------|----------------|--------|---------------------------------|-------|-----------------------------|
|               |                                | Male           | Female | Drowned                         | Burnt |                             |
| England . .   | 670                            | 74             | 26     | 22                              | 9     | 303                         |
| France . .    | 280                            | 78             | 22     | 41                              | ...   | 130                         |
| Prussia . .   | 407                            | 76             | 24     | ...                             | ...   | 150                         |
| Saxony . .    | 298                            | 76             | 24     | ...                             | ...   | ...                         |
| Bavaria . .   | 236                            | 75             | 25     | ...                             | ...   | 108                         |
| Hanover . .   | 396                            | 79             | 21     | ...                             | ...   | ...                         |
| Austria . .   | 258                            | 73             | 27     | ...                             | ...   | 98                          |
| Switzerland   | 605                            | ...            | ...    | 40                              | 4     | 280                         |
| Italy . .     | 181                            | 75             | 25     | ...                             | ...   | 85                          |
| Spain . .     | 202                            | 80             | 20     | 24                              | 3     | 70                          |
| Belgium . .   | 330                            | 82             | 18     | 27                              | ...   | 163                         |
| Denmark . .   | 232                            | ...            | ...    | 60                              | 2     | 116                         |
| Sweden . .    | 479                            | 73             | 27     | 54                              | 5     | 260                         |
| Norway . .    | 681                            | ...            | ...    | 75                              | 4     | 340                         |
| Finland . .   | 589                            | ...            | ...    | 54                              | ...   | ...                         |
| Russia . .    | 201                            | ...            | ...    | 53                              | 6     | 65                          |
| U. States . . | 623                            | 67             | 33     | 16                              | 24    | 340                         |
| New York . .  | 668                            | ...            | ...    | ...                             | ...   | 270                         |
| London . .    | 665                            | ...            | ...    | ...                             | ...   | 315                         |
| Paris . .     | 682                            | ...            | ...    | ...                             | ...   | 240                         |

## DEATHS FROM ALCOHOL

The following is a table of deaths from drink:—

|              | Per Annum | Per 1000 Deaths |                 | Per Annum | Per 1000 Deaths |
|--------------|-----------|-----------------|-----------------|-----------|-----------------|
| England . .  | 1,405     | 2.60            | Italy . .       | 709       | 0.85            |
| Scotland . . | 230       | 3.29            | Switzerland . . | 244       | 3.81            |
| Ireland . .  | 280       | 2.78            | Sweden . .      | 502       | 6.25            |
| France . .   | 448       | 0.54            | Norway . .      | 72        | 2.36            |
| Belgium . .  | 456       | 3.83            | New York . .    | 324       | 12.08           |

Lombard's table on deaths from drink will be found under *Diseases*:—

The returns of sickness and death from drink in armies is as follows:—

In the French army 33 men per million die yearly of drink. In the American war, 1861-63, deaths from drink were 350 per million, and 15 in 10,000 were sent to hospital for drink. In the British army the sick and deaths from this cause are:—

| Station            | Sick per 10,000 | Deaths per 100,000 |
|--------------------|-----------------|--------------------|
| United Kingdom . . | 64              | 13                 |
| Mediterranean . .  | 130             | 18                 |
| Halifax . .        | 200             | 70                 |
| West Indies . .    | 400             | 138                |
| Trinidad . .       | 530             | 290                |
| Demerara . .       | 850             | 560                |

## DEATH-RATES OF ARMIES

Army death-rates per 10,000 men yearly, not including killed in war, are shown as follows:—

| Army           | Date    | Per 10,000 |
|----------------|---------|------------|
| British . .    | 1879-80 | 67         |
| French . .     | 1872-74 | 87         |
| German . .     | 1878    | 58         |
| Russian . .    | 1871-74 | 147        |
| Austrian . .   | 1870-73 | 153        |
| Italian . .    | 1870-76 | 116        |
| Belgian . .    | 1870-74 | 107        |
| Portuguese . . | 1861-67 | 127        |

The rates for the United Kingdom in later years compare with those of 1830-40 as follows:—

|              | Deaths Yearly per 10,000 |         |      |
|--------------|--------------------------|---------|------|
|              | 1830-1840                | 1879-80 | 1887 |
| Cavalry . .  | 153                      | 52      | 43   |
| Infantry . . | 155                      | 65      | 46   |

The death-rate among our troops before Dr. Farr's barrack reforms was enormous, the averages for the years 1818-40 being as follows per 10,000 men:—

| Great Britain . . | 159 | Mauritius . .    | 305  |
|-------------------|-----|------------------|------|
| Australia . .     | 141 | Madras . .       | 520  |
| Cape . .          | 155 | Ceylon . .       | 570  |
| Canada . .        | 212 | Bengal . .       | 630  |
| Gibraltar . .     | 221 | Jamaica . .      | 1430 |
| Corfu . .         | 283 | Sierra Leone . . | 4830 |

The rates in the United Kingdom in 1879-80 were as follows per 10,000:—

| Station            |    | Arm           |    |
|--------------------|----|---------------|----|
| Ireland . .        | 65 | Cavalry . .   | 52 |
| England . .        | 65 | Engineers . . | 63 |
| Scotland . .       | 78 | Infantry . .  | 65 |
| United Kingdom . . | 67 | Artillery . . | 72 |

The improved condition of troops in England is shown by the returns for the foot-guards thus:—

|              | Deaths per 10,000 |      |
|--------------|-------------------|------|
|              | 1858              | 1875 |
| Fever . .    | 25                | 4    |
| Phthisis . . | 125               | 17   |
| Various . .  | 54                | 56   |
| Total . .    | 204               | 77   |

On foreign service the death-rates have declined per 10,000 thus:—

|               | 1818-36 | 1875 |
|---------------|---------|------|
| Gibraltar . . | 214     | 55   |
| India . .     | 690     | 175  |

The death-rates of the French army in the years 1872-77 were:—

| Per 10,000 Men |     |               |     |
|----------------|-----|---------------|-----|
| Engineers . .  | 60  | Artillery . . | 106 |
| Infantry . .   | 95  | Cavalry . .   | 114 |
| Zouaves . .    | 106 | Turcos . .    | 177 |
| Under 20 . .   | 54  | 20-25 . .     | 103 |
| 25-30 . .      | 71  | 30-35 . .     | 71  |

The French army, according to a report in 1867, showed the following ratios:—

| Years of Service | Composition of Force | Ratio of Deaths | Annual Death-Rate per 1000 Men |
|------------------|----------------------|-----------------|--------------------------------|
| Under 1 . .      | 9.6                  | 9.7             | 10.1                           |
| 1-4 . .          | 19.3                 | 21.3            | 12.0                           |
| 4-6 . .          | 19.0                 | 21.0            | 11.2                           |
| 6-8 . .          | 16.4                 | 14.0            | 8.6                            |
| 8-11 . .         | 12.5                 | 9.8             | 7.8                            |
| 11-14 . .        | 10.5                 | 11.0            | 10.4                           |
| Over 14 . .      | 12.7                 | 13.2            | 10.4                           |
|                  | 100.0                | 100.0           | 100.0                          |

It appears the mortality is heaviest from the first to the end of the fifth year, and lightest from the sixth to the end of the tenth year. The death-rate has declined, viz.:—

|             |      |
|-------------|------|
| 1862-69 . . | 11.5 |
| 1872-77 . . | 9.5  |

The ratio in Algeria is usually double what it is in France. The Prussian army in 1872 had a death-rate of 7.2 per 1000, but in 1878 the rate for the whole German

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army had been brought down to 5.8. The Austrian, moreover, which averaged 15.3 in the years 1870-73, showed only 9 per thousand in 1878.

The Italian army likewise shows improvement, viz. :—

|                   |      |
|-------------------|------|
| 1860-70 . . . . . | 13.8 |
| 1870-76 . . . . . | 11.6 |

In Russia the army death-rate has been reduced by one-half, viz. :—

| Arm               | 1841-52 | 1857-61 |
|-------------------|---------|---------|
| Infantry . . . .  | 42.0    | 21.0    |
| Cavalry . . . .   | 23.0    | 14.0    |
| Artillery . . . . | 27.0    | 15.0    |
| General rate . .  | 38.0    | 19.0    |

## ENGLAND AND WALES

The death-rate of England and Wales showed thus :—

| Age     | Death-Rate per 1000 Inhabitants per Annum |         |         |         |
|---------|-------------------------------------------|---------|---------|---------|
|         | 1841-50                                   | 1851-60 | 1861-70 | 1871-80 |
| Under 5 | 66.2                                      | 68.0    | 68.6    | 63.5    |
| 5-20    | 7.3                                       | 7.2     | 6.3     | 5.3     |
| 20-35   | 9.8                                       | 9.3     | 9.0     | 8.1     |
| 35-45   | 15.1                                      | 14.6    | 15.2    | 15.3    |
| 45-65   | 30.1                                      | 29.1    | 30.5    | 32.0    |
| 65-75   | 64.0                                      | 62.0    | 63.0    | 65.0    |

| Age   | Males   |         |         | Females |         |         |
|-------|---------|---------|---------|---------|---------|---------|
|       | 1841-60 | 1861-80 | 1881-85 | 1841-60 | 1861-80 | 1881-85 |
| 0-5   | 72.0    | 71.0    | 59.6    | 62.1    | 61.1    | 59.5    |
| 5-10  | 8.8     | 7.5     | 5.8     | 8.6     | 7.1     | 5.6     |
| 10-15 | 5.0     | 4.2     | 3.2     | 5.2     | 4.2     | 3.3     |
| 15-20 | 6.9     | 5.8     | 4.6     | 7.6     | 6.2     | 4.7     |
| 20-25 | 9.2     | 8.0     | 6.0     | 8.8     | 7.4     | 5.9     |
| 25-35 | 9.8     | 9.6     | 8.2     | 10.2    | 9.2     | 7.9     |
| 35-45 | 12.7    | 13.7    | 12.7    | 12.6    | 11.8    | 10.9    |
| 45-55 | 18.2    | 19.4    | 19.4    | 15.7    | 15.5    | 15.2    |
| 55-65 | 31.4    | 33.9    | 33.6    | 27.8    | 28.4    | 27.8    |
| 65-75 | 66.5    | 67.8    | 68.8    | 59.9    | 59.9    | 59.5    |
| 75-85 | 147.4   | 147.4   | 144.6   | 135.2   | 134.0   | 129.4   |

| Period          | Per 1000 Inhabitants per Annum |        |            |
|-----------------|--------------------------------|--------|------------|
|                 | Male                           | Female | Total Pop. |
| 1841-50 . . . . | 23.1                           | 21.6   | 22.4       |
| 1851-60 . . . . | 23.1                           | 21.4   | 22.3       |
| 1861-70 . . . . | 23.7                           | 21.4   | 22.6       |
| 1871-80 . . . . | 22.6                           | 20.1   | 21.3       |
| 1881-85 . . . . | 20.4                           | 18.2   | 19.3       |

Neison gives the following death-rate per annum for 1000 persons between the ages of 25 and 65 :—

|                          |      |                       |      |
|--------------------------|------|-----------------------|------|
| Ladies' maids . . . .    | 8.0  | Coachmen . . . .      | 18.4 |
| Protestant clergy . . .  | 10.6 | Surgeons . . . . .    | 19.1 |
| Barristers . . . . .     | 11.9 | Apothecaries . . . .  | 19.1 |
| Grooms . . . . .         | 12.6 | Wine merchants . . .  | 25.0 |
| Physicians . . . . .     | 12.9 | Innkeepers . . . . .  | 27.0 |
| Valets . . . . .         | 16.7 | Cabdrivers . . . . .  | 26.6 |
| Attorneys . . . . .      | 16.8 | All England . . . . . | 18.0 |
| Catholic priests . . . . | 18.3 |                       |      |

The total of deaths in 18 years ending 1830 was :—

|                   |           |
|-------------------|-----------|
| Males . . . . .   | 1,996,200 |
| Females . . . . . | 1,942,300 |
| Total . . . . .   | 3,938,500 |

The annual death-rate from 1818 to 1824 was 20.3.

The ratio of all deaths in England for 18 years ending 1830 and that for 1886 were :—

| Age   | 1818-1830 |         |            | Age     | 1886  |         |            |
|-------|-----------|---------|------------|---------|-------|---------|------------|
|       | Males     | Females | Total Pop. |         | Males | Females | Total Pop. |
| 0-1   | 219       | 176     | 198        | 0-1     | 272   | 229     | 251        |
| 1-4   | 150       | 145     | 147        | 1-5     | 141   | 139     | 140        |
| 5-9   | 44        | 41      | 42         | 5-10    | 28    | 28      | 28         |
| 10-19 | 58        | 64      | 61         | 10-20   | 36    | 40      | 38         |
| 20-29 | 72        | 84      | 78         | 20-35   | 78    | 85      | 82         |
| 30-39 | 62        | 73      | 67         | 35-45   | 66    | 66      | 66         |
| 40-49 | 65        | 67      | 66         | 45-55   | 78    | 70      | 74         |
| 50-59 | 72        | 68      | 70         | 55-65   | 94    | 95      | 95         |
| 60-69 | 91        | 92      | 92         | 65-75   | 110   | 122     | 116        |
| 70-79 | 101       | 108     | 105        | 75-85   | 78    | 96      | 86         |
| 80    | 66        | 82      | 74         | Over 85 | 19    | 30      | 24         |
| Total | 1,000     | 1,000   | 1,000      | Total   | 1,000 | 1,000   | 1,000      |

In 1879 the death-rate of able-bodied males was as follows :—

|                     | Death-rate per 1000 |                       | Death-rate per 1000 |
|---------------------|---------------------|-----------------------|---------------------|
| Civilians . . . . . | 10.02               | Royal navy . . . .    | 8.88                |
| Soldiers . . . . .  | 6.66                | Merchant navy . . . . | 19.10               |

Of 100 deaths in merchant shipping, 55 are from drowning, 35 from sickness, and 10 from various causes.

Dr. Farr shows the influence of town life on the death-rate of the working classes as follows :—

## DEATHS PER 1000 YEARLY

| Age             | Rural | Urban |
|-----------------|-------|-------|
| 35-45 . . . . . | 9     | 12    |
| 45-55 . . . . . | 12    | 17    |
| 55-65 . . . . . | 25    | 29    |
| 65-75 . . . . . | 55    | 68    |
| 75-85 . . . . . | 148   | 174   |
| Over . . . . .  | 324   | 418   |

The distribution of all deaths in the United Kingdom in quarters of the year is as follows :—

| Quarter Ending     | England | Scotland | Ireland |
|--------------------|---------|----------|---------|
| March 31st . . . . | 28.0    | 29.3     | 30.9    |
| June 30th . . . .  | 24.5    | 25.0     | 25.9    |
| September 30th . . | 22.4    | 21.8     | 20.0    |
| December 31st . .  | 25.1    | 23.9     | 23.2    |
|                    | 100.0   | 100.0    | 100.0   |

The death-rate of London in the early part of the seventeenth century was 70 per thousand, or more than three times what it is at present; the returns for the healthy years 1606-10 were :—

| Quarter Ending     | Deaths per 1000 Inhab. per Annum |
|--------------------|----------------------------------|
| 31st March . . . . | 56                               |
| 30th June . . . .  | 60                               |
| 30th September . . | 84                               |
| 31st December . .  | 80                               |
| Year's average . . | 70                               |

The following table shows the number of deaths in London from 1647 to 1829, and those that were violent :—

| Period    | Total Number of Deaths | Violent Deaths | Ratio per 10,000 Deaths | Number of Violent Deaths Yearly |
|-----------|------------------------|----------------|-------------------------|---------------------------------|
| 1647-1700 | 1,054,000              | 10,700         | 102                     | 200                             |
| 1701-49   | 1,223,000              | 12,600         | 104                     | 257                             |
| 1750-99   | 1,044,000              | 13,600         | 130                     | 272                             |
| 1800-29   | 586,000                | 9,900          | 170                     | 330                             |

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|              | 1647-1700 | 1741-49 | 1780-99 | 1800-29 |
|--------------|-----------|---------|---------|---------|
| Suicide . .  | 85        | 162     | 150     | 186     |
| Murder . .   | 65        | 34      | 21      | 17      |
| Executed . . | 99        | 56      | 90      | 101     |
| Drowned . .  | 327       | 323     | 544     | 520     |
| Burnt . .    | 40        | 31      | 71      | 96      |
| Various . .  | 384       | 394     | 124     | 80      |
| Total . .    | 1,000     | 1,000   | 1,000   | 1,000   |

The following table shows the death-rate of London since 1725 :—

|             |      |             |      |             |      |
|-------------|------|-------------|------|-------------|------|
| 1725-50 . . | 39.9 | 1800-30 . . | 33.7 | 1874-78 . . | 22.8 |
| 1751-99 . . | 38.8 | 1840-45 . . | 24.5 | 1879-81 . . | 21.7 |

## VIOLENT DEATHS IN ENGLAND (1886).

| Cause                        | Males  | Females | Total  | Per 100,000 of all Deaths |
|------------------------------|--------|---------|--------|---------------------------|
| Railways . . .               | 736    | 62      | 798    | 149                       |
| Mines . . .                  | 916    | ...     | 916    | 170                       |
| Fire . . .                   | 891    | 990     | 1,881  | 350                       |
| Drowned (accidentally) . . . | 2,389  | 410     | 2,799  | 521                       |
| Poisoned . . .               | 213    | 116     | 329    | 61                        |
| Cabs, &c. . .                | 1,259  | 213     | 1,472  | 273                       |
| Fall . . .                   | 1,867  | 829     | 2,696  | 502                       |
| Suffocation . . .            | 975    | 779     | 1,754  | 325                       |
| Various . . .                | 1,566  | 619     | 2,185  | 407                       |
| Accidental . . .             | 10,812 | 4,018   | 14,830 | 2,758                     |
| Suicide . . .                | 1,694  | 560     | 2,254  | 420                       |
| Murder . . .                 | 181    | 130     | 311    | 58                        |
| Executed . . .               | 18     | 1       | 19     | 4                         |
| Total . . .                  | 12,705 | 4,709   | 17,414 | 3,240                     |

The ratio of sex in violent deaths in late years averaged thus :—

|                      | Per Cent. |        |
|----------------------|-----------|--------|
|                      | Male      | Female |
| England . . .        | 72.6      | 27.4   |
| Scotland . . .       | 73.7      | 26.3   |
| Ireland . . .        | 69.7      | 30.3   |
| United Kingdom . . . | 72.5      | 27.5   |

A return of accidental deaths in England and Wales for the year 1838 showed at follows :—

| Ratio in 10,000 Deaths of each Class | Nature of Accident |       |
|--------------------------------------|--------------------|-------|
| Educated classes . . . 29            | Fractures . . .    | 32.9  |
| Tradesmen . . . 51                   | Drowned . . .      | 20.9  |
| Servants . . . 95                    | Burnt . . .        | 19.2  |
| Labourers . . . 150                  | Poisoned . . .     | 3.6   |
|                                      | Scalded . . .      | 4.0   |
|                                      | Various . . .      | 19.4  |
|                                      |                    | 100.0 |

The ratios of violent deaths according to age and sex in England were (1871-80) :—

## PER MILLION PERSONS YEARLY

| Age           | Males | Females | General Population |
|---------------|-------|---------|--------------------|
| Under 5 . . . | 1,300 | 1,080   | 1,200              |
| 5-15 . . .    | 670   | 260     | 470                |
| 16-45 . . .   | 960   | 110     | 540                |
| 46-65 . . .   | 1,340 | 250     | 800                |
| 66-75 . . .   | 1,560 | 600     | 1,060              |
| Over 75 . . . | 2,270 | 1,740   | 2,000              |

The violent deaths of the United Kingdom from 1840 to 1880 were :—

| Period        | Per 1000 Deaths |          |         |                |
|---------------|-----------------|----------|---------|----------------|
|               | England         | Scotland | Ireland | United Kingdom |
| 1840-60 . . . | 34.2            | 32.3     | ...     | ...            |
| 1861-70 . . . | 34.5            | 31.8     | 24.1    | 32.7           |
| 1871-80 . . . | 34.3            | 35.5     | 21.1    | 32.6           |

## SCOTLAND

The death-rate per 1000 inhabitants yearly was :—

|               |      |
|---------------|------|
| 1855-60 . . . | 20.8 |
| 1861-70 . . . | 22.0 |
| 1871-80 . . . | 21.8 |

The death-rate for various professions of persons between 45 and 55 years of age is stated thus :—

| Per 1000            | Per 1000            | Per 1000             |
|---------------------|---------------------|----------------------|
| Farmers . . . 12    | Carpenters . . . 17 | Beersellers . . . 28 |
| Shoemakers . . . 15 | Miners . . . 20     | Scotchmen . . . 19   |
| Grocers . . . 16    | Butchers . . . 23   | Scotchwomen . . . 16 |

The rates for age, distinguishing urban from rural, show thus :—

| Age           | Deaths Yearly per 1000 of each Class |        |         |       |       |
|---------------|--------------------------------------|--------|---------|-------|-------|
|               | Male                                 | Female | General | Urban | Rural |
| 0-1 . . .     | 154                                  | 126    | 140     | 159   | 96    |
| 1-5 . . .     | 31.9                                 | 30.7   | 31.3    | 37.9  | 15.6  |
| 5-15 . . .    | 58.9                                 | 51.8   | 55.3    | 65.5  | 31.9  |
| 15-30 . . .   | 6.2                                  | 6.2    | 6.2     | 7.2   | 3.9   |
| 30-60 . . .   | 8.5                                  | 7.7    | 8.1     | 8.7   | 7.5   |
| Over 60 . . . | 17.5                                 | 14.3   | 15.9    | 18.2  | 10.9  |
|               | 208                                  | 210    | 209     | 167   | 256   |

The ratios of deaths at each age were as follows :—

| Age           | All Scotland |         |       |         | Scotch Cities, 1886 |         |
|---------------|--------------|---------|-------|---------|---------------------|---------|
|               | 1876-85      |         | 1886  |         | Males               | Females |
|               | Males        | Females | Males | Females |                     |         |
| 0-1 . . .     | 223          | 176     | 226   | 176     | 242                 | 193     |
| 1-2 . . .     | 84           | 77      | 77    | 70      | 99                  | 89      |
| 2-3 . . .     | 37           | 36      | 33    | 31      | 42                  | 41      |
| 3-4 . . .     | 24           | 23      | 20    | 18      | 26                  | 24      |
| 4-5 . . .     | 17           | 17      | 14    | 14      | 17                  | 15      |
| Under 5 . . . | 385          | 329     | 370   | 309     | 426                 | 362     |
| 5-10 . . .    | 45           | 43      | 41    | 38      | 44                  | 44      |
| 10-15 . . .   | 25           | 26      | 25    | 25      | 23                  | 24      |
| 15-20 . . .   | 34           | 33      | 31    | 33      | 31                  | 31      |
| 20-30 . . .   | 67           | 72      | 66    | 71      | 69                  | 76      |
| 30-40 . . .   | 59           | 66      | 60    | 66      | 70                  | 73      |
| 40-50 . . .   | 68           | 64      | 72    | 66      | 83                  | 76      |
| 50-60 . . .   | 79           | 76      | 84    | 81      | 87                  | 90      |
| 60-70 . . .   | 95           | 101     | 98    | 111     | 87                  | 100     |
| 70-80 . . .   | 91           | 112     | 96    | 116     | 60                  | 82      |
| Over 80 . . . | 52           | 78      | 57    | 84      | 20                  | 42      |
| Total . . .   | 1,000        | 1,000   | 1,000 | 1,000   | 1,000               | 1,000   |

The death-rate in Scotch cities in 1886 was :—

## PER 1000 INHABITANTS

|                 |      |                |      |
|-----------------|------|----------------|------|
| Edinburgh . . . | 19.2 | Aberdeen . . . | 19.4 |
| Glasgow . . .   | 25.1 | Greenock . . . | 17.3 |
| Dundee . . .    | 18.2 | Paisley . . .  | 22.7 |

The death-rate at various dates per 1000 of population was :—

| Year           | Scotland |         | Cities |         | Small Towns |         | Rural |         |
|----------------|----------|---------|--------|---------|-------------|---------|-------|---------|
|                | Males    | Females | Males  | Females | Males       | Females | Males | Females |
| 1855 . . . . . | 21.6     | 20.0    | 29.3   | 25.8    | 21.6        | 19.9    | ...   | ...     |
| 1860 . . . . . | 23.2     | 21.5    | 31.7   | 28.0    | 23.0        | 21.3    | ...   | ...     |
| 1871 . . . . . | 22.9     | 21.5    | 30.4   | 27.9    | 21.4        | 20.6    | 16.7  | 16.0    |
| 1880 . . . . . | 21.3     | 19.6    | 25.8   | 22.7    | 20.7        | 19.7    | 16.6  | 16.0    |
| 1886 . . . . . | 19.1     | 18.3    | 21.9   | 20.2    | 18.3        | 17.9    | 15.9  | 14.9    |

The proportion of deaths in cities according to age and season were :—

| Age     | Spring | Summer | Autumn | Winter |
|---------|--------|--------|--------|--------|
| 0-5     | 42.6   | 42.3   | 43.1   | 41.4   |
| 5-20    | 10.6   | 11.7   | 10.6   | 9.1    |
| 20-60   | 29.5   | 28.9   | 29.2   | 30.2   |
| Over 60 | 17.3   | 17.1   | 17.1   | 19.3   |
| Total   | 100.0  | 100.0  | 100.0  | 100.0  |

The number of children of either sex who die in the first five years is as follows :—

|                | Of 1000 Born of each Class |       |       |
|----------------|----------------------------|-------|-------|
|                | Boys                       | Girls | Total |
| 1st Year . . . | 133                        | 113   | 123   |
| 2nd Year . . . | 56                         | 55    | 55    |
| 3rd Year . . . | 27                         | 28    | 28    |
| 4th Year . . . | 19                         | 19    | 19    |
| 5th Year . . . | 13                         | 14    | 14    |
| Total . . .    | 248                        | 229   | 239   |

Violent deaths in 1886 were as follows :—

| Cause         | Number |         |       | Per Million Inhab. | Per 10,000 Deaths |
|---------------|--------|---------|-------|--------------------|-------------------|
|               | Males  | Females | Total |                    |                   |
| Fire . . .    | 116    | 116     | 232   | 58                 | 31                |
| Drowned . .   | 423    | 67      | 490   | 123                | 66                |
| Suffocated .  | 168    | 140     | 308   | 77                 | 41                |
| Poison . . .  | 34     | 20      | 54    | 14                 | 7                 |
| Fracture . .  | 649    | 173     | 822   | 206                | 110               |
| Various . . . | 180    | 78      | 258   | 65                 | 35                |
| Accidents .   | 1,570  | 594     | 2,164 | 543                | 290               |
| Suicide . . . | 188    | 73      | 261   | 66                 | 35                |
| Murder . . .  | 8      | 11      | 19    | 5                  | 3                 |
| Total . . .   | 1,766  | 678     | 2,444 | 614                | 328               |

#### IRELAND

Deaths at various ages in 1886 were as follows :—

| Age     | Number |         |        | Ratio |         |       |
|---------|--------|---------|--------|-------|---------|-------|
|         | Males  | Females | Total  | Males | Females | Total |
| 0-1     | 5,995  | 4,765   | 10,760 | 138   | 109     | 124   |
| 1-5     | 3,620  | 3,661   | 7,281  | 83    | 83      | 83    |
| 5-10    | 1,262  | 1,399   | 2,661  | 29    | 32      | 31    |
| 10-15   | 939    | 1,257   | 2,196  | 21    | 29      | 25    |
| 15-20   | 1,514  | 1,780   | 3,294  | 35    | 41      | 38    |
| 20-35   | 4,528  | 4,651   | 9,179  | 104   | 107     | 105   |
| 35-45   | 2,478  | 2,816   | 5,294  | 57    | 64      | 61    |
| 45-55   | 3,317  | 3,302   | 6,619  | 76    | 76      | 76    |
| 55-65   | 4,755  | 4,982   | 9,737  | 110   | 112     | 111   |
| 65-75   | 6,436  | 6,677   | 13,113 | 149   | 153     | 151   |
| 75-85   | 6,160  | 6,147   | 12,307 | 141   | 140     | 140   |
| Over 85 | 2,489  | 2,362   | 4,851  | 57    | 54      | 55    |
| Total   | 43,493 | 43,799  | 87,292 | 1,000 | 1,000   | 1,000 |

The death-rate is the lowest rate in Europe, viz. :—

|                   |                          |
|-------------------|--------------------------|
| 1864-70 . . . . . | 16.7 per 1000 population |
| 1871-80 . . . . . | 18.1 " "                 |
| 1877-86 . . . . . | 18.4 " "                 |

This is the more remarkable as the cities have very high rates, viz., Dublin, 24; Cork, 26; Belfast, 28 per 1000.

In the year 1886 violent deaths formed the same ratio to population as for the ten years ending 1885, and were made up thus :—

|               | Number |         |       | Per Million Population | Per 10,000 Deaths |
|---------------|--------|---------|-------|------------------------|-------------------|
|               | Males  | Females | Total |                        |                   |
| Fire . . .    | 160    | 184     | 344   | 70                     | 38                |
| Drowned . .   | 296    | 62      | 358   | 73                     | 39                |
| Suffocated .  | 82     | 39      | 121   | 25                     | 14                |
| Poison . . .  | 26     | 7       | 33    | 7                      | 4                 |
| Fracture . .  | 431    | 171     | 602   | 123                    | 68                |
| Various . . . | 113    | 40      | 153   | 30                     | 17                |
| Accidents .   | 1,108  | 503     | 1,611 | 328                    | 180               |
| Suicide . . . | 92     | 24      | 116   | 25                     | 13                |
| Murder . . .  | 91     | 40      | 131   | 27                     | 14                |
| Executed . .  | 2      | ...     | 2     | ...                    | ...               |
| Total         | 1,293  | 567     | 1,860 | 380                    | 207               |

Under the above item of Murder are included deaths from aggravated assault, which in some countries are put down as deaths from fracture, also deaths resulting from riot. The Registrar-General classified the Dublin death-rate in 1887 thus :—

|                        |      |
|------------------------|------|
| Affluent . . . . .     | 15.9 |
| Middle class . . . . . | 26.0 |
| Poor . . . . .         | 29.4 |

The general rate for the city in that year was 23.5 per 1000.

#### AUSTRALIA

The death-rate for thirteen years ending 1888 of the several colonies, and that of the four principal cities, for three years to 1889 was as follows :—

Per 1000 Population Yearly

|                     |                   |                    |
|---------------------|-------------------|--------------------|
| N. S. Wales . 15.5  | Queensland . 17.3 | Sydney . . 16.9    |
| Victoria . . 15.1   | Tasmania . 15.8   | Adelaide . 16.4    |
| S. Australia . 14.1 | W. Australia 16.3 | Brisbane . . 17.7  |
| N. Zealand . 11.1   | Melbourne . 21.7  | All Australia 15.0 |

There is no part of the world with so low a death-rate as Australia, which is partly explained by the preponderance of young people. The ratio of ages in New South Wales by the Census of 1881 compares with the United Kingdom thus :—

| Years              | U. Kingdom | N. S. Wales |
|--------------------|------------|-------------|
| Under 20 . . . . . | 462        | 498         |
| 20-40 . . . . .    | 292        | 309         |
| Over 40 . . . . .  | 246        | 193         |
| Total . . . . .    | 1,000      | 1,000       |

## CANADA

The returns for 1886 of deaths in the principal towns were as follow :—

| Age                           | Montreal | Toronto | Quebec | Hamilton | Halifax | Ottawa | St. John,<br>N.B. | Winnipeg |
|-------------------------------|----------|---------|--------|----------|---------|--------|-------------------|----------|
| 0-5 . . . . .                 | 605      | 495     | 604    | 408      | 414     | 625    | 316               | 526      |
| 5-20 . . . . .                | 73       | 112     | 87     | 123      | 119     | 94     | 137               | 124      |
| 20-40 . . . . .               | 116      | 148     | 82     | 152      | 147     | 105    | 167               | 224      |
| 40-60 . . . . .               | 87       | 110     | 76     | 133      | 122     | 66     | 123               | 81       |
| Over 60 . . . . .             | 119      | 135     | 151    | 184      | 198     | 110    | 257               | 45       |
| Total . . . . .               | 1,000    | 1,000   | 1,000  | 1,000    | 1,000   | 1,000  | 1,000             | 1,000    |
| Per 1000 population . . . . . | 28.0     | 21.5    | 33.6   | 20.7     | 20.5    | 28.8   | 21.2              | 19.8     |

## VARIOUS COLONIES

The rates in some of the colonies for the years 1876-80 were :—

|                     |                  |                    |
|---------------------|------------------|--------------------|
| St. Helena . . 13.2 | Jamaica . . 21.9 | Mauritius . . 28.3 |
| Singapore . . 20.1  | Bermuda . . 24.1 | Trinidad . . 34.1  |
| Ceylon . . 21.6     | Hong-Kong . 25.6 | Demerara . 34.5    |

## FRANCE

The death-rate per 1000 inhabitants yearly has been :—

|                   |      |                   |      |
|-------------------|------|-------------------|------|
| 1800-10 . . . . . | 27.7 | 1841-50 . . . . . | 23.3 |
| 1811-20 . . . . . | 26.0 | 1851-60 . . . . . | 23.9 |
| 1821-30 . . . . . | 25.0 | 1861-70 . . . . . | 23.6 |
| 1831-40 . . . . . | 24.8 | 1871-80 . . . . . | 24.3 |

The rate for various ages in France and at Paris in the years 1874-78 showed thus :—

| Age             | Per 1000 Persons |       |
|-----------------|------------------|-------|
|                 | France           | Paris |
| 0-5 . . . . .   | 64.6             | 102.0 |
| 5-10 . . . . .  | 6.6              | 9.5   |
| 11-20 . . . . . | 5.0              | 5.7   |
| 21-30 . . . . . | 8.9              | 10.0  |
| 31-40 . . . . . | 9.9              | 12.6  |
| 41-50 . . . . . | 12.0             | 15.8  |
| 51-60 . . . . . | 19.5             | 24.6  |
| 61-70 . . . . . | 40.3             | 48.7  |

The span of life has lengthened much in the last 100 years, the ratio of deaths in France showing thus :—

| Age               | 1770  | 1857-66 |
|-------------------|-------|---------|
| Under 1 . . . . . | 27.9  | 20.4    |
| 1-3 . . . . .     | 13.7  | 8.6     |
| 3-5 . . . . .     | 5.0   | 3.4     |
| 5-10 . . . . .    | 5.2   | 3.4     |
| 10-20 . . . . .   | 4.1   | 4.7     |
| 20-30 . . . . .   | 6.2   | 6.5     |
| 30-40 . . . . .   | 7.2   | 5.8     |
| 40-50 . . . . .   | 7.0   | 6.5     |
| 50-60 . . . . .   | 7.2   | 8.5     |
| 60-70 . . . . .   | 7.5   | 12.7    |
| Over 70 . . . . . | 9.0   | 19.5    |
|                   | 100.0 | 100.0   |

French death-rate in the years 1872-75 showed as follows :—

|                  |      |
|------------------|------|
| Towns . . . . .  | 25.1 |
| Rural . . . . .  | 21.1 |
| France . . . . . | 22.4 |

Infant mortality has, nevertheless, increased of late, viz. :—

| Period            | Deaths under Twelve Months of<br>1000 Born |       |       |
|-------------------|--------------------------------------------|-------|-------|
|                   | Boys                                       | Girls | Total |
| 1840-49 . . . . . | 172                                        | 151   | 160   |
| 1850-59 . . . . . | 185                                        | 158   | 172   |
| 1860-69 . . . . . | 188                                        | 161   | 175   |
| 1874-76 . . . . . | ...                                        | ...   | 180   |

In the last period, of 1000 children born, 50 died in the first month, 32 in the two following, 35 between three and six months, and 63 in the second half-year, making in all 180 before reaching the age of twelve months. The following table shows the difference of infant mortality according to conditions :—

| General Rate 100  |     |                        |     |
|-------------------|-----|------------------------|-----|
| Males . . . . .   | 107 | Rural . . . . .        | 92  |
| Females . . . . . | 93  | Urban . . . . .        | 113 |
|                   |     | Legitimate . . . . .   | 93  |
|                   |     | Illegitimate . . . . . | 185 |

The following table shows the death-rate of Paris for sixty years :—

| Deaths Yearly per 1000 Inhabitants |      |                   |      |
|------------------------------------|------|-------------------|------|
| 1821-30 . . . . .                  | 32.0 | 1861-70 . . . . . | 26.7 |
| 1831-40 . . . . .                  | 31.9 | 1871-74 . . . . . | 21.6 |
| 1841-50 . . . . .                  | 29.6 | 1875-77 . . . . . | 23.7 |
| 1851-60 . . . . .                  | 30.0 | 1878-80 . . . . . | 24.5 |

Deaths according to months, taking the year as 1200, were :—

|                     | France, 1853 |       | Rural Population |       |         |
|---------------------|--------------|-------|------------------|-------|---------|
|                     | Urban        | Rural | Under<br>5 Years | 5-60  | Over 60 |
| January . . . . .   | 101          | 104   | 96               | 112   | 113     |
| February . . . . .  | 113          | 125   | 98               | 110   | 107     |
| March . . . . .     | 123          | 134   | 95               | 112   | 106     |
| April . . . . .     | 113          | 122   | 96               | 109   | 109     |
| May . . . . .       | 101          | 101   | 88               | 105   | 100     |
| June . . . . .      | 91           | 91    | 89               | 96    | 92      |
| July . . . . .      | 89           | 82    | 96               | 90    | 84      |
| August . . . . .    | 97           | 83    | 124              | 90    | 87      |
| September . . . . . | 97           | 88    | 140              | 96    | 96      |
| October . . . . .   | 86           | 84    | 106              | 97    | 102     |
| November . . . . .  | 85           | 84    | 87               | 95    | 101     |
| December . . . . .  | 104          | 102   | 85               | 88    | 103     |
| Total . . . . .     | 1,200        | 1,200 | 1,200            | 1,200 | 1,200   |

Accidental deaths in France showed the following :—

| Year           | Number | Year           | Number |
|----------------|--------|----------------|--------|
| 1830 . . . . . | 4,478  | 1870 . . . . . | 10,418 |
| 1840 . . . . . | 6,805  | 1880 . . . . . | 12,787 |
| 1850 . . . . . | 9,151  | 1885 . . . . . | 13,205 |
| 1860 . . . . . | 10,298 |                |        |



## DEATHS

185

## DEATHS

The causes of violent deaths in ten years ending 1860 averaged thus :—

|                   | Males | Females | Total |
|-------------------|-------|---------|-------|
| Drowned . . . .   | 43.6  | 45.0    | 43.9  |
| Run over . . . .  | 11.7  | 6.8     | 10.8  |
| Burnt . . . . .   | 5.0   | 22.0    | 8.1   |
| Hunger . . . . .  | 2.1   | 3.1     | 2.3   |
| Drink . . . . .   | 1.5   | 2.5     | 1.7   |
| Machinery . . . . | 4.3   | 1.6     | 3.8   |
| Fall . . . . .    | 15.5  | 10.2    | 14.5  |
| Various . . . . . | 16.3  | 8.8     | 14.9  |
|                   | 100.0 | 100.0   | 100.0 |

Accidents in Paris in the years 1861-67 showed the following yearly average :—

## PER MILLION PERSONS OF EACH CLASS

|                           | Killed |       |          | Injured |       |          |
|---------------------------|--------|-------|----------|---------|-------|----------|
|                           | Men    | Women | Children | Men     | Women | Children |
| Run over . . . .          | 118    | 16    | 32       | 1,180   | 317   | 237      |
| Other accidents } . . . . | 554    | 82    | 209      | 1,356   | 167   | 265      |
| Total . . . . .           | 672    | 98    | 241      | 2,536   | 484   | 502      |

The general ratio for the whole population, per million inhabitants, was as follows :—

|                           | Killed | Injured |
|---------------------------|--------|---------|
| Run over . . . . .        | 62     | 648     |
| Other accidents . . . .   | 300    | 666     |
| Total per million . . . . | 362    | 1,314   |

Accidents in French mines showed thus :—

| Period          | Number of Miners | Killed Yearly | Killed per 10,000 |
|-----------------|------------------|---------------|-------------------|
| 1851-54 . . . . | 72,000           | 115           | 16                |
| 1855-59 . . . . | 108,000          | 196           | 18                |
| 1860-63 . . . . | 117,000          | 228           | 20                |

Deaths at various ages according to season showed :—

|                  | 2-5   | 5-10  | 10-20 | 20-30 | 30-50 | 50-70 |
|------------------|-------|-------|-------|-------|-------|-------|
| Spring . . . . . | 29.0  | 32.5  | 29.7  | 28.9  | 29.3  | 29.4  |
| Summer . . . . . | 23.6  | 23.6  | 24.2  | 23.0  | 22.4  | 20.5  |
| Autumn . . . . . | 22.3  | 18.6  | 20.9  | 21.8  | 21.4  | 21.3  |
| Winter . . . . . | 25.1  | 25.3  | 25.2  | 26.3  | 26.9  | 28.8  |
| Total . . . . .  | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

The returns for the Institute of France during 75 years ending 1870 showed the following comparison of death-rate with the general population of France :—

| Age             | Death-Rate |                    | Life-Expectation, Years |                    |
|-----------------|------------|--------------------|-------------------------|--------------------|
|                 | Institute  | General Population | Institute               | General Population |
| 35-40 . . . . . | 12         | 13                 | 32                      | 29                 |
| 40-50 . . . . . | 14         | 15                 | 26                      | 24                 |
| 50-60 . . . . . | 21         | 22                 | 18                      | 17                 |
| 60-70 . . . . . | 44         | 47                 | 12                      | 11                 |
| 70-80 . . . . . | 82         | 90                 | 7                       | 6½                 |

Deaths from lightning in France in ten years ending 1863 averaged 64 men and 24 women yearly. The total

number of persons killed on railways in sixteen years was as follows :—

|                    | No.   | Per Annum |
|--------------------|-------|-----------|
| Travellers . . . . | 324   | 20        |
| Servants . . . . . | 2,154 | 135       |
| Others . . . . .   | 992   | 62        |
| Total . . . . .    | 3,470 | 217       |

Deaths from drowning were in 1881 as follows :—

|                    | Men   | Women | Total |
|--------------------|-------|-------|-------|
| Accidental . . . . | 3,263 | 679   | 3,942 |
| Suicidal . . . . . | 1,295 | 639   | 1,934 |
| Total . . . . .    | 4,558 | 1,318 | 5,876 |

The distribution of deaths according to the hours of day or night is shown for France, compared with Quetetet's observations for Belgium, thus :—

|                        | France |       | Quetetet, Belgium |
|------------------------|--------|-------|-------------------|
|                        | Towns  | Rural |                   |
| Midnight to 6 A.M. . . | 21.9   | 24.4  | 27.4              |
| 6 A.M. to noon . . . . | 26.3   | 27.5  | 26.4              |
| Noon to 6 P.M. . . . . | 30.8   | 26.3  | 24.0              |
| 6 P.M. to midnight . . | 21.0   | 21.8  | 22.2              |

## GERMANY

The death-rate of all Germany during eleven years ending 1881 for 1000 persons of each age was as follows :—

| Age          | Males | Females | Age        | Males | Females |
|--------------|-------|---------|------------|-------|---------|
| 1 . . . . .  | 64.9  | 63.6    | 25 . . . . | 8.5   | 8.8     |
| 2 . . . . .  | 33.2  | 32.6    | 30 . . . . | 9.3   | 9.7     |
| 3 . . . . .  | 23.1  | 22.5    | 40 . . . . | 13.6  | 12.2    |
| 4 . . . . .  | 17.1  | 16.9    | 50 . . . . | 21.5  | 16.0    |
| 5 . . . . .  | 13.0  | 12.9    | 60 . . . . | 38.2  | 32.9    |
| 10 . . . . . | 4.7   | 4.8     | 70 . . . . | 81.1  | 74.7    |
| 15 . . . . . | 3.9   | 4.2     | 80 . . . . | 174.5 | 168.3   |
| 20 . . . . . | 7.5   | 6.1     |            |       |         |

The death-rate of Prussia in the years 1868-72 was :—

| Age             | Deaths per 1000 |         | Expectations of Life, Years |         |
|-----------------|-----------------|---------|-----------------------------|---------|
|                 | Males           | Females | Males                       | Females |
| 4-5 . . . . .   | 19.0            | 19.3    | 51.9                        | 53.7    |
| 5-10 . . . . .  | 10.1            | 10.2    | 51.5                        | 53.3    |
| 10-15 . . . . . | 4.8             | 5.2     | 48.1                        | 49.8    |
| 15-20 . . . . . | 6.2             | 6.0     | 44.1                        | 45.5    |
| 20-30 . . . . . | 9.5             | 8.8     | 38.0                        | 39.5    |
| 30-40 . . . . . | 11.2            | 11.6    | 30.3                        | 31.3    |
| 40-50 . . . . . | 18.0            | 15.0    | 23.0                        | 23.7    |
| 50-60 . . . . . | 27.0            | 25.0    | 16.2                        | 16.2    |
| 60-70 . . . . . | 49.0            | 50.0    | 10.0                        | 9.9     |
| 70-80 . . . . . | 90.0            | 94.0    | 5.7                         | 5.4     |

The average age of all who died in ten years ending 1876 was :—

|                   |      |
|-------------------|------|
| Males . . . . .   | 25.8 |
| Females . . . . . | 27.6 |

The death-rate among Jews was much lower than among Christians, as shown thus :—

| Period          | Deaths Yearly per 1000 |         |       |         |
|-----------------|------------------------|---------|-------|---------|
|                 | Christians             |         | Jews  |         |
|                 | Males                  | Females | Males | Females |
| 1822-40 . . . . | 28.7                   | 27.0    | 22.1  | 19.1    |
| 1841-66 . . . . | 30.2                   | 28.2    | 19.8  | 17.9    |

The mean death-rate of five principal cities during sixty years down to 1875 was as follows :—

|                   |      |                   |      |
|-------------------|------|-------------------|------|
| 1816-40 . . . . . | 33.9 | 1867-71 . . . . . | 37.4 |
| 1841-66 . . . . . | 35.4 | 1872-75 . . . . . | 40.6 |

The mean rate during sixty years was as follows :—

|                      | Males | Females |
|----------------------|-------|---------|
| Berlin . . . . .     | 36.7  | 28.5    |
| Breslau . . . . .    | 36.8  | 33.0    |
| Cologne . . . . .    | 30.6  | 28.8    |
| Königsberg . . . . . | 38.2  | 31.9    |

The mean rate for all Prussia in sixty years was per 1000 inhabitants :—

|                   |      |                    |      |
|-------------------|------|--------------------|------|
| Males . . . . .   | 30.2 | Urban population . | 30.1 |
| Females . . . . . | 27.7 | Rural „ . . . . .  | 28.4 |

The general rate for all Prussia during sixty years averaged 29.0 per thousand.

The deaths of infants at Berlin show that of 1000 born 237 die in the first year, 80 the second, 36 the third, and 9 the fourth, leaving only 638 surviving to begin their fifth year. Of 100 accidental deaths in Prussia in ten years down to 1874, 78 were of males, 22 of females.

Hanoverian statistics show the death-rate of unhealthy trades as follows :—

| Per 1000 Yearly  |      |                   |      |
|------------------|------|-------------------|------|
| Painters . . . . | 15.6 | Glass-blowers . . | 20.8 |
| Varnishers . . . | 18.8 | Dyers . . . . .   | 25.1 |

In Saxony the death-rates in 1845-47 were :—

| Age               | Per 1000 Yearly |         |         |
|-------------------|-----------------|---------|---------|
|                   | Males           | Females | General |
| 1-14 . . . . .    | 17.5            | 15.8    | 16.6    |
| 14-30 . . . . .   | 6.6             | 6.6     | 6.6     |
| 30-60 . . . . .   | 16.2            | 16.3    | 16.2    |
| Over 60 . . . . . | 94.4            | 94.6    | 94.5    |

Distinguishing town-rates from rural, the rates in the year 1863 were :—

| Age     | Cities |         |         | Rural |         |         |
|---------|--------|---------|---------|-------|---------|---------|
|         | Males  | Females | General | Males | Females | General |
| Under 6 | 116.0  | 100.0   | 108.0   | 101.0 | 83.0    | 92.0    |
| 6-14    | 4.6    | 4.8     | 4.7     | 4.4   | 4.3     | 4.4     |
| 14-20   | 4.8    | 5.5     | 5.1     | 4.3   | 4.1     | 4.2     |
| 20-30   | 8.7    | 8.5     | 8.6     | 6.4   | 6.9     | 6.7     |
| 30-40   | 11.4   | 12.9    | 12.1    | 8.1   | 10.3    | 9.2     |
| 40-50   | 19.0   | 14.4    | 16.6    | 14.2  | 13.4    | 13.8    |
| 50-60   | 32.0   | 25.9    | 28.8    | 26.9  | 24.6    | 25.7    |
| 60-70   | 62.5   | 56.9    | 59.5    | 58.8  | 57.9    | 58.3    |
| 70-80   | 142.0  | 150.0   | 146.0   | 118.0 | 134.0   | 126.0   |

Distinguishing married from single at Leipzig, in ten years ending 1875 the rates were :—

| Age     | Males   |        | Females |        | General |
|---------|---------|--------|---------|--------|---------|
|         | Married | Single | Married | Single |         |
| 15-20   | ...     | 3.6    | 11.0    | 3.0    | 3.4     |
| 20-30   | 9.0     | 8.2    | 8.2     | 6.5    | 7.5     |
| 30-40   | 12.5    | 18.5   | 11.6    | 8.8    | 12.5    |
| 40-50   | 21.8    | 31.0   | 12.2    | 13.2   | 18.8    |
| 50-60   | 31.0    | 31.4   | 17.4    | 22.2   | 26.6    |
| 60-70   | 55.0    | 56.0   | 35.0    | 55.0   | 49.0    |
| Over 70 | 117.0   | 111.0  | 85.0    | 111.0  | 123.0   |

The effect of over-crowding on death-rate is shown thus :—

| Living in                  | Berlin, 1871 | Leipzig, 1875 |
|----------------------------|--------------|---------------|
| One room . . . . .         | 48.7         | 21.4          |
| Two rooms . . . . .        | 24.9         | 25.9          |
| Three rooms . . . . .      | 11.2         | 20.2          |
| Over three rooms . . . . . | 15.2         | 32.5          |
|                            | 100.0        | 100.0         |

It would appear from the foregoing that there is much over-crowding at Berlin and little at Leipzig, nearly half the deaths in the former city occurring in families living in one room, and at Leipzig less than one-fourth. The mortality of infants, however, is much higher at Leipzig in the crowded population than among the other quarters of the city, viz. :—

| Inhabitants per Room  | Death-Rate Yearly per 1000 Infants |                             |
|-----------------------|------------------------------------|-----------------------------|
|                       | Under Twelve Months                | Twelve Months to Five Years |
| Over 3 . . . . .      | 419                                | 49                          |
| 2-3 . . . . .         | 338                                | 45                          |
| 1 . . . . .           | 255                                | 37                          |
| Less than 1 . . . . . | 111                                | 14                          |

The death-rate in Leipzig for all persons over five years was 9.9 per 1000 where the population was less than one per room, and 18.4 in the rest. Infant mortality at Leipzig in ten years ending 1875 showed thus :—

Of 1000 born, die under twelve months

|                        |     |
|------------------------|-----|
| Males . . . . .        | 233 |
| Females . . . . .      | 205 |
| General rate . . . . . | 219 |

The death-rate of infants is increasing, the rates for all Saxony of 1000 born who die under twelve months showing thus :—

| Period            | Boys | Girls | General Rate |
|-------------------|------|-------|--------------|
| 1845-55 . . . . . | 277  | 235   | 257          |
| 1856-65 . . . . . | 283  | 241   | 263          |
| 1866-75 . . . . . | 293  | 252   | 272          |

Mortality is much higher with illegitimate than with lawful children, averages for six years ending 1870 being thus :—

|                        | Deaths per 1000 Born |         |
|------------------------|----------------------|---------|
|                        | Saxony               | Dresden |
| Legitimate . . . . .   | 256                  | 250     |
| Illegitimate . . . . . | 353                  | 705     |

The general death-rate of Saxony was 30.1 in ten years ending 1849, and 30.3 in ten years ending 1876.

At Munich the death-rate of infants shows that of 1000 born, the Jews lose 170 in the first year, Protestants 320, and Roman Catholics 400, the last including all the working-classes, who suffer from overcrowding.

#### SWITZERLAND

The death-rate per 1000 inhabitants yearly for all Switzerland for ten years ending 1880 was 24.0. Rates, however, vary much with the cantons. For example, infant mortality at Berne is 101 per thousand, and at St. Gall 301. The statistics of Geneva for 25 years ending 1871 showed the annual average death-rate thus :—

|                             |      |
|-----------------------------|------|
| Swiss . . . . .             | 21.7 |
| Foreign residents . . . . . | 15.4 |

## DEATHS

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At Geneva there were 101 deaths to 100 births among natives, whereas among foreign residents there were 156 births to 100 deaths. Ladame gives the rates of infant mortality, distinguishing legitimate from illegitimate, thus :—

|                    | Of 1000 Born   |                  |
|--------------------|----------------|------------------|
|                    | Die in 30 Days | Die in 12 Months |
| Legitimate . . .   | 77             | 180              |
| Illegitimate . . . | 136            | 280              |

Climatic changes have occurred at Geneva since the seventeenth century, August and September having much lower ratios of deaths than in 1633-1700, viz. :—

## OF 1200 DEATHS YEARLY

|                | 1633-1700 | 1838-55 |                 | 1633-1700 | 1838-55 |
|----------------|-----------|---------|-----------------|-----------|---------|
| January . . .  | 114       | 114     | July . . .      | 84        | 86      |
| February . . . | 106       | 117     | August . . .    | 108       | 83      |
| March . . .    | 105       | 120     | September . . . | 105       | 90      |
| April . . .    | 100       | 111     | October . . .   | 89        | 95      |
| May . . .      | 100       | 95      | November . . .  | 95        | 96      |
| June . . .     | 86        | 92      | December . . .  | 108       | 101     |

Accidental deaths in the years 1876-81 averaged 1697 per annum, equal to 605 per million inhabitants, or 280 in 10,000 deaths.

## SWEDEN

Death-rates for age from 1751 to 1875 showed thus :—

| Age           | 1751-90 | 1791-1830 | 1831-60 | 1861-70 | 1871-75 |
|---------------|---------|-----------|---------|---------|---------|
| 0-10 . . .    | 55.4    | 45.4      | 36.5    | 35.1    | 30.0    |
| 10-20 . . .   | 7.3     | 5.8       | 5.1     | 4.5     | 4.0     |
| 21-30 . . .   | 9.5     | 8.5       | 7.3     | 6.4     | 7.0     |
| 31-40 . . .   | 12.4    | 11.6      | 10.5    | 8.3     | 8.7     |
| 41-50 . . .   | 17.2    | 16.6      | 15.1    | 12.0    | 11.4    |
| 51-60 . . .   | 21.9    | 26.6      | 24.5    | 20.3    | 18.1    |
| Over 60 . . . | 76.5    | 81.0      | 74.0    | 68.8    | 64.0    |

The rates for the years 1871-75 were thus :—

|               | 0-20 | 20-30 | 31-40 | 41-50 | Over 50 |
|---------------|------|-------|-------|-------|---------|
| Males . . .   | 19.1 | 7.8   | 9.3   | 13.0  | 42.2    |
| Females . . . | 16.8 | 6.3   | 8.1   | 10.0  | 38.9    |

Distinguishing the sexes, and also urban from rural, the rates for ten years ending 1870 were :—

| Age           | Males |       | Females |       |
|---------------|-------|-------|---------|-------|
|               | Town  | Rural | Town    | Rural |
| Under 1 . . . | 256.0 | 159.0 | 222.0   | 133.0 |
| 1-5 . . .     | 54.0  | 31.0  | 53.0    | 29.0  |
| 5-10 . . .    | 12.9  | 9.2   | 12.9    | 8.6   |
| 10-20 . . .   | 5.9   | 4.4   | 4.8     | 4.2   |
| 20-30 . . .   | 10.5  | 6.6   | 8.1     | 5.4   |
| 30-40 . . .   | 16.7  | 7.7   | 10.2    | 7.4   |
| 40-50 . . .   | 25.4  | 12.5  | 13.8    | 10.5  |
| 50-60 . . .   | 40.0  | 22.0  | 20.0    | 17.0  |
| 60-70 . . .   | 66.0  | 46.0  | 36.0    | 39.0  |
| 70-80 . . .   | 130.0 | 112.0 | 96.0    | 94.0  |
| General rate  | 29.7  | 20.5  | 25.5    | 18.9  |

The average age at death was in years as follows :—

|             | Males   |         |         | Females |         |         |
|-------------|---------|---------|---------|---------|---------|---------|
|             | 1861-65 | 1866-70 | 1871-75 | 1861-65 | 1866-70 | 1871-75 |
| Town . . .  | 23.3    | 24.3    | 25.8    | 28.4    | 29.9    | 31.3    |
| Rural . . . | 30.0    | 33.5    | 34.2    | 34.5    | 37.4    | 38.4    |
| Gen. . .    | 29.0    | 32.0    | 32.6    | 33.6    | 36.2    | 37.3    |

## RATIO OF DEATHS

|                 | Males   |         | Females |         |
|-----------------|---------|---------|---------|---------|
|                 | 1861-70 | 1871-75 | 1861-70 | 1871-75 |
| Unmarried . . . | 59.7    | 57.5    | 54.3    | 51.3    |
| Married . . .   | 28.4    | 29.8    | 22.6    | 24.6    |
| Widowed . . .   | 11.9    | 12.7    | 23.1    | 24.1    |
| Total . . .     | 100.0   | 100.0   | 100.0   | 100.0   |

The number of females dying to 100 males was :—

|              | 1861-70 | 1871-75 |
|--------------|---------|---------|
| Town . . .   | 95.4    | 92.2    |
| Rural . . .  | 96.4    | 97.3    |
| Sweden . . . | 96.2    | 96.3    |

Ratios of deaths according to months showed thus :—

|                 | 1749-60 | 1861-65 | 1861-73 |       |         |
|-----------------|---------|---------|---------|-------|---------|
|                 | Sweden  | Sweden  | Urban   | Rural | General |
| January . . .   | 102     | 100     | 107     | 115   | 114     |
| February . . .  | 104     | 116     | 108     | 117   | 116     |
| March . . .     | 113     | 121     | 107     | 119   | 117     |
| April . . .     | 124     | 118     | 109     | 117   | 116     |
| May . . .       | 120     | 107     | 103     | 108   | 108     |
| June . . .      | 105     | 84      | 95      | 92    | 92      |
| July . . .      | 94      | 76      | 96      | 81    | 83      |
| August . . .    | 90      | 82      | 95      | 79    | 81      |
| September . . . | 86      | 102     | 95      | 79    | 81      |
| October . . .   | 84      | 95      | 91      | 86    | 87      |
| November . . .  | 87      | 100     | 92      | 99    | 98      |
| December . . .  | 91      | 99      | 102     | 108   | 107     |
| Total . . .     | 1,200   | 1,200   | 1,200   | 1,200 | 1,200   |

Violent deaths were as follows :—

|                                  | Annual Average |         | Total Number in 15 years | Ratio 1861-75 |
|----------------------------------|----------------|---------|--------------------------|---------------|
|                                  | 1861-70        | 1871-75 |                          |               |
| Drowned . . .                    | 1,132          | 1,202   | 17,268                   | 45.7          |
| Burnt . . .                      | 152            | 150     | 2,267                    | 6.0           |
| Suffocated . . .                 | 146            | 102     | 1,974                    | 5.2           |
| Murdered . . .                   | 78             | 105     | 1,299                    | 3.4           |
| Crushed . . .                    | 461            | 573     | 7,482                    | 19.7          |
| Poisoned acci-<br>dentally . . . | 20             | 21      | 310                      | 0.8           |
| Shot acci-<br>dentally . . .     | 29             | 38      | 489                      | 1.3           |
| Lightning . . .                  | 11             | 14      | 183                      | 0.5           |
| Frozen . . .                     | 54             | 64      | 862                      | 2.3           |
| Various . . .                    | 43             | 46      | 681                      | 1.8           |
| Suicide . . .                    | 328            | 347     | 5,068                    | 13.3          |
| Total . . .                      | 2,454          | 2,662   | 37,883                   | 100.0         |

Accidental deaths (including also murders) in the above fifteen years, distinguishing urban from rural districts, were per million inhabitants yearly as follows :—

|                 | Town    |         | Rural   |         |
|-----------------|---------|---------|---------|---------|
|                 | 1861-70 | 1871-75 | 1861-70 | 1871-75 |
| Drowned . . .   | 436     | 255     | 174     | 112     |
| Burnt . . .     | 31      | 37      | 6       | 2       |
| Lightning . . . | 3       | 3       | 8       | 8       |
| Murdered . . .  | 3       | 2       | 10      | 4       |

## NORWAY

Death-rate per 1000 inhabitants yearly from 1801 to 1875 was as follows :—

|               |      |               |      |               |      |
|---------------|------|---------------|------|---------------|------|
| 1801-15 . . . | 25.0 | 1836-45 . . . | 18.9 | 1856-65 . . . | 17.7 |
| 1816-35 . . . | 19.2 | 1846-55 . . . | 18.1 | 1866-75 . . . | 17.5 |

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Rates distinguishing age and sex showed as follows :—

| Age      | Males   |         |         | Females |         |         |
|----------|---------|---------|---------|---------|---------|---------|
|          | 1816-40 | 1841-60 | 1861-65 | 1816-40 | 1841-60 | 1861-65 |
| Under 10 | 32.2    | 27.4    | 31.2    | 28.0    | 24.2    | 28.8    |
| 10-20    | 4.7     | 4.7     | 5.5     | 4.2     | 4.2     | 5.1     |
| 21-30    | 8.2     | 8.2     | 8.4     | 6.5     | 6.0     | 6.3     |
| 31-40    | 9.5     | 9.0     | 8.0     | 9.0     | 8.6     | 8.3     |
| 41-50    | 13.2    | 12.8    | 11.1    | 11.6    | 10.8    | 9.9     |
| 51-60    | 21.7    | 20.0    | 17.0    | 17.3    | 15.8    | 14.0    |
| 61-70    | 40.0    | 38.0    | 35.0    | 35.0    | 33.0    | 30.0    |
| 71-80    | 81.0    | 84.0    | 81.0    | 77.0    | 77.5    | 72.0    |

Infant mortality has been as follows :—

| Period  | Deaths under 12 Months of 1000 Born |         |
|---------|-------------------------------------|---------|
|         | Males                               | Females |
| 1836-55 | 130                                 | 109     |
| 1856-65 | 112                                 | 96      |
| 1866-73 | 115                                 | 98      |

## FINLAND

Death-rate per 1000 inhabitants yearly was as follows :—

|           |      |         |      |         |      |
|-----------|------|---------|------|---------|------|
| 1751-70   | 29.6 | 1811-20 | 26.1 | 1841-50 | 23.6 |
| 1771-1800 | 26.4 | 1821-30 | 24.7 | 1851-60 | 28.6 |
| 1801-10   | 32.3 | 1831-40 | 28.2 | 1861-65 | 26.2 |

In 1865 the span of life, in years, was as follows :—

|         |      |
|---------|------|
| Males   | 35.6 |
| Females | 38.4 |

The general span for the whole population was thirty-seven years.

Death-rate for age was as follows :—

| Age                 | Age             | Age              |
|---------------------|-----------------|------------------|
| Under 1 . . . 139.0 | 10-20 . . . 4.0 | 40-50 . . . 11.5 |
| 1-5 . . . 25.0      | 20-30 . . . 6.5 | 50-60 . . . 19.0 |
| 5-10 . . . 8.0      | 30-40 . . . 7.5 | 60-70 . . . 44.0 |

## RUSSIA

In 1867 the following table of death-rate was published :—

| Per 1000 Yearly |           |         |             |
|-----------------|-----------|---------|-------------|
| Age             |           | Age     |             |
| 5-15            | . . . 7.3 | 30-60   | . . . 21.5  |
| 15-30           | . . . 8.0 | Over 60 | . . . 121.0 |

Of 1000 boys born, 254 die, and of girls 231, in their first year. At Nijni Novgorod infant mortality is 360, and in the government of Perm 446 per thousand births.

## HOLLAND

Death-rate per 1000 inhabitants yearly was :—

|         |      |
|---------|------|
| 1861-70 | 24.9 |
| 1871-80 | 24.3 |

The influence of season on death-rate at various ages is seen as follows :—

| Age            | Spring | Summer | Autumn | Winter | Year  |
|----------------|--------|--------|--------|--------|-------|
| Under 3 months | 246    | 212    | 248    | 294    | 1,000 |
| 3-24           | 247    | 259    | 259    | 235    | 1,000 |
| 25-30          | 273    | 229    | 235    | 263    | 1,000 |
| 31-40          | 269    | 259    | 231    | 241    | 1,000 |
| 41-50          | 265    | 261    | 229    | 245    | 1,000 |
| 51-60          | 261    | 253    | 232    | 254    | 1,000 |
| 61-70          | 260    | 246    | 226    | 268    | 1,000 |
| 71-80          | 253    | 223    | 228    | 296    | 1,000 |

## GREECE

In ten years ending 1878 the death-rate for age was as follows :—

| Age     | Males | Females | General Population |
|---------|-------|---------|--------------------|
| Under 5 | 50.3  | 49.0    | 49.7               |
| 5-10    | 11.2  | 10.8    | 11.1               |
| 10-20   | 7.4   | 7.2     | 7.3                |
| 20-30   | 9.8   | 8.5     | 9.1                |
| 30-40   | 11.3  | 10.7    | 11.0               |
| 40-50   | 15.5  | 14.9    | 15.2               |
| 50-60   | 28.5  | 24.4    | 26.5               |
| 60-70   | 49.0  | 46.0    | 47.7               |
| 70-80   | 91.0  | 105.0   | 98.0               |

## BELGIUM

The annual average of deaths since 1830 was :—

| Year    | Number  | Per 1000 Population | Year    | Number  | Per 1000 Population |
|---------|---------|---------------------|---------|---------|---------------------|
| 1831-40 | 108,000 | 26.7                | 1861-70 | 115,000 | 23.3                |
| 1841-50 | 104,000 | 24.2                | 1871-80 | 120,000 | 22.5                |
| 1851-60 | 102,000 | 22.2                | 1881-87 | 118,000 | 20.7                |

The percentage of deaths according to age was as follows :—

|         | 1841-50 | 1851-60 | 1861-66 | 1878-82 | 1887  |
|---------|---------|---------|---------|---------|-------|
| Under 5 | 34.1    | 35.9    | 37.4    | 36.4    | 33.9  |
| 5-10    | 4.9     | 4.1     | 4.7     | 2.9     | 2.7   |
| 10-20   | 6.1     | 5.7     | 4.7     | 4.0     | 3.9   |
| 20-30   | 7.1     | 6.6     | 6.4     | 5.4     | 5.6   |
| 30-40   | 6.3     | 6.1     | 6.2     | 5.6     | 5.3   |
| 40-50   | 7.2     | 6.4     | 6.4     | 6.0     | 6.3   |
| 50-60   | 7.6     | 8.3     | 7.7     | 7.9     | 7.9   |
| 60-70   | 10.1    | 10.1    | 10.9    | 11.1    | 11.9  |
| 70-80   | 10.7    | 11.1    | 10.2    | 13.6    | 14.1  |
| Over 80 | 5.9     | 5.7     | 5.4     | 7.1     | 8.4   |
| Total   | 100.0   | 100.0   | 100.0   | 100.0   | 100.0 |

Sanitary improvements have done much for public health. For instance, the percentage of deaths between 5 and 20 years of age is now little more than half what it was in the decade of 1841-50; that of deaths over 70 years is one-third higher.

The mean averages for 35 years, 1846-80, showed as follows :—

|         | Unmarried |         | Married |         | Total Population |         |
|---------|-----------|---------|---------|---------|------------------|---------|
|         | Males     | Females | Males   | Females | Males            | Females |
| 0-15    | 73.8      | 71.3    | ...     | ...     | 43.4             | 40.8    |
| 15-20   | 4.1       | 5.2     | ...     | 0.2     | 2.4              | 3.1     |
| 20-30   | 6.3       | 7.4     | 3.6     | 9.4     | 6.6              | 6.5     |
| 30-40   | 4.2       | 3.1     | 11.4    | 19.1    | 5.6              | 6.5     |
| 40-50   | 3.0       | 2.3     | 17.6    | 19.3    | 6.9              | 6.4     |
| 50-60   | 2.7       | 2.6     | 21.4    | 17.9    | 8.5              | 7.3     |
| 60-70   | 2.7       | 3.2     | 23.6    | 18.8    | 10.7             | 10.5    |
| 70-80   | 2.3       | 3.3     | 17.6    | 12.5    | 10.8             | 12.1    |
| Over 80 | 0.9       | 1.6     | 4.8     | 2.8     | 5.1              | 6.8     |
| Total   | 100.0     | 100.0   | 100.0   | 100.0   | 100.0            | 100.0   |

Death-rate for age is stated as follows :—

| Age  | Per 1000 | Age   | Per 1000 | Age     | Per 1000 |
|------|----------|-------|----------|---------|----------|
| 0-1  | 186.0    | 10-20 | 6.2      | 40-60   | 20.6     |
| 1-10 | 20.1     | 20-40 | 13.4     | Over 60 | 79.1     |

## DEATHS

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## DEATHS

Violent deaths were as follows :—

| By              | Annual Average, 1871-80 |         |       | 1881-85 |
|-----------------|-------------------------|---------|-------|---------|
|                 | Males                   | Females | Total |         |
| Firearms . . .  | 21                      | 3       | 24    | 23      |
| Fire . . .      | 135                     | 101     | 236   | 226     |
| Fall . . .      | 291                     | 42      | 333   | 320     |
| Railway . . .   | 161                     | 18      | 179   | 175     |
| Machinery . . . | 107                     | 11      | 118   | 103     |
| Drowning . . .  | 503                     | 100     | 603   | 607     |
| Vehicles . . .  | 131                     | 19      | 150   | 147     |
| Various . . .   | 328                     | 68      | 396   | 384     |
| All accidents   | 1,677                   | 362     | 2,039 | 1,985   |
| Murder . . .    | 67                      | 19      | 86    | 98      |
| Suicide . . .   | 373                     | 68      | 441   | 602     |
| Total . . .     | 2,117                   | 449     | 2,566 | 2,685   |

Other tables will be found at page 179. The influence of season on death-rate is shown by the following ratios :—

|              | Death Ratios   |                |                    |
|--------------|----------------|----------------|--------------------|
|              | Under 3 Months | 3 to 24 Months | General Population |
| Spring . . . | 264            | 293            | 279                |
| Summer . . . | 200            | 206            | 218                |
| Autumn . . . | 225            | 207            | 220                |
| Winter . . . | 311            | 294            | 283                |
|              | 1,000          | 1,000          | 1,000              |

## ITALY

The death-rate per 1000 inhabitants yearly has been :—

|               |      |
|---------------|------|
| 1861-70 . . . | 30.1 |
| 1871-80 . . . | 29.7 |

Deaths in Italian cities according to season showed thus :—

## GENOA

|              | Under 5 | 5-10  | 10-30 | 30-50 | 50-70 |
|--------------|---------|-------|-------|-------|-------|
| Spring . . . | 21.3    | 21.7  | 22.5  | 20.4  | 22.1  |
| Summer . . . | 26.0    | 25.7  | 27.0  | 26.8  | 23.9  |
| Autumn . . . | 26.3    | 29.4  | 29.3  | 30.0  | 28.1  |
| Winter . . . | 26.4    | 23.2  | 21.2  | 22.8  | 25.9  |
|              | 100.0   | 100.0 | 100.0 | 100.0 | 100.1 |

## NAPLES

|              | Under 5 | 5-10  | 10-30 | 30-50 | 50-70 |
|--------------|---------|-------|-------|-------|-------|
| Spring . . . | 23.8    | 28.6  | 24.2  | 24.6  | 25.3  |
| Summer . . . | 29.5    | 26.1  | 25.3  | 25.6  | 20.8  |
| Autumn . . . | 21.0    | 18.4  | 25.0  | 23.0  | 22.3  |
| Winter . . . | 25.7    | 26.9  | 25.5  | 26.8  | 31.6  |
|              | 100.0   | 100.0 | 100.0 | 100.0 | 100.0 |

## SPAIN AND PORTUGAL

The ratios of ages in deaths for Spain and Lisbon were :—

| Age           | Spain | Lisbon |
|---------------|-------|--------|
| 0-20 . . .    | 59.9  | 50.1   |
| 20-40 . . .   | 10.3  | 10.5   |
| 40-60 . . .   | 12.0  | 13.0   |
| Over 60 . . . | 17.8  | 26.4   |
| Total . . .   | 100.0 | 100.0  |

## AUSTRIA-HUNGARY

The death-rates have been as follows :—

|               | 1861-70 | 1871-80 |
|---------------|---------|---------|
| Austria . . . | 30.4    | 31.2    |
| Hungary . . . | 38.7    | 40.1    |

Death-rates for age were as follows :—

| Age     | Austria, 1860-68 | Hungary, 1869-73 | Age     | Austria, 1860-68 | Hungary, 1869-73 |
|---------|------------------|------------------|---------|------------------|------------------|
| Under 1 | 303.0            | ...              | 15-30   | 8.1              | 9.3              |
| 1-5     | 40.6             | 34.3             | 30-60   | 17.1             | 20.0             |
| 5-15    | 7.3              | 10.2             | Over 60 | 84.0             | ...              |

Deaths at Vienna, according to season, showed thus :—

|              | Under 5 | 5-15  | 15-40 | 40-80 | Over 60 |
|--------------|---------|-------|-------|-------|---------|
| Spring . . . | 29.7    | 28.8  | 32.4  | 30.9  | 30.3    |
| Summer . . . | 23.5    | 21.9  | 22.6  | 21.1  | 20.6    |
| Autumn . . . | 21.9    | 22.7  | 19.0  | 22.0  | 21.2    |
| Winter . . . | 24.9    | 26.6  | 26.0  | 26.0  | 27.9    |
|              | 100.0   | 100.0 | 100.0 | 100.0 | 100.0   |

Statistics of Prague show the death-rate thus :—

| Age           | Per 1000 | Age           | Per 1000 |
|---------------|----------|---------------|----------|
| Under 1 . . . | 497      | 20-40 . . .   | 14       |
| 1-5 . . .     | 85       | 40-60 . . .   | 25       |
| 5-20 . . .    | 10       | Over 60 . . . | 71       |

The general rate for the population was 35 per 1000.

Violent deaths in 1886 in Austria proper were as follows :—

|                 | Number |         |        | In 100,000 Deaths |         |       |
|-----------------|--------|---------|--------|-------------------|---------|-------|
|                 | Males  | Females | Total  | Males             | Females | Total |
| Accidents . . . | 4,603  | 1,830   | 6,433  | 138               | 57      | 96    |
| Murders . . .   | 493    | 170     | 663    | 15                | 5       | 10    |
| Suicides . . .  | 3,013  | 824     | 3,837  | 90                | 25      | 57    |
| Total . . .     | 8,109  | 2,824   | 10,933 | 243               | 87      | 163   |

In five years ending 1886 the average per 100,000 deaths showed there were 10 murders, 55 suicides, and 90 deaths by accident.

## ALGERIA

There has been a notable decline of death-rate, as the following table shows :—

| Nationality     | Deaths per 1000 Persons Yearly |         |
|-----------------|--------------------------------|---------|
|                 | 1853-56                        | 1873-76 |
| French . . .    | 46.3                           | 26.8    |
| Spaniards . . . | 30.0                           | 27.9    |
| Italians . . .  | 30.0                           | 28.9    |
| Maltese . . .   | 28.2                           | 26.7    |
| Germans . . .   | 54.8                           | 36.9    |
| Jews . . .      | 27.9                           | 24.4    |

Deaths in Algeria according to season were :—

|              |       |
|--------------|-------|
| Spring . . . | 19.5  |
| Summer . . . | 29.3  |
| Autumn . . . | 28.5  |
| Winter . . . | 22.7  |
|              | 100.0 |

## DEATHS

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## DIET

Algerian statistics show that of 1000 infants born the following numbers die in the first twelve months :—

| Parents             | Death per 1000 |       |         |
|---------------------|----------------|-------|---------|
|                     | Boys           | Girls | General |
| French . . . . .    | 244            | 146   | 207     |
| Spanish . . . . .   | 238            | 250   | 257     |
| Italian . . . . .   | 245            | 184   | 224     |
| Jewish . . . . .    | 236            | 182   | 213     |
| Mahometan . . . . . | 530            | 488   | 500     |
| German . . . . .    | ...            | ...   | 344     |

Deaths according to months in Algeria, taking the year as 1200, were :—

|                          |     |                          |     |
|--------------------------|-----|--------------------------|-----|
| January . . . . .        | 96  | July . . . . .           | 127 |
| February . . . . .       | 86  | August . . . . .         | 138 |
| March . . . . .          | 91  | September . . . . .      | 102 |
| First quarter . . . . .  | 273 | Third quarter . . . . .  | 367 |
| April . . . . .          | 71  | October . . . . .        | 127 |
| May . . . . .            | 72  | November . . . . .       | 113 |
| June . . . . .           | 86  | December . . . . .       | 91  |
| Second quarter . . . . . | 229 | Fourth quarter . . . . . | 331 |

### JAPAN

The returns for 1878-80 showed as follows :—

|                        | Death-Rate per 1000 | Ratio of Deaths |
|------------------------|---------------------|-----------------|
| Under 10 . . . . .     | 25.8                | 28.0            |
| 10-20 . . . . .        | 5.4                 | 4.9             |
| 20-30 . . . . .        | 8.6                 | 7.7             |
| 30-40 . . . . .        | 9.2                 | 8.6             |
| 40-50 . . . . .        | 8.9                 | 8.7             |
| 50-60 . . . . .        | 11.5                | 11.4            |
| 60-70 . . . . .        | 13.9                | 13.8            |
| 70-80 . . . . .        | 12.1                | 11.6            |
| Over 80 . . . . .      | 4.8                 | 5.3             |
| General rate . . . . . | 17.0                | 100.0           |

In 1000 deaths 527 were of males, 473 females.

### BRAZIL

Death-rate at Rio Janeiro in 1867-69 averaged 24.4 per 1000, the ratio showing thus :—

|                   |       |                          |       |
|-------------------|-------|--------------------------|-------|
| Under 1 . . . . . | 14.8  | Quarter ending—          |       |
| 1-7 . . . . .     | 11.6  | March 31st . . . . .     | 284   |
| 7-25 . . . . .    | 18.4  | June 30th . . . . .      | 261   |
| 25-40 . . . . .   | 22.9  | September 30th . . . . . | 228   |
| Over 40 . . . . . | 32.3  | December 31st . . . . .  | 227   |
|                   | 100.0 | Year . . . . .           | 1,000 |

In 1000 deaths, 546 were of males, 454 females ; 627 natives, and 373 foreigners.

## UNITED STATES

The only death-rates published are these :—

| Age               | Annual Deaths per 1000 Inhabitants |          |               |
|-------------------|------------------------------------|----------|---------------|
|                   | Massachusetts                      | Maryland | United States |
| Under 5 . . . . . | 65.8                               | 51.7     | 58.8          |
| 5-10 . . . . .    | 10.7                               | 9.5      | 10.1          |
| 10-15 . . . . .   | 5.1                                | 5.4      | 5.3           |
| 15-25 . . . . .   | 5.8                                | 5.4      | 5.6           |
| 25-45 . . . . .   | 11.9                               | 10.1     | 10.8          |
| 45-55 . . . . .   | 16.4                               | 18.2     | 17.6          |
| 55-65 . . . . .   | 26.3                               | 28.1     | 27.2          |
| 65-75 . . . . .   | 46.9                               | 56.5     | 51.4          |

## DEPOPULATION

The only European country which has suffered depopulation in the present century is Ireland. It is the result partly of famine, partly of evictions by the landowners. The official returns show the number of persons evicted thus :—

|                   |         |
|-------------------|---------|
| 1849-51 . . . . . | 263,000 |
| 1852-70 . . . . . | 157,000 |
| 1871-87 . . . . . | 113,000 |

Total . . . . . 533,000

This is, however, far short of the reality. The Census of 1861 showed the number of one-room cabins to be 89,400 against 491,300 in the Census of 1841, from which it appears that 402,000 cabins had been pulled down, the abodes of 2,000,000 inhabitants. The official number of emigrants from 1837 to 1888 was 4,338,000, but this did not include 600,000 who went to England or Scotland. The population has fallen from 8,275,000 in 1845 to 4,716,000 in 1889, a decline of 43 per cent. At present it is but 150 per square mile, against 190 in France, 240 in Germany, and 270 in Italy. The marriage-rate and birth-rate are the lowest in the world. The ratio of able-bodied population, male and female, between the ages of 20 and 55 is much less than in the sister kingdoms, as shown by the Census of 1881, viz. :—

|                    |              |
|--------------------|--------------|
| England . . . . .  | 432 per 1000 |
| Scotland . . . . . | 424 "        |
| Ireland . . . . .  | 408 "        |

The drain upon persons of the able-bodied age has been attended by a remarkable increase of pauperism, as the official returns show :—

| Year           | No. of Paupers | Per 1000 Inhab. |
|----------------|----------------|-----------------|
| 1874 . . . . . | 79,600         | 15              |
| 1880 . . . . . | 100,900        | 19              |
| 1888 . . . . . | 113,900        | 24              |

In the above interval of 14 years the population declined by 584,000 souls, and yet the number of paupers increased in the ratio of 43 per cent.

## DIET

The principal components of animal food are as follows :—

|                   | Fat  | Nitrogen | Water |                  | Fat  | Nitrogen | Water |
|-------------------|------|----------|-------|------------------|------|----------|-------|
| Lobster . . . . . | 1.2  | 19.2     | 76.6  | Tripe . . . . .  | 16.4 | 13.2     | 68.0  |
| Oyster . . . . .  | 1.5  | 14.0     | 80.4  | Beef . . . . .   | 17.1 | 17.2     | 61.5  |
| Turbot . . . . .  | 2.9  | 18.1     | 78.0  | Mutton . . . . . | 18.1 | 15.3     | 62.5  |
| Rabbit . . . . .  | 3.2  | 13.9     | 73.2  | Cheese . . . . . | 41.3 | 7.0      | 38.8  |
| Salmon . . . . .  | 5.5  | 16.1     | 77.0  | Pork . . . . .   | 44.9 | 9.8      | 43.0  |
| Milk . . . . .    | 7.9  | 4.5      | 87.0  | Bacon . . . . .  | 63.3 | 8.8      | 25.0  |
| Eggs . . . . .    | 10.5 | 14.0     | 74.0  | Butter . . . . . | 81.0 | 5.0      | 11.0  |

The components of vegetable food are :—

|                     | Starch | Nitrogen | Water |                     | Starch | Nitrogen | Water |
|---------------------|--------|----------|-------|---------------------|--------|----------|-------|
| Mushroom . . . .    | 3.5    | 4.7      | 91.0  | Bread . . . . .     | 49.0   | 10.0     | 33.6  |
| Cabbage . . . . .   | 4.0    | 1.8      | 92.0  | Beans . . . . .     | 52.6   | 22.0     | 12.8  |
| Turnip . . . . .    | 5.1    | 1.2      | 91.0  | Peas . . . . .      | 52.6   | 22.3     | 14.5  |
| Carrot . . . . .    | 5.5    | 0.7      | 87.3  | Tea . . . . .       | 55.2   | 28.8     | 12.0  |
| Beer . . . . .      | 9.2    | 0.9      | 89.7  | Lentils . . . . .   | 58.0   | 25.2     | 11.5  |
| Parsnip . . . . .   | 9.6    | 1.1      | 82.0  | Coffee . . . . .    | 59.4   | 26.2     | 12.0  |
| Beet-root . . . . . | 11.3   | 5.0      | 82.7  | Wheat-flour . . . . | 59.7   | 12.6     | 14.5  |
| Asparagus . . . .   | 11.8   | 1.2      | 86.0  | Oatmeal . . . . .   | 63.8   | 12.6     | 15.0  |
| Artichoke . . . . . | 14.7   | 3.1      | 76.0  | Cocoa . . . . .     | 71.0   | 24.0     | 4.0   |
| Yam . . . . .       | 16.0   | 2.0      | 74.0  | Maize . . . . .     | 71.2   | 9.9      | 13.5  |
| Truffles . . . . .  | 16.6   | 8.8      | 72.0  | Rye . . . . .       | 73.2   | 8.0      | 15.0  |
| Sugar-cane . . . .  | 18.0   | 5.5      | 72.0  | Barley . . . . .    | 74.3   | 6.3      | 15.0  |
| Banana . . . . .    | 19.7   | 4.8      | 73.9  | Rice . . . . .      | 79.5   | 6.3      | 13.0  |
| Potato . . . . .    | 20.2   | 2.3      | 75.9  | Buckwheat . . . . . | 79.9   | 2.6      | 12.8  |

The percentage of carbon in food is as follows :—

|                     |                   |                     |
|---------------------|-------------------|---------------------|
| Cabbage . . . . 3   | Eggs . . . . 16   | Biscuit . . . . 42  |
| Beer . . . . . 4    | Beef . . . . 27   | Oatmeal . . . . 42  |
| Carrots . . . . 5   | Bread . . . . 27  | Sugar . . . . . 42  |
| Milk . . . . . 7    | Cheese . . . . 36 | Flour . . . . . 46  |
| Parsnips . . . . 8  | Peas . . . . 36   | Bacon . . . . . 54  |
| Fish . . . . . 9    | Rice . . . . 38   | Cocoa . . . . . 69  |
| Potatoes . . . . 12 | Maize . . . . 38  | Butter . . . . . 79 |

The nutritive value of food (taking beef as 100) is expressed thus :—

|                     |                     |                    |
|---------------------|---------------------|--------------------|
| Oysters . . . . 22  | Turbot . . . . 84   | Beef . . . . 100   |
| Milk . . . . . 24   | Mutton . . . . 87   | Duck . . . . 104   |
| Lobsters . . . . 50 | Venison . . . . 89  | Salmon . . . . 108 |
| Cream . . . . . 56  | Veal . . . . . 92   | Pork . . . . . 116 |
| Cod-fish . . . . 68 | Fowl . . . . . 94   | Butter . . . . 124 |
| Eggs . . . . . 72   | Herring . . . . 100 | Cheese . . . . 155 |

Payn's table gives the following percentages in food :—

|                    | Azote | Carbon | Fat  | Water |                      | Azote | Carbon | Fat  | Water |
|--------------------|-------|--------|------|-------|----------------------|-------|--------|------|-------|
| Batata . . . . .   | 0.2   | 9.0    | 0.3  | 80.0  | Kidneys . . . . .    | 2.7   | 12.2   | 2.1  | 78.2  |
| Beans . . . . .    | 3.9   | 43.0   | 2.8  | 10.0  | Lard . . . . .       | 1.2   | 71.0   | 71.0 | 20.0  |
| Beef, raw . . . .  | 3.0   | 11.0   | 2.3  | 78.0  | Lentils . . . . .    | 3.9   | 43.0   | 2.6  | 11.5  |
| Beef, roast . . .  | 3.5   | 11.8   | 5.2  | 70.0  | Lobsters . . . . .   | 2.9   | 11.0   | 1.2  | 76.6  |
| Beer . . . . .     | 0.1   | 4.5    | ...  | 90.0  | Mackerel . . . . .   | 3.7   | 19.3   | 6.8  | 68.3  |
| Bread . . . . .    | 1.1   | 29.5   | 1.2  | 35.0  | Maize . . . . .      | 1.7   | 44.0   | 8.8  | 12.0  |
| Butter . . . . .   | 0.6   | 83.0   | 82.0 | 14.0  | Milk, cow's . . . .  | 0.7   | 8.0    | 3.7  | 86.5  |
| Carrots . . . . .  | 0.3   | 5.5    | 0.2  | 88.0  | Milk, goat's . . . . | 0.7   | 8.6    | 4.1  | 83.6  |
| Cheese, Brie . . . | 2.9   | 35.0   | 25.8 | 45.3  | Mushrooms . . . . .  | 0.7   | 4.5    | 0.4  | 91.0  |
| Chestnuts . . . .  | 0.6   | 35.0   | 4.1  | 26.0  | Oil, olive . . . . . | ...   | 98.0   | 96.0 | 2.0   |
| Chestnuts, dry . . | 1.0   | 48.0   | 6.0  | 10.0  | Oyster . . . . .     | 2.1   | 7.2    | 1.5  | 80.4  |
| Cod, salt . . . .  | 5.0   | 16.0   | 0.4  | 47.0  | Potato . . . . .     | 0.3   | 11.0   | 0.1  | 74.0  |
| Eel . . . . .      | 4.0   | 12.7   | 5.0  | 80.0  | Rice . . . . .       | 1.8   | 41.0   | 0.8  | 13.0  |
| Figs . . . . .     | 0.4   | 15.5   | 0.3  | 66.0  | Rye-flour . . . . .  | 1.8   | 41.0   | 2.2  | 15.0  |
| Figs, dry . . . .  | 0.9   | 34.0   | 0.3  | 25.0  | Salmon . . . . .     | 2.1   | 16.0   | 4.9  | 75.7  |
| Flour . . . . .    | 1.6   | 39.0   | 1.8  | 14.0  | Sole . . . . .       | 1.9   | 12.3   | 0.2  | 86.1  |
| Herring . . . . .  | 1.8   | 21.0   | 10.0 | 70.0  | Wheat . . . . .      | 3.0   | 41.0   | 2.1  | 12.0  |
| Herring, salt . .  | 3.1   | 23.0   | 12.7 | 49.0  | Wine . . . . .       | ...   | 4.0    | ...  | 90.0  |

The analysis of bread gives conflicting results, the following being taken from respectable sources :—

|                    | A.    | B.    | C.    |
|--------------------|-------|-------|-------|
| Nitrogen . . . . . | 6.8   | 8.1   | 12.6  |
| Water . . . . .    | 43.0  | 37.0  | 14.6  |
| Starch . . . . .   | 44.0  | 47.4  | 65.6  |
| Sugar . . . . .    | 3.4   | 3.6   | 4.8   |
| Fat . . . . .      | 1.3   | 1.5   | 1.4   |
| Mineral . . . . .  | 1.5   | 2.4   | 1.0   |
|                    | 100.0 | 100.0 | 100.0 |

In 1862 the bread supplied to the French army was found superior in nitrogen to that of other Continental armies, as follows, French being 100 :—

|                     |                     |                    |
|---------------------|---------------------|--------------------|
| Prussian . . . . 50 | Austrian . . . . 70 | Belgian . . . . 91 |
| Spanish . . . . 69  | Dutch . . . . . 90  | Italian . . . . 96 |

The following table shows foot-tons of energy contained per ounce of food :—

|                     | Foot-Tons         |                   | Foot-Tons |  | Foot-Tons |
|---------------------|-------------------|-------------------|-----------|--|-----------|
| Cabbage . . . . 16  | Porter . . . . 42 | Rice . . . . .    | 145       |  |           |
| Carrots . . . . 20  | Beef . . . . 55   | Flour . . . . .   | 148       |  |           |
| Milk . . . . . 24   | Egg . . . . . 57  | Arrowroot . . . . | 151       |  |           |
| Apples . . . . 25   | Ham . . . . 65    | Oatmeal . . . . . | 152       |  |           |
| Fish . . . . . 30   | Bread . . . . 83  | Cheese . . . . .  | 168       |  |           |
| Alc . . . . . 30    | Salt . . . . 120  | Butter . . . . .  | 281       |  |           |
| Potatoes . . . . 38 | Sugar . . . . 130 |                   |           |  |           |

The loss of weight in meat in cooking is as follows :—

|                   |                 |
|-------------------|-----------------|
| 100 lbs. raw beef | = 67 lbs. roast |
| " " beef          | = 74 " boiled   |
| " " mutton        | = 75 " roast    |
| " " fowl          | = 80 " roast    |
| " " fowl          | = 87 " boiled   |
| " " fish          | = 94 " boiled   |

A sack of flour containing 280 lbs. will make 368 lbs. of bread in England, and 420 lbs. in United States, that is, 7 lbs. of American are equal to 8 lbs. of English flour. The ingredients for 368 lbs. of English bread are :—280 lbs. flour, 3 gallons water, half-gallon yeast, half-gallon alum, and 4 lbs. salt.

The following comparison has been made between flour of Odessa wheat and that used at bakeries at Paris :—

|                    | Odessa Flour | Paris Flour |
|--------------------|--------------|-------------|
| Water . . . . .    | 12.0         | 10.0        |
| Dry gluten . . . . | 14.5         | 10.2        |
| Starch . . . . .   | 66.5         | 72.8        |
| Glucose, &c. . . . | 7.0          | 7.0         |
|                    | 100.0        | 100.0       |

The nutritive value of various kinds of flour is stated thus :—

|                   |                    |                   |
|-------------------|--------------------|-------------------|
| English . . . 100 | Canadian . . . 117 | Scotch . . . 134  |
| German . . . 115  | Essex . . . 121    | United States 145 |

An analysis of the different kinds of bread supplied to European armies in 1860 showed as follows :—

|             | French | Prussian | Bavarian | Belgian | Dutch |
|-------------|--------|----------|----------|---------|-------|
| Starch . .  | 42     | 37       | 54       | 44      | 40    |
| Water . .   | 34     | 35       | 30       | 31      | 32    |
| Azote . .   | 9      | 5        | 6        | 9       | 9     |
| Various . . | 15     | 23       | 10       | 16      | 19    |
|             | 100    | 100      | 100      | 100     | 100   |

The percentage of nitrogen digested in food is as follows :—

|                    | Per Cent. |                  | Per Cent. |
|--------------------|-----------|------------------|-----------|
| Lentils . . . . .  | 60        | Bread . . . . .  | 81        |
| Potatoes . . . . . | 68        | Cheese . . . . . | 96        |
| Peas . . . . .     | 72        | Meat . . . . .   | 97        |
| Rice . . . . .     | 75        | Eggs . . . . .   | 98        |

The time required for digestion is :—

|                          | Hours Min. |                       | Hours Min. |
|--------------------------|------------|-----------------------|------------|
| Rice . . . . .           | 1 0        | Mutton, boiled . .    | 3 0        |
| Eggs, raw . . . . .      | 1 30       | Beef, roast . . . .   | 3 0        |
| Apples . . . . .         | 1 30       | Bread, fresh . . . .  | 3 15       |
| Trout, boiled . . . .    | 1 30       | Carrots, boiled . .   | 3 15       |
| Venison, broiled . . .   | 1 35       | Turnips, boiled . .   | 3 30       |
| Sago, boiled . . . . .   | 1 45       | Potatoes, boiled . .  | 3 30       |
| Milk, boiled . . . . .   | 2 0        | Butter . . . . .      | 3 30       |
| Bread, stale . . . . .   | 2 0        | Cheese . . . . .      | 3 30       |
| Milk, raw . . . . .      | 2 15       | Oysters, stewed . .   | 3 30       |
| Turkey, boiled . . . .   | 2 25       | Eggs, hard . . . . .  | 3 30       |
| Goose, roast . . . . .   | 2 30       | Pork, boiled . . . .  | 3 30       |
| Lamb, broiled . . . .    | 2 30       | Fowl, roast . . . . . | 4 0        |
| Potatoes, baked . . . .  | 2 30       | Beef, fried . . . . . | 4 0        |
| Beans, boiled . . . . .  | 2 30       | Cabbage . . . . .     | 4 30       |
| Parsnips, boiled . . . . | 2 30       | Wild-fowl . . . . .   | 4 30       |
| Oysters, raw . . . . .   | 2 55       | Pork, roast . . . . . | 5 15       |
| Eggs, boiled . . . . .   | 3 0        | Veal, roast . . . . . | 5 30       |

According to Keleti, the average amount of food required per annum is as follows :—

|                 | Lbs. Food | Containing Lbs. Albumen |
|-----------------|-----------|-------------------------|
| Man . . . . .   | 1,600     | 100                     |
| Woman . . . . . | 1,200     | 75                      |
| Child . . . . . | 900       | 50                      |

The man's food to be made up thus :—

|                     | Lbs. Food | Lbs. Albumen |
|---------------------|-----------|--------------|
| Animal . . . . .    | 290       | 28           |
| Vegetable . . . . . | 1,310     | 72           |
| Total . . . . .     | 1,600     | 100          |

According to the *Dict. Sciences Medic.*, a man's daily food should contain at least  $\frac{1}{4}$  oz. of azote and 11 oz. of carbon, the proportions of which contained in the food of certain classes are as follows :—

|                          | Per Week   |             |
|--------------------------|------------|-------------|
|                          | Azote, Oz. | Carbon, Oz. |
| English peasant . . . .  | 7.7        | 120         |
| Irish peasant . . . . .  | 4.0        | 168         |
| French peasant . . . . . | 6.0        | 150         |
| Lombard peasant . . . .  | 7.0        | 175         |

Animal food constitutes, according to the same authority the following percentage in the weight of all food consumed :—

|                          |             |
|--------------------------|-------------|
| Irish peasant . . . . .  | 1 per cent. |
| French peasant . . . . . | 7 "         |
| French sailor . . . . .  | 25 "        |
| English "navvy" . . . .  | 28 "        |

The proportions of azote and carbon contained in bread and meat are as follows :—

| In              | Percentage of |        |
|-----------------|---------------|--------|
|                 | Azote         | Carbon |
| Bread . . . . . | 1             | 30     |
| Meat . . . . .  | 3             | 10     |

The weekly rations in different countries and classes are as follows :—

|                             | Rations | Nitrogenous | Carbon |
|-----------------------------|---------|-------------|--------|
|                             | Lbs.    | Lbs.        | Lbs.   |
| British soldiers . . . .    | 25.7    | 2.46        | 4.84   |
| British soldiers in India . | 20.0    | 2.33        | 4.52   |
| French soldiers . . . . .   | 23.6    | 2.26        | 5.81   |
| German soldiers . . . . .   | 28.8    | 1.56        | 5.25   |
| Dutch soldiers . . . . .    | 25.0    | 1.67        | 4.82   |
| Chelsea Hospital . . . .    | 22.6    | 1.99        | 5.31   |
| English convicts . . . .    | 22.2    | 1.38        | 4.99   |
| Farm labourer . . . . .     | 22.1    | 1.82        | 5.11   |
| Workhouse, aged . . . .     | 17.8    | 1.50        | 3.96   |
| Chelsea boys . . . . .      | 16.7    | 0.88        | 3.93   |

Field-rations of the various armies are as follows :—

|                    | Ounces Daily |       |      |               |       |                  |
|--------------------|--------------|-------|------|---------------|-------|------------------|
|                    | Beef         | Bread | Rice | Coffee        | Sugar | Total            |
| British . . . . .  | 16           | 24    | 2    | $\frac{1}{2}$ | 2     | 44 $\frac{1}{2}$ |
| French . . . . .   | 7            | 26    | 3    | $\frac{1}{2}$ | 1     | 37 $\frac{1}{2}$ |
| German . . . . .   | 8            | 28    | 3    | $\frac{1}{2}$ | 1     | 40 $\frac{1}{2}$ |
| Russian . . . . .  | 16           | 16    | ...  | ...           | ...   | 32               |
| Austrian . . . . . | 5            | 26    | 1    | ...           | ...   | 32               |
| American . . . . . | 20           | 18    | 2    | 2             | 2     | 44               |

|                    | Ounces Daily |     |        |      |       | Energy, Foot-Tons |
|--------------------|--------------|-----|--------|------|-------|-------------------|
|                    | Nitrogen     | Fat | Carbon | Salt | Total |                   |
| British . . . . .  | 4.1          | 1.6 | 17.4   | 0.8  | 23.4  | 3,552             |
| French . . . . .   | 4.3          | 1.3 | 18.0   | 1.0  | 24.6  | 3,719             |
| German . . . . .   | 4.0          | 1.1 | 19.6   | 1.5  | 26.2  | 3,834             |
| Austrian . . . . . | 3.7          | 1.6 | 17.0   | 1.0  | 23.4  | 3,590             |
| Standard . . . . . | 4.6          | 3.0 | 14.3   | 1.1  | 23.0  | 3,688             |

The rations in use in the United Kingdom are as follow :—

|                         | Weight in Lbs. Weekly |             |            |       |          |
|-------------------------|-----------------------|-------------|------------|-------|----------|
|                         | Bread                 | Cooked Meat | Vegetables | Sugar | Sundries |
| Soldier . . . . .       | 7.0                   | 3.5         | 7.0        | 0.7   | 7.5      |
| Seaman . . . . .        | 8.8                   | 5.2         | 3.5        | 0.9   | ...      |
| Convict . . . . .       | 10.0                  | 2.6         | 7.6        | 0.2   | 1.8      |
| Pauper . . . . .        | 7.0                   | 3.0         | 6.0        | 0.4   | 0.8      |
| Female pauper . . . . . | 6.0                   | 2.0         | 4.0        | 0.3   | 0.6      |
| Lunatic . . . . .       | 5.4                   | 2.0         | 5.4        | 0.2   | 1.0      |
| Hospitals . . . . .     | 6.0                   | 3.0         | 3.5        | 0.5   | 2.0      |



The components of the British navy rations give the following analysis :—

|                    | Ounces Daily | Components |            |             | Energy Foot-Tons |
|--------------------|--------------|------------|------------|-------------|------------------|
|                    |              | Nitrogen   | Fat        | Carbon      |                  |
| Biscuit . . .      | 20           | 2.0        | 0.2        | 8.4         | 1,720            |
| Meat . . .         | 14           | 1.8        | 3.0        | 5.4         | 1,310            |
| Peas, flour, &c.   | 7            | 1.0        | ...        | 3.0         | 560              |
| Sugar . . .        | 2            | ...        | ...        | 0.8         | 240              |
| Cocoa . . .        | 1            | 0.2        | ...        | 0.7         | 125              |
| <b>Total . . .</b> | <b>44</b>    | <b>5.0</b> | <b>3.2</b> | <b>18.3</b> | <b>3,955</b>     |

Prison rations in the United Kingdom are as follows :—

|                    | Ounces Daily |              | Energy, Foot-Tons |              |
|--------------------|--------------|--------------|-------------------|--------------|
|                    | Hard Labour  | Light Labour | Hard Labour       | Light Labour |
| Bread . . .        | 24.0         | 21.0         | 1,992             | 1,743        |
| Meat . . .         | 4.5          | 3.5          | 340               | 270          |
| Milk . . .         | 2.0          | 2.0          | 48                | 48           |
| Molasses . . .     | 1.0          | 1.0          | 100               | 100          |
| Oatmeal . . .      | 2.0          | 2.0          | 304               | 304          |
| Cheese . . .       | 0.6          | 0.6          | 98                | 98           |
| Flour . . .        | 1.3          | 0.7          | 192               | 104          |
| Salt . . .         | 0.5          | 0.5          | 60                | 60           |
| Cocoa . . .        | 0.5          | 0.5          | 62                | 62           |
| Vegetables . . .   | 1.0          | 1.0          | 10                | 10           |
| Potatoes . . .     | 14.0         | 14.0         | 530               | 530          |
| <b>Total . . .</b> | <b>51.4</b>  | <b>46.8</b>  | <b>3,736</b>      | <b>3,329</b> |

The French navy rations weekly are as follows :—

|                    | Weight, Oz. | Azote, Oz. | Carbon, Oz. |
|--------------------|-------------|------------|-------------|
| Bread . . .        | 190         | 2.0        | 55.5        |
| Meat . . .         | 77          | 2.3        | 8.0         |
| Peas . . .         | 30          | 1.2        | 12.0        |
| Butter . . .       | 5           | ...        | 3.5         |
| Coffee . . .       | 5           | ...        | 1.0         |
| Sugar . . .        | 6           | ...        | 2.5         |
| Wine . . .         | 120         | ...        | 5.0         |
| Brandy . . .       | 15          | ...        | 4.0         |
| Salt . . .         | 5           | ...        | ...         |
| <b>Total . . .</b> | <b>453</b>  | <b>5.5</b> | <b>91.5</b> |

The following table shows approximately the ordinary weekly consumption of food by a male adult between twenty and sixty years :—

|                   | Bread, Lbs. | Meat, Oz. | Butter, &c., Oz. | Sugar, Oz. | Potatoes, Lbs. | Daily Energy, Foot-Tons |
|-------------------|-------------|-----------|------------------|------------|----------------|-------------------------|
| U. Kingdom . . .  | 9           | 50        | 10               | 36         | 9              | 4,030                   |
| France . . .      | 12          | 35        | 4                | 9          | 13             | 4,170                   |
| Germany . . .     | 11          | 30        | 4                | 9          | 24             | 4,920                   |
| Russia . . .      | 11          | 25        | 3                | 5          | 4              | 2,960                   |
| Austria . . .     | 10          | 30        | 4                | 9          | 13             | 3,730                   |
| Italy . . .       | 8           | 12        | 2                | 4          | 1              | 1,940                   |
| Spain . . .       | 10          | 32        | 2                | 3          | ...            | 2,330                   |
| Portugal . . .    | 8           | 23        | 2                | 6          | ...            | 1,950                   |
| Sweden . . .      | 8           | 30        | 6                | 10         | 12             | 3,390                   |
| Norway . . .      | 8           | 35        | 7                | 6          | 12             | 3,350                   |
| Denmark . . .     | 10          | 30        | 11               | 10         | 8              | 3,460                   |
| Holland . . .     | 9           | 28        | 7                | 16         | 16             | 4,090                   |
| Belgium . . .     | 11          | 30        | 7                | 13         | 25             | 5,050                   |
| Switzerland . . . | 11          | 30        | 6                | 12         | 3              | 3,170                   |
| Europe . . .      | 10½         | 30        | 4                | 11         | 10             | 3,600                   |
| U. States . . .   | 9           | 75        | 10               | 25         | 3              | 3,390                   |
| Canada . . .      | 8           | 43        | 11               | 20         | 14             | 3,950                   |
| Australia . . .   | 10½         | 95        | 9                | 37         | 7              | 4,490                   |

The above does not include fish, eggs, fruit, vegetables, chestnuts, rice, and other articles of much importance. The aggregate food for a man doing physical or mental work should be equal to at least 3300 foot-tons daily, for a woman 2200, and for a child 1100 foot-tons.

Meat is apparently the most important element of food. Dr. De Renzi states that 4 per cent. of the population of Naples die of impoverishment of the blood caused by want of meat. At the ironworks of Thorn the operatives fed on vegetables, &c., lost fifteen days a year by sickness until meat was introduced in 1833, when the average fell to three days per operative. See *Food*.

## DISEASE

In 1883 the deaths per 100,000 inhabitants from certain diseases were as follows :—

|                      | Small-pox | Typhoid | Whooping Cough | Diphtheria | Scarlatina | Measles | Infant Diarrhoea |
|----------------------|-----------|---------|----------------|------------|------------|---------|------------------|
| London . . .         | 3         | 24      | 40             | 40         | 50         | 61      | 64               |
| Edinburgh . . .      | ...       | 25      | 48             | 45         | 39         | 57      | 43               |
| Glasgow . . .        | 2         | 46      | 557            | 162        | 90         | 139     | 250              |
| Paris . . .          | 20        | 92      | 30             | 87         | 4          | 47      | 216              |
| Marseilles . . .     | 38        | 139     | 19             | 102        | 6          | 139     | 315              |
| Berlin . . .         | 1         | 18      | 29             | 224        | 68         | 96      | 412              |
| Brussels . . .       | 94        | 28      | 33             | 28         | 4          | 31      | 325              |
| St. Petersburg . . . | 46        | 153     | 14             | 136        | 75         | 57      | 236              |
| Vienna . . .         | 10        | 21      | 30             | 35         | 17         | 31      | 76               |
| Baltimore . . .      | 155       | 91      | 15             | 194        | 82         | 31      | 22               |

The following table shows approximately the ratios of various diseases in 10,000 deaths :—

|                      | England | France | Germany | Russia | Italy | Switzerland | Belgium | Holland | Scandinavia | United States | Canada |
|----------------------|---------|--------|---------|--------|-------|-------------|---------|---------|-------------|---------------|--------|
| Apoplexy . . .       | 270     | 400    | 390     | 210    | 360   | 370         | 310     | 280     | 350         | 140           | 110    |
| Bronchitis . . .     | 1,150   | 310    | 400     | 1,500  | 30    | 600         | 480     | 220     | 620         | ...           | 130    |
| Cancer . . .         | 235     | ...    | 260     | 150    | 160   | 300         | 140     | 180     | 330         | 130           | 126    |
| Diphtheria . . .     | 55      | 360    | 270     | 210    | 360   | 304         | 280     | 130     | 230         | 480           | 114    |
| Erysipelas . . .     | 36      | 48     | 35      | ...    | 50    | ...         | 40      | ...     | ...         | ...           | 68     |
| Heart . . .          | 620     | 290    | 230     | 200    | 580   | 385         | 190     | 180     | 220         | 350           | 370    |
| Measles . . .        | 184     | 180    | 100     | 80     | 95    | 46          | 165     | 150     | ...         | ...           | 220    |
| Phthisis . . .       | 1,100   | 1,120  | 1,270   | 1,960  | 900   | 1,110       | 1,820   | 950     | 1,020       | 1,420         | 1,620  |
| Pneumonia . . .      | 510     | 720    | 400     | 1,150  | 540   | 600         | 450     | 570     | 710         | ...           | 660    |
| Puerperal . . .      | 49      | 100    | ...     | 70     | ...   | 50          | ...     | 50      | 100         | 40            | 145    |
| Rheumatism . . .     | 41      | 35     | 25      | 40     | ...   | ...         | ...     | ...     | 40          | 59            | 70     |
| Scarlatina . . .     | 402     | 20     | 160     | 90     | 10    | 146         | 140     | 40      | 360         | 220           | 458    |
| Scrofula . . .       | 62      | 130    | ...     | 180    | 30    | ...         | 90      | 140     | 70          | 70            | ...    |
| Small-pox . . .      | 130     | 80     | 8       | 40     | 60    | 54          | 150     | 100     | 120         | ...           | 55     |
| Typhoid . . .        | 210     | 720    | 450     | 480    | 240   | 184         | 460     | 460     | 280         | 310           | 364    |
| Whooping-cough . . . | 250     | 115    | ...     | ...    | 50    | 112         | 280     | 180     | 185         | 148           | 260    |

*Ague*.—In 10,000 deaths those from ague were :—

| At               | At                  | At                |
|------------------|---------------------|-------------------|
| London . . . 2   | Amsterdam . . 106   | Finland . . 180   |
| Lisbon . . . 60  | Naples . . . 107    | U. States . . 240 |
| Haarlem . . . 70 | Portuguese army 120 | Athens . . . 420  |
| Zeeland . . . 80 | Genoa . . . 133     | Rome . . . 460    |

*Apoplexy*.—In 10,000 deaths those from this disease were :—

| At                  | At                   | At                  |
|---------------------|----------------------|---------------------|
| Amsterdam . . 380   | Geneva . . . 400     | Naples . . . 370    |
| Athens . . . 630    | Gibraltar . . 150    | New Orleans . 91    |
| Bavaria . . . 370   | Hamburg . . . 620    | Nova Scotia . 55    |
| Belgium . . . 410   | Holland . . . 280    | Paris . . . 330     |
| Berlin . . . 410    | Iceland . . . 100    | Quebec . . . 105    |
| Berne . . . 420     | Ireland . . . 160    | Rome . . . 530      |
| Bologna . . . 420   | Italian cities . 360 | St. Helena . 430    |
| Bordeaux . . 780    | Lima . . . 70        | St. Petersburg 210  |
| Brussels . . 310    | Lisbon . . . 685     | Scotland . . 420    |
| Buda Pesth . 140    | Malaga . . . 350     | Shanghai . . 200    |
| Canada . . . 98     | Malta . . . 600      | Spain . . . 400     |
| Christiania . 220   | Mantua . . . 550     | Sweden . . . 550    |
| Copenhagen . 230    | Mexico . . . 340     | Turin . . . 610     |
| England . . . 280   | Milan . . . 200      | U. States, Nor. 184 |
| Frankfort . . 380   | Montevideo . 430     | „ South . . 96      |
| French cities . 400 | Munich . . . 390     | Zurich . . . 400    |

The occurrence of apoplexy is most frequent in France, Russia, and Holland in winter, and in Canada in summer :—

| Seasons      | France | Russia | Holland | Canada |
|--------------|--------|--------|---------|--------|
| Spring . . . | 27.0   | 24.0   | 25.8    | 25.3   |
| Summer . . . | 23.7   | 23.8   | 20.1    | 26.3   |
| Autumn . . . | 19.3   | 21.2   | 23.6    | 22.5   |
| Winter . . . | 30.0   | 31.0   | 30.5    | 25.9   |
| Total . . .  | 100.0  | 100.0  | 100.0   | 100.0  |

Its occurrence according to months, taking the year as 1200, was as follows :—

|              | London<br>(1840) | Den-<br>mark | France | Calcutta | Italian<br>Cities |
|--------------|------------------|--------------|--------|----------|-------------------|
| January . .  | 123              | 122          | 139    | 108      | 143               |
| February . . | 108              | 110          | 112    | 102      | 135               |
| March . . .  | 104              | 93           | 91     | 111      | 110               |
| April . . .  | 95               | 99           | 127    | 138      | 95                |
| May . . .    | 96               | 97           | 106    | 97       | 94                |
| June . . .   | 76               | 93           | 109    | 64       | 74                |
| July . . .   | 89               | 98           | 109    | 75       | 78                |
| August . . . | 88               | 77           | 67     | 83       | 74                |
| September .  | 98               | 85           | 67     | 87       | 80                |
| October . .  | 89               | 103          | 67     | 97       | 90                |
| November .   | 120              | 110          | 97     | 120      | 110               |
| December .   | 114              | 113          | 109    | 118      | 117               |
|              | 1,200            | 1,200        | 1,200  | 1,200    | 1,200             |

The increase of this disease in England is remarkable, deaths yearly per million inhabitants being as follows :—

|               |     |               |     |
|---------------|-----|---------------|-----|
| 1850-66 . . . | 457 | 1874-80 . . . | 550 |
| 1867-70 . . . | 504 | 1886 . . .    | 577 |
| 1871-73 . . . | 517 |               |     |

In Holland it is found that of 100 patients 46 are males, 54 females.

The distribution of this disease according to age in France was :—

| Age             | Of 1000 Cases | Age           | Age |
|-----------------|---------------|---------------|-----|
| Under 10 . . 22 | 30-40 . . 110 | 61-70 . . .   | 229 |
| 10-20 . . . 30  | 41-50 . . 153 | Over 70 . . . | 192 |
| 21-30 . . . 62  | 51-60 . . 202 |               |     |

*Asthma*.—Of 10,000 deaths there are from this disease 66 in England, 48 in Scotland, and 33 in Ireland. Deaths according to season show :—

|              |       |
|--------------|-------|
| Spring . . . | 16.1  |
| Summer . . . | 7.0   |
| Autumn . . . | 23.2  |
| Winter . . . | 53.7  |
|              | 100.0 |

*Bright's Disease*.—In 10,000 deaths there were of this disease :—

| At                | At                 | At               |
|-------------------|--------------------|------------------|
| Amsterdam . . 120 | Denmark . . . 80   | Lisbon . . . 30  |
| Berne . . . 100   | Frankfort . . 130  | Munich . . . 30  |
| Brussels . . . 50 | French cities . 14 | Norway . . . 60  |
| Budapesth . . 90  | Holland . . . 50   | Shanghai . . 150 |
| Copenhagen . 100  | Italy . . . 40     | United States 35 |

*Bronchitis*.—In 10,000 deaths there were of this disease :—

| At                | At                  | At                 |
|-------------------|---------------------|--------------------|
| Amsterdam . . 220 | Canada . . . 130    | London . . . 1,450 |
| Athens . . . 391  | England . . 1,080   | Rome . . . 290     |
| Berlin . . . 420  | Ireland . . . 1,220 | St. John's . 2,330 |
| Brussels . . 480  | Lisbon . . . 420    | Scotland . . 1,310 |

The death-rate among bronchitis patients in the Paris hospitals is 6 per cent. in the quarter ending March, 4 per cent. in that ending June, 2 per cent. in the September, and 6 per cent. in the December quarter, giving an average of 5 per cent. for the year. In Sweden and Norway the prevalence of bronchitis in the various months is (taking 1200 per annum as a total) thus :—

| Month          | Sweden | Norway | Month         | Sweden | Norway |
|----------------|--------|--------|---------------|--------|--------|
| January . . .  | 150    | 160    | July . . .    | 49     | 53     |
| February . . . | 160    | 152    | August . . .  | 46     | 48     |
| March . . .    | 143    | 132    | September . . | 58     | 62     |
| April . . .    | 130    | 112    | October . . . | 82     | 82     |
| May . . .      | 102    | 96     | November . .  | 104    | 110    |
| June . . .     | 67     | 72     | December . .  | 109    | 121    |

The prevalence of bronchitis among British troops on foreign stations was as follows :—

#### Bronchitis Patients per 1000 Sick

|                   |                  |                   |
|-------------------|------------------|-------------------|
| St. Helena . . 61 | Mauritius . . 84 | Gibraltar . . 132 |
| Ceylon . . . 70   | Jamaica . . . 85 | Malta . . . 140   |
| Bengal . . . 71   | Cape Colony 98   | Canada . . . 156  |

The ratio among garrisons in the United Kingdom was 161.

Deaths occur in London according to season thus :—

|              |       |
|--------------|-------|
| Spring . . . | 20.2  |
| Summer . . . | 12.5  |
| Autumn . . . | 27.0  |
| Winter . . . | 40.3  |
|              | 100.0 |

*Calculus or Stone*.—In 10,000 deaths there were of this disease :—

| At               | At               | At                |
|------------------|------------------|-------------------|
| Belgium . . . 4  | Geneva . . . 6   | Riga . . . 3      |
| Brussels . . . 4 | Hamburg . . . 2  | Russia . . . 5    |
| Copenhagen . 13  | Holland . . . 3  | Turin . . . 2     |
| Denmark . . . 4  | Iceland . . . 20 | U. States N. . 1  |
| England . . . 6  | Paris . . . 2    | U. States, S. . 2 |

The ages at which this disease occur are as follows :—

| Age               | Males | Females |
|-------------------|-------|---------|
| Under 30 . . . .  | 4.5   | 18.2    |
| 30-40 . . . . .   | 14.8  | 28.0    |
| 41-50 . . . . .   | 34.3  | 20.6    |
| 51-60 . . . . .   | 21.5  | 22.0    |
| Over 60 . . . . . | 24.9  | 11.2    |
| Total . . . . .   | 100.0 | 100.0   |

In 100 cases 38 are males, 62 females.

*Cataract*.—Of 100 cases 54 are males, 46 females.  
The ratio of age is shown thus :—

| Per 1000 Cases   |    |               |     |                 |     |
|------------------|----|---------------|-----|-----------------|-----|
| Age              |    | Age           |     | Age             |     |
| Under 10 . . . . | 28 | 31-40 . . . . | 36  | 61-70 . . . .   | 344 |
| 10-20 . . . . .  | 32 | 41-50 . . . . | 102 | Over 70 . . . . | 218 |
| 21-30 . . . . .  | 36 | 51-60 . . . . | 204 |                 |     |

*Cancer*.—In 10,000 deaths there were of this disease :—

| At                | At                 | At                 |
|-------------------|--------------------|--------------------|
| Amsterdam . . .   | England, men . .   | New York . . . .   |
| Bale . . . . .    | Do., women . . .   | Norway . . . . .   |
| Belgium . . . .   | Frankfort . . . .  | Paris . . . . .    |
| Berlin . . . . .  | Geneva . . . . .   | Potsdam . . . . .  |
| Berne . . . . .   | Glasgow . . . . .  | Rome . . . . .     |
| Bordeaux . . . .  | Hamburg . . . . .  | St. Petersburg . . |
| Breslau . . . . . | Holland . . . . .  | Scotland . . . . . |
| Brussels . . . .  | Iceland . . . . .  | Shanghai . . . .   |
| Carlsruhe . . . . | Ireland . . . . .  | Stettin . . . . .  |
| Christiania . . . | Kiel . . . . .     | Stockholm . . . .  |
| Copenhagen . . .  | Königsberg . . . . | Turin . . . . .    |
| Dantzic . . . . . | Lisbon . . . . .   | United States . .  |
| Dresden . . . . . | London . . . . .   | Do., North . . . . |
| Edinburgh . . . . | Milan . . . . .    | Do., South . . . . |
| England . . . . . | Montevideo . . . . |                    |

Mental worry, says Dr. Herbert Snow, of the Cancer Hospital, is the chief exciting cause of cancer. In 1864 in England the proportion of cancer sufferers was 385 to the million; in 1888 it had risen to 610—the number of deaths in the latter year being 6284 males, and 11,222 females, or 17,506 in all.

*Cholera*.—The losses may be approximately set down in the principal visitations of this epidemic as follows :—

|                            | 1832    | 1849      | 1854      | 1865    | 1873    | 1884    | Total     |
|----------------------------|---------|-----------|-----------|---------|---------|---------|-----------|
| United Kingdom . . . . .   | 53,000  | 55,000    | 22,000    | 18,000  | ...     | ...     | 148,000   |
| France . . . . .           | 115,000 | 110,000   | 144,000   | 15,000  | 63,000  | 10,000  | 457,000   |
| Germany . . . . .          | 67,000  | 80,000    | 119,000   | 33,000  | 52,000  | ...     | 351,000   |
| Austria . . . . .          | 99,000  | 145,000   | 218,000   | 220,000 | 436,000 | ...     | 1,118,000 |
| Italy . . . . .            | ...     | ...       | ...       | 13,000  | ...     | 14,300  | ?         |
| Spain and Portugal . . . . | ...     | ...       | 236,700   | 150,000 | ...     | 119,000 | 507,000   |
| Other countries . . . . .  | 200,000 | 850,000   | 400,000   | 245,000 | 70,000  | 10,000  | 1,775,000 |
| Total . . . . .            | 534,000 | 1,240,000 | 1,139,700 | 694,000 | 621,000 | 153,900 | 4,382,600 |

According to Rosemberg, one million persons perished in the cholera of 1848-49. According to Kolb, in that visitation in Russia 1,687,000 persons were attacked, of whom 668,000 died. It was apparently the worst plague that visited Europe since the Middle Ages. The death-rate on that occasion was 22 per 100 sick in England, and 40 in Austria. In the previous visitation of 1832 the rate varied little in all countries, from 38 to 42 per cent. In the cholera of 1855 it was as follows :—

|                   | Per 100 Cases |                   | Per 100 Cases |
|-------------------|---------------|-------------------|---------------|
| Spain . . . . .   | 30            | Sweden . . . . .  | 52            |
| Austria . . . . . | 42            | Prussia . . . . . | 59            |
| Russia . . . . .  | 50            | Denmark . . . . . | 65            |

In that of 1866 the average was 50 per cent. in Belgium and 55 in Italy, being in the latter 56 for men and 54 for women.

The victims in various cities in 1865 were as follows :—

#### Deaths per 10,000 Inhabitants

|                    |    |                    |    |                    |     |
|--------------------|----|--------------------|----|--------------------|-----|
| London . . . . .   | 18 | Paris . . . . .    | 66 | Madrid . . . . .   | 102 |
| Dublin . . . . .   | 41 | Berlin . . . . .   | 83 | Brussels . . . . . | 184 |
| Vienna . . . . .   | 51 | Naples . . . . .   | 89 | Palermo . . . . .  | 197 |
| Marseilles . . . . | 64 | St. Petersburg . . | 98 | Constantinople . . | 738 |

The greatest mortality was at Rome and Madrid on Sundays, at London and Berlin on Wednesdays, and at Paris on Saturdays.

The following table shows the deaths from cholera in various cities at different periods :—

| City                   | Date | Deaths | In 100 Sick | In 10,000 Population | City               | Date | Deaths | In 100 Sick | In 10,000 Population |
|------------------------|------|--------|-------------|----------------------|--------------------|------|--------|-------------|----------------------|
| Aleppo . . . . .       | 1865 | 12,000 | ...         | 1,020                | Malaga . . . . .   | 1865 | 2,000  | 40          | 200                  |
| Antwerp . . . . .      | 1865 | 2,300  | 50          | 205                  | Madrid . . . . .   | 1865 | 3,300  | ...         | 102                  |
| Berlin . . . . .       | 1865 | 5,600  | ...         | 83                   | Naples . . . . .   | 1884 | 7,100  | ...         | 144                  |
| Brussels . . . . .     | 1865 | 3,100  | 75          | 184                  | Palermo . . . . .  | 1867 | 4,000  | ...         | 197                  |
| Constantinople . . . . | 1865 | 12,000 | ...         | 190                  | " . . . . .        | 1884 | 3,000  | 53          | 125                  |
| Copenhagen . . . . .   | 1853 | 4,800  | 65          | 402                  | Paris . . . . .    | 1832 | 18,700 | ...         | 205                  |
| Dublin . . . . .       | 1865 | 1,200  | ...         | 41                   | " . . . . .        | 1848 | 19,200 | ...         | 190                  |
| Genoa . . . . .        | 1854 | 2,200  | 52          | 190                  | " . . . . .        | 1854 | 9,100  | ...         | 76                   |
| Gadelaide . . . . .    | 1856 | 1,900  | ...         | 1,480                | " . . . . .        | 1866 | 9,900  | ...         | 66                   |
| Litge . . . . .        | 1865 | 2,600  | 55          | 280                  | Riga . . . . .     | 1848 | 2,000  | 29          | 390                  |
| London . . . . .       | 1832 | 6,700  | 48          | 40                   | St. Petersburg . . | 1848 | 28,000 | 54          | 510                  |
| " . . . . .            | 1849 | 14,600 | 47          | 70                   | " . . . . .        | 1865 | 6,000  | ...         | 98                   |
| " . . . . .            | 1854 | 40,300 | ...         | 180                  | Smyrna . . . . .   | 1856 | 2,500  | 45          | 300                  |
| " . . . . .            | 1865 | 5,500  | ...         | 20                   | Stockholm . . . .  | 1832 | 3,300  | 41          | 405                  |
| Marseilles . . . . .   | 1884 | 1,800  | ...         | 49                   | Toulon . . . . .   | 1854 | 2,600  | ...         | 510                  |

The ratios of age in the deaths at Paris were as follows:—

| Age            | 1832  | Age           | 1854                      |
|----------------|-------|---------------|---------------------------|
|                | Ratio |               | Deaths per 10,000 Persons |
| Under 10 . . . | 9.2   | Under 2 . . . | 255                       |
| 10-20 . . .    | 3.2   | 2-5 . . .     | 104                       |
| 20-30 . . .    | 11.8  | 5-15 . . .    | 33                        |
| 30-40 . . .    | 15.2  | 15-20 . . .   | 55                        |
| 40-50 . . .    | 15.2  | 20-40 . . .   | 66                        |
| 50-60 . . .    | 15.4  | 40-60 . . .   | 79                        |
| Over 60 . . .  | 30.0  | Over 60 . . . | 171                       |
|                | 100.0 |               |                           |

Its ravages in 1854 were especially among very young or very old persons. The ratio of sexes in 1832 was 100 males to 101 females, and in the same year the mortality according to the floors in houses occupied by the patients was distributed thus:—

|                      |       |
|----------------------|-------|
| Basement . . .       | 13.5  |
| 1st floor . . .      | 25.8  |
| 2nd floor . . .      | 20.4  |
| Over and floor . . . | 40.3  |
| Total . . .          | 100.0 |

One of the most deadly outbreaks on record was at the Salpêtrière lunatic asylum, near Paris, in 1849, when 45 per cent. of the inmates were attacked, and of the patients 76 per cent. died. In the Anglo-Indian army cholera makes more ravages among Europeans than natives, viz:—

|                         |                              |
|-------------------------|------------------------------|
| Soldiers attacked . . . | 250 Europeans to 100 natives |
| Deaths . . .            | 230 " " "                    |

The prevalence at Bombay according to months, taking the year as 1200, is as follows:—

|                      |     |                      |     |
|----------------------|-----|----------------------|-----|
| January . . .        | 122 | July . . .           | 135 |
| February . . .       | 113 | August . . .         | 49  |
| March . . .          | 130 | September . . .      | 31  |
| First quarter . . .  | 365 | Third quarter . . .  | 215 |
| April . . .          | 151 | October . . .        | 40  |
| May . . .            | 151 | November . . .       | 50  |
| June . . .           | 143 | December . . .       | 85  |
| Second quarter . . . | 445 | Fourth quarter . . . | 175 |

*Convulsions (Infant).*—In 10,000 deaths there were of this disease as follows:—

| At                   | At                    | At                       |
|----------------------|-----------------------|--------------------------|
| Algiers . . . 790    | Christiania . . . 110 | Mexico . . . 630         |
| Amsterdam . . . 600  | Copenhagen . . . 560  | Paris . . . 667          |
| Athens . . . 266     | Dresden . . . 2,110   | Rio Janeiro . . . 320    |
| Berlin . . . 1,380   | England . . . 440     | St. Petersburg . . . 200 |
| Brussels . . . 450   | Glasgow . . . 300     | Shanghai . . . 150       |
| Buda Pesth . . . 730 | Hamburg . . . 1,070   | Turin . . . 560          |
| Cairo . . . 2,030    | Lisbon . . . 190      | U. States (N.) . . . 320 |
| Canada . . . 180     | London . . . 360      | U. States (S.) . . . 170 |

*Croup.*—In England there are of 10,000 deaths 70 from croup, and in Bavaria 392. In Sweden and Norway 52 per cent. of cases are fatal. The prevalence of the disease according to months (taking the year as 1200) is shown thus:—

| Month          | Sweden | Norway | Month           | Sweden | Norway |
|----------------|--------|--------|-----------------|--------|--------|
| January . . .  | 144    | 141    | July . . .      | 45     | 47     |
| February . . . | 136    | 132    | August . . .    | 48     | 50     |
| March . . .    | 130    | 134    | September . . . | 76     | 89     |
| April . . .    | 110    | 105    | October . . .   | 108    | 103    |
| May . . .      | 88     | 84     | November . . .  | 128    | 125    |
| June . . .     | 64     | 64     | December . . .  | 123    | 126    |

*Cretinism.*—According to a statement published in 1860, the number of cretins was as follows:—

| Country             | Number | Per Million Population |
|---------------------|--------|------------------------|
| Switzerland . . .   | 20,000 | 8,100                  |
| France . . .        | 31,000 | 870                    |
| Italy . . .         | 10,460 | 480                    |
| Germany . . .       | 20,200 | 550                    |
| Austria . . .       | 13,800 | 440                    |
| Ireland . . .       | 4,900  | 740                    |
| Denmark . . .       | 1,990  | 1,470                  |
| United States . . . | 1,200  | 40                     |

*Diabetes.*—Deaths from this disease are seven in 10,000 in the United Kingdom, and 150 at Shanghai. The ratio of sexes among patients is:—

|               | France | England |
|---------------|--------|---------|
| Males . . .   | 74     | 67      |
| Females . . . | 26     | 33      |
|               | 100    | 100     |

The ratio of age and profession are in France as follows:—

| Age            | Males | Females | Profession        | Per Cent. |
|----------------|-------|---------|-------------------|-----------|
| Under 20 . . . | 14.4  | 32.0    | Capitalists . . . | 25        |
| 20-30 . . .    | 24.4  | 26.4    | Lawyers . . .     | 21        |
| 30-40 . . .    | 28.4  | 20.7    | Merchants . . .   | 15        |
| 40-50 . . .    | 18.0  | 9.4     | Clergy . . .      | 8         |
| Over 50 . . .  | 14.8  | 11.5    | Various . . .     | 31        |
| Total . . .    | 100.0 | 100.0   | Total . . .       | 100       |

This disease was in 45 per cent. of cases accompanied by obesity, and in 38 per cent. by rheumatism.

*Diarrhoea.*—In 10,000 deaths there were of this disease:—

| In                 | In                      | In                   |
|--------------------|-------------------------|----------------------|
| London . . . 460   | Ireland . . . 250       | Mexico . . . 950     |
| England . . . 212  | Canada . . . 110        | Hong-Kong . . . 1480 |
| Scotland . . . 210 | United States . . . 880 |                      |

The prevalence of this disease according to months (taking the year as 1200) was as follows:—

| Month           | Sweden | Norway | Bavaria | Belgium |
|-----------------|--------|--------|---------|---------|
| January . . .   | 41     | 98     | 52      | 83      |
| February . . .  | 41     | 89     | 56      | 77      |
| March . . .     | 31     | 72     | 53      | 102     |
| April . . .     | 33     | 61     | 53      | 93      |
| May . . .       | 30     | 65     | 52      | 98      |
| June . . .      | 55     | 60     | 70      | 109     |
| July . . .      | 150    | 113    | 110     | 138     |
| August . . .    | 292    | 190    | 210     | 132     |
| September . . . | 227    | 143    | 238     | 112     |
| October . . .   | 149    | 95     | 160     | 96      |
| November . . .  | 94     | 109    | 89      | 79      |
| December . . .  | 54     | 105    | 57      | 81      |
| Year . . .      | 1200   | 1200   | 1200    | 1200    |

*Digestive Disorders.*—In 10,000 deaths there were of these diseases:—

| In                   | In                | In                |
|----------------------|-------------------|-------------------|
| Brussels . . . 1,500 | Genoa . . . 1,580 | Rome . . . 1,100  |
| Catania . . . 2,900  | Milan . . . 1,300 | Turin . . . 1,550 |
| England . . . 990    | Paris . . . 1,050 |                   |

*Diphtheria*.—In 10,000 deaths there were of this disease :—

| In                | In               | In                   |
|-------------------|------------------|----------------------|
| Amsterdam . . 200 | Dresden . . 130  | Italian cities . 360 |
| Athens . . . 219  | England . . 55   | London . . . 180     |
| Bavaria . . . 248 | Edinburgh . 250  | Munich . . . 240     |
| Berlin . . . 320  | France . . . 360 | New York . . 300     |
| Brussels . . 440  | Frankfort . 130  | Philadelphia . 370   |
| Canada . . . 300  | Glasgow . . 220  | Roumania . . 360     |
| Christiania . 440 | Hamburg . . 320  | St. Petersburg 210   |
| Copenhagen . 160  | Holland . . 130  | United States 480    |

The prevalence of this disease according to months (taking the year as 1200) was in Sweden, Norway, Saxony, and the hospitals of Paris as follows :—

|                 | Sweden | Norway | Saxony | Paris | Death-Rate at Paris |
|-----------------|--------|--------|--------|-------|---------------------|
|                 |        |        |        |       | Per Cent.           |
| January . . .   | 121    | 136    | 135    | 101   | 76                  |
| February . . .  | 119    | 120    | 126    | 104   | 76                  |
| March . . . .   | 99     | 112    | 100    | 116   | 77                  |
| April . . . . . | 93     | 89     | 79     | 106   | 71                  |
| May . . . . .   | 85     | 88     | 75     | 110   | 73                  |
| June . . . . .  | 72     | 79     | 71     | 84    | 65                  |
| July . . . . .  | 69     | 79     | 54     | 75    | 51                  |
| August . . . .  | 77     | 73     | 50     | 90    | 62                  |
| September . .   | 86     | 87     | 91     | 83    | 71                  |
| October . . . . | 112    | 102    | 119    | 103   | 70                  |
| November . . .  | 137    | 118    | 155    | 117   | 75                  |
| December . . .  | 130    | 117    | 145    | 111   | 74                  |
|                 | 1,200  | 1,200  | 1,200  | 1,200 | 72                  |

Deaths in Paris from this disease were as follows :—

| Period        | Deaths Yearly | Per 10,000 Inhabitants |
|---------------|---------------|------------------------|
| 1865-69 . . . | 816           | 43                     |
| 1872-75 . . . | 1,165         | 61                     |
| 1876-80 . . . | 2,020         | 95                     |
| 1881-83 . . . | 2,230         | 99                     |

*Dropsy*.—Of 10,000 deaths there are from this disease in England 94, in Scotland 56, in Ireland 98, in Bavaria 60, and in Belgium 423. Deaths occur in England according to seasons thus :—

|                |       |
|----------------|-------|
| Spring . . . . | 24.0  |
| Summer . . . . | 21.6  |
| Autumn . . . . | 26.4  |
| Winter . . . . | 28.0  |
|                | 100.0 |

*Drink*.—Lombard states that in 10,000 deaths in various countries the ratio for deaths from drink stood thus :—

|                 |    |                  |                   |
|-----------------|----|------------------|-------------------|
| Italy . . . . . | 1  | London . . . 12  | Brussels . . . 40 |
| Genoa . . . . . | 5  | Berlin . . . 13  | Copenhagen . 70   |
| Turin . . . . . | 5  | Bâle . . . . 20  | New York . . 75   |
| Amsterdam . .   | 5  | Breslau . . . 20 | Oldenburg . 87    |
| Munich . . . .  | 6  | Vienna . . . 21  | Kiel . . . . . 90 |
| Dublin . . . .  | 10 | England . . . 21 | Stockholm . 90    |
| Edinburgh . .   | 10 | Berne . . . . 35 |                   |

In nine years ending 1876 the annual deaths from drink in France averaged 448, of which 87 per cent. were men and 13 per cent. women.

Another table on this subject will be found under *Deaths*, p. 180.

*Dysentery*.—In 10,000 deaths there were of this disease :—

| In                 | In                 | In                 |
|--------------------|--------------------|--------------------|
| Ceylon . . . 2,300 | Holland . . 290    | Senegal . . 2,900  |
| England . . . 10   | Italian cities 130 | Valparaiso . 1,060 |
| Gold Coast . 420   | Lima . . . . 610   | United States 160  |
| Guinea . . . 4,130 | Montevideo . 570   | Zanzibar . . 420   |

On the Guinea Coast it attacks 50 per cent. of the garrison yearly, and 8 per cent. of cases prove fatal. At Bombay 9 per cent. of the troops are attacked, and 9 per cent. of cases prove fatal. Annesley gives the percentage of soldiers attacked at various stations thus :—

| Per Cent.        | Per Cent.         | Per Cent.       |
|------------------|-------------------|-----------------|
| North India . 12 | South India . 34  | Hyderabad . 36  |
| Mysore . . . 22  | Middle India . 38 | Madras . . . 47 |

According to Hirsch, there have been in various parts of Europe since 1719 no fewer than 546 epidemics of dysentery, of which 404 were in summer, 113 in autumn, and 29 in other seasons. In Saxony it is found that, supposing 1200 deaths occur in a year from this disease, the months will stand thus :—

|                  |    |                 |     |
|------------------|----|-----------------|-----|
| January . . . .  | 6  | July . . . . .  | 101 |
| February . . . . | 20 | August . . . .  | 367 |
| March . . . . .  | 14 | September . . . | 352 |

|                   |    |                  |     |
|-------------------|----|------------------|-----|
| First quarter . . | 40 | Third quarter .  | 820 |
| April . . . . .   | 13 | October . . . .  | 181 |
| May . . . . .     | 13 | November . . .   | 73  |
| June . . . . .    | 27 | December . . . . | 33  |

Second quarter . 53 Fourth quarter . 287

The ages of soldiers at Mauritius attacked by this disease were :—

| Age             | Cases per 1000 Men |
|-----------------|--------------------|
| 18-24 . . . . . | 6                  |
| 25-33 . . . . . | 11                 |
| 34-40 . . . . . | 19                 |
| 41-50 . . . . . | 36                 |

*Epilepsy*.—The ratio of deaths from this disease among 10,000 deaths is as follows :—

|                  |    |                 |    |
|------------------|----|-----------------|----|
| England . . . .  | 51 | Ireland . . . . | 38 |
| Scotland . . . . | 33 | Norway . . . .  | 13 |

In France the attacks of this disease, taking the year as 1200, occur thus :—

|                  |     |                 |    |
|------------------|-----|-----------------|----|
| January . . . .  | 106 | July . . . . .  | 98 |
| February . . . . | 111 | August . . . .  | 83 |
| March . . . . .  | 103 | September . . . | 87 |

First quarter . 320 Third quarter . 268

|                 |     |                  |     |
|-----------------|-----|------------------|-----|
| April . . . . . | 104 | October . . . .  | 94  |
| May . . . . .   | 107 | November . . .   | 95  |
| June . . . . .  | 112 | December . . . . | 100 |

Second quarter . 323 Fourth quarter . 289

*Erysipelas*.—In 10,000 deaths there were of this disease :—

| <i>In</i>         |    | <i>In</i>        |    |
|-------------------|----|------------------|----|
| Belgium . . . .   | 40 | Ireland . . . .  | 25 |
| Canada . . . . .  | 40 | Italy . . . . .  | 50 |
| Cape Colony . .   | 25 | Malta . . . . .  | 14 |
| England . . . .   | 36 | Mexico . . . .   | 20 |
| France . . . . .  | 48 | Montevideo . .   | 53 |
| Germany . . . .   | 35 | Paris . . . . .  | 70 |
| Gibraltar . . . . | 15 | Scotland . . . . | 50 |
| India . . . . .   | 17 | Switzerland . .  | 40 |

*Fever*.—The predisposition to fever varies with age in the following degrees :—

| Age             | Degree | Age             | Degree |
|-----------------|--------|-----------------|--------|
| Under 5 . . . . | 10     | 25-30 . . . . . | 102    |
| 5-10 . . . . .  | 94     | 30-40 . . . . . | 44     |
| 10-15 . . . . . | 182    | 40-50 . . . . . | 16     |
| 15-20 . . . . . | 269    | 50-55 . . . . . | 6      |
| 20-25 . . . . . | 197    | Over 55 . . . . | 2      |

Napoleon lost 51,000 soldiers by fever in his campaign of 1812, and the French army 17,000 men in the Crimea in 1855.

*Fractures.*—Dr. Gurlt (Berlin, 1863), collected statistics of 17,300 cases; results:—

|                 |             |
|-----------------|-------------|
| Head . . . . .  | 5 per cent. |
| Trunk . . . . . | 14 "        |
| Arms . . . . .  | 48 "        |
| Legs . . . . .  | 33 "        |
|                 | 100 "       |

The total showed 75 per cent. males, 25 per cent. females, the relation of cases according to age with regard to sexes being:—

| Age                | Males | Females |
|--------------------|-------|---------|
| Under 12 . . . . . | 72    | 28      |
| 13-20 . . . . .    | 86    | 14      |
| 21-30 . . . . .    | 91    | 9       |
| 31-40 . . . . .    | 96    | 4       |
| 51-80 . . . . .    | 65    | 35      |

Fractures are more frequent in winter than in summer.

*Goitre.*—This disease as well as cretinism is common in those parts of France and Italy more than 3000 feet over sea-level. There are 420,000 goitrous people in France, and 2 per cent. of conscripts are rejected for this cause. There are 3400 cases in Siberia.

*Gout.*—The ratio of deaths in England from this disease is usually 12 per 10,000; it is eighteen among men and six among women. Of 100 patients in France 94 are usually males, 6 females. The ratio of age at which first symptoms appear is shown thus:—

| Age                |       |
|--------------------|-------|
| Under 20 . . . . . | 2.4   |
| 20-30 . . . . .    | 27.6  |
| 30-40 . . . . .    | 37.6  |
| 40-50 . . . . .    | 23.0  |
| Over 50 . . . . .  | 9.4   |
|                    | 100.0 |

Of 10,000 patients admitted to hospital at Munich, 24 suffered from gout; in the same number 210 at St. George's Hospital, London, and at Paris only one.

*Heart-Disease.*—In 10,000 deaths there were of this disease:—

| In                | In                  | In                   |
|-------------------|---------------------|----------------------|
| Algiers . . . 100 | Germany . . . 230   | Norway . . . 170     |
| Amsterdam . 290   | German cities . 270 | Paris . . . 270      |
| Athens . . . 323  | Holland . . . 180   | Rio Janeiro . 350    |
| Belgium . . . 190 | Hungary . . . 170   | St. Petersburg . 200 |
| Brussels . . 685  | Ireland . . . 510   | Scotland . . . 650   |
| Canada . . . 370  | London . . . 420    | Shanghai . . 1,510   |
| Copenhagen . 320  | Mexico . . . 95     | Switzerland . 350    |
| England . . . 610 | Milan . . . 640     | Turin . . . 490      |
| Edinburgh . 490   | Montevideo . 470    | United States . 350  |
| France . . . 290  |                     |                      |

The ages at which this disease prevails in France are shown by the ratio of deaths thus:—

| Of 1000 Deaths   |                 |                  |
|------------------|-----------------|------------------|
| Age              | Age             | Age              |
| Under 10 . . . 2 | 31-40 . . . 388 | 61-70 . . . 50   |
| 10-20 . . . 10   | 41-50 . . . 254 | Over 70 . . . 28 |
| 21-30 . . . 140  | 51-60 . . . 128 |                  |

*Hepatitis.*—In 10,000 deaths there were of this disease:—

| In                  | In               | In                 |
|---------------------|------------------|--------------------|
| Amsterdam . 81      | Italy . . . 90   | Portugal . . 94    |
| Brussels . . 81     | Malta . . . 250  | St. Helena . 290   |
| Buenos Ayres . 350  | Mexico . . . 380 | Senegal . . . 500  |
| Corfu . . . 150     | Montevideo . 340 | Shanghai . . 740   |
| Frankfort . . 24    | Paris . . . 130  | Swatow . . . 2,500 |
| French cities . 110 |                  |                    |

The ratio of British soldiers on foreign service attacked in twelve months by this disease was as follows:—

| In              | Per 1000 | In              | Per 1000 | In               | Per 1000 |
|-----------------|----------|-----------------|----------|------------------|----------|
| Australia . . 3 |          | Cape . . . 27   |          | Mauritius . . 24 |          |
| Bengal . . . 54 |          | Ceylon . . . 48 |          | N. Zealand . . 6 |          |
| Bombay . . . 37 |          | Hong-Kong . 26  |          | Shanghai . . 14  |          |
| Burmah . . . 61 |          | Madras . . . 73 |          | Yokohama . . 14  |          |

Among Sepoy troops the ratio is only 3, and on the Abyssinian expedition it was 14 per 1000.

*Hernia.*—The number of conscripts per 1000 affected by this disease was in Italy 21, Sardinia 17, Corsica 17, Nice 28, France 33.

*Hydrophobia.*—The annual number of deaths from hydrophobia in one million deaths in various countries from this disease was as follows:—

| Country | Period  | Deaths Yearly, per Million | Country | Period  | Deaths Yearly, per Million |
|---------|---------|----------------------------|---------|---------|----------------------------|
| England | 1853-57 | 25                         | Prussia | 1816-70 | 165                        |
| "       | 1869-88 | 74                         | "       | 1871-73 | 90                         |
| France  | 1851-60 | 24                         | Sweden  | 1786-90 | 282                        |
| "       | 1861-72 | 42                         | "       | 1856-60 | 40                         |
| Bavaria | 1851-56 | 42                         | Belgium | 1856-60 | 32                         |

There has been an increase in France since the dog-tax was imposed in 1860. Tables for ten years in France down to 1872 showed that the disease declared itself in the following ratio of days after the person was bitten:—

| Days               | Per Cent. |
|--------------------|-----------|
| Under 20 . . . . . | 8.7       |
| 20-40 . . . . .    | 31.0      |
| 40-60 . . . . .    | 29.8      |
| 60-90 . . . . .    | 21.7      |
| Over 90 . . . . .  | 8.8       |

Total . . . 100.0

The term of incubation when animals were bitten varied as follows:—

| Days               | Horses | Cows  | Sheep | Dogs  |
|--------------------|--------|-------|-------|-------|
| Under 20 . . . . . | 4.4    | ...   | 16.5  | 16.8  |
| 20-30 . . . . .    | 13.2   | 30.0  | 45.2  | 26.6  |
| 30-40 . . . . .    | 8.8    | 35.0  | 33.0  | 21.7  |
| 40-50 . . . . .    | 26.4   | 25.0  | 3.4   | 14.0  |
| Over 50 . . . . .  | 47.2   | 10.0  | 1.9   | 20.9  |
| Total . . . . .    | 100.0  | 100.0 | 100.0 | 100.0 |

Of 3000 cases collected in thirty years by eleven French physicians the bites were:—

| In               |      |
|------------------|------|
| Spring . . . . . | 27.6 |
| Summer . . . . . | 25.5 |
| Autumn . . . . . | 22.5 |
| Winter . . . . . | 24.4 |

Total . . . 100.0

The average term of incubation was approximately influenced by the age of the person bitten, and also the relative mortality:—

| Age                       | Days of Incubation | Death-Rate   |
|---------------------------|--------------------|--------------|
| Under 10 . . . . .        | 55                 | 36 per cent. |
| 10-20 . . . . .           | 52                 | 39 "         |
| 21-30 . . . . .           | 64                 | 60 "         |
| 31-60 . . . . .           | 60                 | 61 "         |
| Over 60 . . . . .         | 65                 | 70 "         |
| General average . . . . . | 60                 | 47 "         |

The above was for a period of ten years, but tables for 23 years down to 1872 reduced the death-rate in France to 42 per cent of persons bitten by mad dogs, &c., viz. :—

| Bite in           | Number Bitten | Died | Ratio of Deaths | Mean Days of Incubation |
|-------------------|---------------|------|-----------------|-------------------------|
| Hands, arms . . . | 485           | 213  | 44 per cent.    | 74                      |
| Face . . . . .    | 102           | 90   | 88 "            | 48                      |
| Legs . . . . .    | 190           | 40   | 21 "            | 61                      |
| Body . . . . .    | 80            | 12   | 15 "            | ...                     |
| Total . . . . .   | 857           | 355  | 42 "            | ...                     |

Of 717 recorded cases in France in the above period, 655 persons were bitten by a dog, 38 by a wolf, 22 by a cat, 1 by a fox, and 1 by a cow.

Bouley's tables for 1863-68 showed that 31 per cent. of cauterized persons died, and 85 per cent. of non-cauterized. After the disease making its appearance death ensued usually on the third or fourth day, as the following table shows :—

|                               |      |
|-------------------------------|------|
| First or second day . . . . . | 28.1 |
| Third or fourth day . . . . . | 53.7 |
| Over fourth day . . . . .     | 18.2 |

100.0

Under Dr. Pasteur's treatment the following results have been obtained at Paris :—

| Year           | Cases Treated | Died | Recovered |
|----------------|---------------|------|-----------|
| 1887 . . . . . | 306           | 3    | 303       |
| 1888 . . . . . | 385           | 4    | 381       |

The British Government in the above two years sent 85 patients to be treated by Dr. Pasteur, of whom 5 died and 80 recovered.

**Influenza.**—This epidemic is caused by sudden changes of temperature. On January 2, 1872, at St. Petersburg, the thermometer suddenly rose 40 degrees in one night, and 40,000 people were attacked next day. In 1827 it carried off thousands of horses all over Europe. In 1872 it killed 16,000 horses in New York city. In December 1889 it ravaged Europe, attacking over three million persons, but the mortality was probably under 2 per cent. of cases.

The duration of the attack varies with age, the French reports showing thus :—

| Age                | Days | Age                | Days |
|--------------------|------|--------------------|------|
| 20 to 30 . . . . . | 7    | 50 to 60 . . . . . | 12   |
| 30 to 50 . . . . . | 9    | Over 60 . . . . .  | 23   |

**Leprosy.**—The number of lepers in various countries is as follows :—

|                     |         |                            |       |
|---------------------|---------|----------------------------|-------|
| Canton . . . . .    | 10,000  | Norway . . . . .           | 1,770 |
| Crete . . . . .     | 900     | Portugal . . . . .         | 3,000 |
| Greece . . . . .    | 350     | Reunion . . . . .          | 600   |
| Iceland . . . . .   | 13      | Rio Janeiro . . . . .      | 120   |
| India . . . . .     | 131,600 | Sandwich Islands . . . . . | 1,800 |
| Mauritius . . . . . | 3,300   | Sweden . . . . .           | 100   |

The establishment at Molokai, Sandwich Islands, was several years under the charge of Father Damien, who died in 1889. The proportion of sexes in Greece is 64 males to 36 female lepers, and the ages at which the disease makes its first appearance give the following ratios :—

| Age                | Males | Females | General Average |
|--------------------|-------|---------|-----------------|
| Under 10 . . . . . | 10.8  | 2.8     | 8.0             |
| 10-20 . . . . .    | 33.0  | 38.6    | 35.0            |
| 20-30 . . . . .    | 28.0  | 23.0    | 26.0            |
| 30-40 . . . . .    | 20.2  | 27.6    | 23.0            |
| Over 40 . . . . .  | 8.0   | 8.0     | 8.0             |
| Total . . . . .    | 100.0 | 100.0   | 100.0           |

In Russia leprosy is found in sixty-five districts, and the number of fresh victims registered in 1887 was 615. This would lead us to suppose that the existing number of lepers in the empire is about 6000.

Indian statistics for 1881 showed lepers thus :—

|                   |        |                     |        |
|-------------------|--------|---------------------|--------|
| Males . . . . .   | 98,982 | Bengal . . . . .    | 53,880 |
| Females . . . . . | 32,636 | Madras, &c. . . . . | 77,738 |

Total . 131,618

Total . 131,618

Norway has five leper hospitals, containing altogether about 600 patients. The disease is on the decline, viz. :—

| Year           | Lepers | Per 100,000 Inhabitants |
|----------------|--------|-------------------------|
| 1856 . . . . . | 2,612  | 191                     |
| 1875 . . . . . | 1,771  | 98                      |

In Cyprus a leper-farm was established in 1830, one mile from Nicosia : area, 100 acres, tillage 11 acres ; house of 26 rooms occupied by :—

|                  |    |                   |    |
|------------------|----|-------------------|----|
| Greeks . . . . . | 44 | Males . . . . .   | 33 |
| Turks . . . . .  | 2  | Females . . . . . | 13 |

Total . 46

Total . 46

Death-rate, 16 per cent. per annum ; new patients 14 in the year (1879). All very clean. Five married couples ; two have children quite healthy, but rest are childless. All the lepers have lost fingers. One woman of 80 has been there fifty years.

**Measles.**—In 10,000 deaths there were of this disease—in England 184, London 265, Scotland 140, Ireland 110, and Holland 150.

The prevalence of this disease, as shown by the ratio of deaths in the various months, taking the year as 1200, was :—

|                     | London | Saxony |                     | London | Saxony |
|---------------------|--------|--------|---------------------|--------|--------|
| January . . . . .   | 85     | 119    | July . . . . .      | 117    | 94     |
| February . . . . .  | 55     | 112    | August . . . . .    | 108    | 120    |
| March . . . . .     | 74     | 84     | September . . . . . | 96     | 64     |
| April . . . . .     | 80     | 65     | October . . . . .   | 100    | 64     |
| May . . . . .       | 82     | 90     | November . . . . .  | 119    | 119    |
| June . . . . .      | 125    | 93     | December . . . . .  | 159    | 176    |
| Half year . . . . . | 501    | 563    | Half year . . . . . | 699    | 637    |

**Meningitis.**—In 10,000 deaths there were of this disease :—

| In              | In               | In                 |
|-----------------|------------------|--------------------|
| Amsterdam . 370 | Buda-Pesth . 460 | St. Petersburg 500 |
| Belgium . . 280 | France . . . 300 | United States 190  |

Epidemics of this disease have occurred : we have no returns of the number attacked, but the death-rate per 100 patients is recorded thus :—

|                     |                  |                   |
|---------------------|------------------|-------------------|
| Versailles . . . 41 | Sweden and } 33  | Metz . . . . . 70 |
| Naples . . . . 46   | Norway . . . }   | Aigues Mortes 75  |
| Strasbourg . . 51   | Lille . . . . 65 | Rocheport . . 84  |
|                     | Orleans . . . 70 |                   |

The general relative mortality was 63 per cent., most of the above epidemics occurring among garrison troops. Swedish statistics give the following particulars :—

| Age               | Ratio of Cases | Death-Rate   |
|-------------------|----------------|--------------|
| Under 3 . . . . . | 23.0           | 42 per cent. |
| 3-10 . . . . .    | 33.6           | 25 "         |
| 10-20 . . . . .   | 31.2           | 35 "         |
| Over 20 . . . . . | 12.2           | 30 "         |

Total . . . . . 100.0

33 "

**Mumps.**—Lombard gives the ratio of age of cases thus :—

In 1000 Patients

| Age                  | Age                 | Age                  |
|----------------------|---------------------|----------------------|
| Under 5 . . . . . 95 | 10-15 . . . . . 256 | 30-40 . . . . . 108  |
| 5-10 . . . . . 243   | 15-30 . . . . . 230 | Over 40 . . . . . 68 |

The prevalence of cases according to months was as follows, according to Hirsch:—

|                          |     |                          |     |
|--------------------------|-----|--------------------------|-----|
| January . . . . .        | 292 | July . . . . .           | 55  |
| February . . . . .       | 97  | August . . . . .         | 14  |
| March . . . . .          | 124 | September . . . . .      | 27  |
| First quarter . . . . .  | 513 | Third quarter . . . . .  | 96  |
| April . . . . .          | 124 | October . . . . .        | 176 |
| May . . . . .            | 27  | November . . . . .       | 110 |
| June . . . . .           | 70  | December . . . . .       | 84  |
| Second quarter . . . . . | 221 | Fourth quarter . . . . . | 370 |

*Neuralgia*.—The prevalence of this disease according to sex is variously stated, viz. :—

|                   | Anstie | Valleix | Eulenberg | Medium |
|-------------------|--------|---------|-----------|--------|
| Males . . . . .   | 32     | 47      | 28        | 36     |
| Females . . . . . | 68     | 53      | 72        | 64     |
| Total . . . . .   | 100    | 100     | 100       | 100    |

The ratio according to age is stated thus :—

| Age                | Valleix | Eulenberg |
|--------------------|---------|-----------|
| Under 20 . . . . . | 8.1     | 6.0       |
| 20-30 . . . . .    | 22.9    | 19.0      |
| 30-50 . . . . .    | 44.8    | 55.0      |
| Over 50 . . . . .  | 24.2    | 20.0      |
| Total . . . . .    | 100.0   | 100.0     |

*Obesity*.—Of 100 patients, 36 are men and 64 women. The disease is hereditary in 49 per cent. of cases. Remarkable instances of obesity are the following :—

| Name                      | Weight, Lbs. | Age | Residence         |
|---------------------------|--------------|-----|-------------------|
| James Mansfield . . . . . | 476          | 82  | Debden, Monmouth  |
| Mr. Bright . . . . .      | 596          | 29  | Maldon, Essex     |
| Dan. Lambert . . . . .    | 739          | 40  | Stamford, Lincoln |

*Ophthalmia*.—Of 1000 persons in hospitals in Sweden, 48 suffered from this disease.

*Paralysis*.—Of 100 cases of general paralysis 86 are male, 14 female. The ratio of age is thus :—

| Age                | Males | Females |
|--------------------|-------|---------|
| Under 30 . . . . . | 7.1   | ...     |
| 30-40 . . . . .    | 40.8  | 32.0    |
| 41-50 . . . . .    | 33.4  | 50.0    |
| Over 50 . . . . .  | 18.7  | 18.0    |
| Total . . . . .    | 100.0 | 100.0   |

Of 10,000 deaths there are from this disease 260 in England, 280 in Scotland, and 145 in Ireland. Deaths in England according to season :—

|                  |       |
|------------------|-------|
| Spring . . . . . | 24.2  |
| Summer . . . . . | 19.0  |
| Autumn . . . . . | 25.6  |
| Winter . . . . . | 31.2  |
| Total . . . . .  | 100.0 |

The ratio of age in cases of spinal paralysis is as follows :—

|                    |       |
|--------------------|-------|
| Under 16 . . . . . | 9.5   |
| 16-20 . . . . .    | 26.4  |
| 20-25 . . . . .    | 18.0  |
| 25-35 . . . . .    | 26.4  |
| 35-45 . . . . .    | 13.5  |
| Over 45 . . . . .  | 6.2   |
| Total . . . . .    | 100.0 |

In 100 patients 70 were males and 30 females.

*Pellagra*.—The number of cases yearly, per million inhabitants, is 150 at Lodi, 800 at Cremona, 2400 at Bergamo, and 2900 at Brescia. About 1000 persons die of pellagra yearly in Venetia.

In 1879 the sufferers from pellagra were :—

|                           | Number | Per 1000 Inhabitants |
|---------------------------|--------|----------------------|
| Lombardy . . . . .        | 40,800 | 31.7                 |
| Venetia . . . . .         | 29,800 | 30.5                 |
| Emilia . . . . .          | 18,700 | 23.7                 |
| Other provinces . . . . . | 8,600  | ...                  |
| Total . . . . .           | 97,900 | ...                  |

*Peritonitis*.—The ratios of age of patients stand thus :—

| Age                | Per Cent. |
|--------------------|-----------|
| Under 20 . . . . . | 14.0      |
| 20-30 . . . . .    | 26.0      |
| 30-40 . . . . .    | 27.5      |
| Over 40 . . . . .  | 32.5      |
| Total . . . . .    | 100.0     |

*Phthisis*.—In 10,000 deaths there were of this disease as follows :—

|                       |      |                         |      |                          |      |
|-----------------------|------|-------------------------|------|--------------------------|------|
| Alabama . . . . .     | 630  | Flanders . . . . .      | 2600 | Norway . . . . .         | 1288 |
| Alexandria . . . . .  | 250  | Florida . . . . .       | 570  | Nuremberg . . . . .      | 1410 |
| Amsterdam . . . . .   | 870  | France . . . . .        | 1120 | Paris . . . . .          | 1430 |
| Antwerp . . . . .     | 1590 | Frankfort . . . . .     | 1550 | Pennsylvania . . . . .   | 1420 |
| Archangel . . . . .   | 1960 | Geneva . . . . .        | 1250 | Philadelphia . . . . .   | 1320 |
| Athens . . . . .      | 1076 | Glasgow . . . . .       | 1580 | Riga . . . . .           | 300  |
| Augsburg . . . . .    | 1000 | Holland . . . . .       | 950  | Rio Janeiro . . . . .    | 1880 |
| Bavaria . . . . .     | 1010 | Iceland . . . . .       | 5    | Rome . . . . .           | 1140 |
| Belgium . . . . .     | 1825 | Ireland . . . . .       | 1160 | Russia . . . . .         | 1960 |
| Berlin . . . . .      | 990  | Lima . . . . .          | 1770 | St. Petersburg . . . . . | 1510 |
| Bologna . . . . .     | 1340 | Lisbon . . . . .        | 1147 | S. Francisco . . . . .   | 1590 |
| Bordeaux . . . . .    | 1620 | London . . . . .        | 1280 | Santa Cruz . . . . .     | 1400 |
| Brussels . . . . .    | 1750 | Louisiana . . . . .     | 970  | Scotland . . . . .       | 1059 |
| Buda-Pesth . . . . .  | 1545 | Lyons . . . . .         | 1340 | Shanghai . . . . .       | 600  |
| Cairo . . . . .       | 1010 | Maine . . . . .         | 2580 | Stockholm . . . . .      | 1600 |
| California . . . . .  | 1380 | Maryland . . . . .      | 1720 | Sweden . . . . .         | 1340 |
| Canada . . . . .      | 1610 | Massachusetts . . . . . | 2000 | Switzerland . . . . .    | 770  |
| Catania . . . . .     | 450  | Melbourne . . . . .     | 740  | Turin . . . . .          | 830  |
| Christiania . . . . . | 1720 | Mexico . . . . .        | 490  | Ulm . . . . .            | 1130 |
| Copenhagen . . . . .  | 1270 | Milan . . . . .         | 1320 | U. States . . . . .      | 1420 |
| Corfu . . . . .       | 2190 | Missouri . . . . .      | 750  | Vienna . . . . .         | 2080 |
| Drontheim . . . . .   | 1700 | Montevideo . . . . .    | 1270 | Vologda . . . . .        | 2060 |
| England . . . . .     | 1010 | Munich . . . . .        | 1320 | Wisconsin . . . . .      | 1320 |
| Finland . . . . .     | 840  | New York . . . . .      | 1550 | Zeeland . . . . .        | 640  |

Height above sea-level has a marked effect on this disease, as shown by the following death-rates from phthisis in Baden and Switzerland :—

| Feet over Sea             | Per 10,000 Deaths |             |        |
|---------------------------|-------------------|-------------|--------|
|                           | Baden             | Switzerland | Medium |
| Less than 1,600 . . . . . | 1,040             | 860         | 950    |
| 1,600-2,700 . . . . .     | 830               | 730         | 780    |
| 2,700-3,200 . . . . .     | 750               | 390         | 570    |
| Over 3,200 . . . . .      | 860               | 500         | 680    |

Similar results are obtained in the Andes.

Some occupations predispose to phthisis; the following table shows among 100 sick persons of each trade the ratio of those suffering from it :—

| RATIO OF PHTHISIS TO ALL SICKNESS |                   |                            |           |
|-----------------------------------|-------------------|----------------------------|-----------|
| Per Cent.                         | Per Cent.         | Per Cent.                  | Per Cent. |
| Needle-makers 70                  | Hairdressers . 32 | Masons . . . . .           | 13        |
| File-makers . 63                  | Weavers . . . 25  | Millers . . . . .          | 11        |
| Lithographers 48                  | Painters . . . 25 | Brewers . . . . .          | 11        |
| Grinders . . . 40                 | Printers . . . 22 | Tanners . . . . .          | 9         |
| Tobaccoists . 37                  | Shoemakers . 19   | Bakers . . . . .           | 7         |
| Watchmakers 37                    | Glaziers . . . 18 | Butchers . . . . .         | 7         |
| Stonecutters . 36                 | Hatters . . . 16  | Charcoal-burners . . . . . | 2         |
| Glassworkers . 35                 | Carpenters . . 14 | Miners . . . . .           | 1         |



The above table has reference only to the United Kingdom, the deaths from phthisis per million inhabitants showing as follows yearly:—

|                   |         |       |                    |         |       |
|-------------------|---------|-------|--------------------|---------|-------|
| England . . . . . | 1850-59 | 2,730 | Scotland . . . . . | 1876-85 | 2,183 |
| " . . . . .       | 1860-69 | 2,547 | Ireland . . . . .  | 1886    | 2,220 |
| " . . . . .       | 1870-79 | 2,205 | London . . . . .   | 1879    | 2,476 |
| " . . . . .       | 1886    | 1,718 | " . . . . .        | 1886    | 2,010 |

In Scotland the deaths yearly from phthisis average thus:—

|                   | Per Million Persons Living |       |       | Age     | Age Ratio |         |       |
|-------------------|----------------------------|-------|-------|---------|-----------|---------|-------|
|                   | Urban                      | Rural | Total |         | Males     | Females | Total |
| Males . . . . .   | 2,680                      | 1,970 | 2,370 | 0-20    | 16.2      | 16.8    | 16.5  |
| Females . . . . . | 2,850                      | 1,680 | 2,460 | 20-40   | 51.4      | 53.6    | 52.5  |
| Gen. pop. . . . . | 2,760                      | 1,820 | 2,420 | Over 40 | 32.4      | 29.6    | 31.0  |
|                   |                            |       |       | Total   | 100.0     | 100.0   | 100.0 |

During the years 1830-46, the mean mortality from phthisis in the British army on home service amounted to 7.8 per 1000 of strength, the highest mortality being among the Foot Guards, with whom it reached 11.3 per 1000 of strength. In the Equitable Assurance Company at that time, the average mortality between the ages of thirty and forty, from all diseases of the lungs, amounted to 3.4 per 1000. The army mortality from phthisis was, therefore, three times greater than necessary. The mortality of troops from the same cause appeared to be equally great at some foreign stations. Thus at Gibraltar 41 per cent. of the total deaths among the troops were caused by phthisis in the years 1837-46, while in the year 1875 only 23 per cent. of the deaths were due to this cause. At Jamaica the deaths from phthisis in the years 1817-36 amounted to 7.5 per 1000 of strength, while in 1859-66 the mortality from this cause had fallen to 1.4 per 1000 of strength. In Trinidad, lung disease killed on an average 11.5 per 1000 of strength between 1817 and 1836. Among the black troops at Sierra Leone phthisis appears to be the most fatal disorder. In ten years, 1861-70, the deaths were 22.5 per 1000 of strength, and of these phthisis caused one-third. In the twenty years 1817-36, the deaths in Canada from phthisis were 4.2 per 1000 of strength, whereas in 1859-65 they were but 1.6 per 1000. In India the annual ratio of deaths and invalided from phthisis were for the years 1863-70 as follows:—

|                  | Died per 1000 | Invalided per 1000 |
|------------------|---------------|--------------------|
| Pengal . . . . . | 1.7           | 3.2                |
| Bombay . . . . . | 1.4           | 3.4                |
| Madras . . . . . | 1.4           | 4.2                |

Deaths from phthisis in the Royal Navy average 2.6 per 1000 yearly, which is attributed to the foulness of the air.

The deaths and invalided from phthisis in the British army at home in the years 1864-70 were per 1000 men yearly thus:—

|                             | Deaths | Invalided |
|-----------------------------|--------|-----------|
| Household cavalry . . . . . | 3.8    | 8.2       |
| Cavalry of line . . . . .   | 1.4    | 4.0       |
| Foot guards . . . . .       | 2.3    | 9.5       |
| Infantry of line . . . . .  | 2.1    | 5.5       |

Among the causes of phthisis the most potent is overcrowding. At the ill-ventilated Leopoldstadt prison of Vienna in 1843-47 no fewer than 51 per 1000 deaths were from phthisis. At the well-ventilated House of

Correction in the same city, in the years 1850-54, the deaths from phthisis were only 8 per 1000.

Among British garrisons abroad 12 per 1000 in Ceylon are attacked yearly with phthisis, 12 in the Anglo-Indian army, 3 among Sepoys, 6 at Yokohama, and 15 at Hong-Kong. Among hospital patients in Tasmania 7 per cent. suffered from this disease, and in the French hospital at Senegal 8 per cent.

Plague.—Milroy gives a list of 196 of the most destructive plagues since the year 1500, viz:—

|                                  | 1501-1600 | 1601-1700 | 1701-1800 | 1801-1841 |
|----------------------------------|-----------|-----------|-----------|-----------|
| England . . . . .                | 15        | 12        | 0         | 0         |
| France . . . . .                 | 14        | 11        | 1         | 0         |
| Germany . . . . .                | 12        | 19        | 4         | 1         |
| Low Countries . . . . .          | 2         | 14        | 0         | 0         |
| Russia and Scandinavia . . . . . | 2         | 7         | 4         | 2         |
| Italy and Levant . . . . .       | 26        | 15        | 12        | 11        |
| Spain . . . . .                  | 5         | 3         | 3         | 1         |
| Total . . . . .                  | 76        | 81        | 24        | 15        |

The most terrible, however, which is recorded was that commonly known as the Black Death, which came from Persia into Europe in 1346. It was preceded by myriads of locusts, which filled the wells and poisoned the water in the countries east of the Caspian Sea. At Bagdad 500,000 persons died in 90 days; at Cairo the mortality reached 10,000 in 24 hours. In Europe it lasted four years, and was supposed to have carried off 24,000,000 persons, more than 30,000 towns and villages being depopulated. So late as 1350 ships were met at sea with all dead on board. Among the cities which suffered most were:—

|                      |         |                      |         |
|----------------------|---------|----------------------|---------|
| Avignon . . . . .    | 60,000  | Paris . . . . .      | 50,000  |
| Dublin . . . . .     | 14,000  | Parma . . . . .      | 40,000  |
| Florence . . . . .   | 100,000 | Siena . . . . .      | 70,000  |
| Genoa . . . . .      | 40,000  | Strasbourg . . . . . | 26,000  |
| London . . . . .     | 100,000 | Valencia . . . . .   | 100,000 |
| Marseilles . . . . . | 56,000  | Venice . . . . .     | 70,000  |
| Naples . . . . .     | 60,000  | Vienna . . . . .     | 40,000  |
| Norwich . . . . .    | 50,000  |                      |         |

Since the beginning of the seventeenth century the worst plagues have been:—

| Date | Place                    | Deaths  | Weeks | Deaths per Week |
|------|--------------------------|---------|-------|-----------------|
| 1656 | Naples . . . . .         | 380,000 | 28    | 13,400          |
| 1665 | London . . . . .         | 68,800  | 33    | 2,100           |
| 1720 | Marseilles . . . . .     | 39,100  | 36    | 1,100           |
| 1771 | Moscow . . . . .         | 87,800  | 32    | 2,700           |
| 1778 | Constantinople . . . . . | 170,000 | 18    | 9,500           |
| 1798 | Cairo . . . . .          | 88,000  | 25    | 3,500           |
| 1812 | Constantinople . . . . . | 144,000 | 13    | 11,100          |
| 1834 | Cairo . . . . .          | 57,000  | 18    | 3,200           |
| 1835 | Alexandria . . . . .     | 14,900  | 17    | 900             |
| 1871 | Buenos Ayres . . . . .   | 26,300  | 11    | 2,400           |

The relative mortality in certain plagues was as follows:—

| Date | Place                  | Died, per Cent. | Recovered, per Cent. | Authority |
|------|------------------------|-----------------|----------------------|-----------|
| 1798 | Cairo . . . . .        | 67              | 33                   | Genettes  |
| 1798 | Aboukir . . . . .      | 25              | 75                   | M'Grigor  |
| 1813 | Malta . . . . .        | 50              | 50                   | Greaves   |
| 1815 | Corfu . . . . .        | 91              | 9                    | White     |
| 1834 | Cairo . . . . .        | 29              | 71                   | Gaetani   |
| 1835 | Alexandria . . . . .   | 35              | 65                   | Clot Bey  |
| 1871 | Buenos Ayres . . . . . | 40              | 60                   | Bosch     |

**Pneumonia.**—In 10,000 deaths there were of this disease :—

| In              | In               | In               |
|-----------------|------------------|------------------|
| Amsterdam . 570 | Buenos Ayres 400 | Ireland . . 220  |
| Athens . . 856  | Copenhagen . 710 | London . . 530   |
| Bombay . . 26   | Edinburgh . 270  | Paris . . 680    |
| Bordeaux . 400  | England . . 450  | Scotland . 410   |
| Brussels . 430  | Frankfort . 400  | Valparaiso 1,890 |
|                 | Glasgow . . 490  |                  |

**Puerperal Fever.**—In 10,000 deaths there were of this disease :—

| In             | In               | In                |
|----------------|------------------|-------------------|
| Amsterdam . 53 | Copenhagen . 160 | London . . 25     |
| Athens . . 110 | England . . 37   | New York . 56     |
| Austria . . 40 | France . . 100   | St. Petersburg 74 |
| Bâle . . . 90  | Geneva . . 95    | Scotland . 50     |
| Berne . . . 80 | Holland . . 50   | Switzerland . 77  |
| Brussels . 210 | Iceland . . 70   | United States 40  |
| Canada . . 140 | Ireland . . 52   |                   |

At the lying-in hospital of St. Petersburg in 32 years down to 1871 there were 39,200 accouchements, and 1960 mothers died—just 5 per cent. The death-rate per 1000 accouchements according to months was :—

|                 |               |                |
|-----------------|---------------|----------------|
| January . . 54  | May . . . 55  | September . 34 |
| February . . 56 | June . . . 68 | October . . 35 |
| March . . . 60  | July . . . 52 | November . 40  |
| April . . . 59  | August . . 29 | December . 55  |

The quarter ending June showed the highest rate, 61, and that ending September only 38.

In Prussia during 25 years down to 1866 it was found that 33 per 1000 of married women died of puerperal fever. Lefort states that the average in lying-in hospitals in Europe is 34 per 1000, and only 5 per 1000 in women confined at home.

**Rheumatism.**—In 10,000 deaths there were of this disease :—

| In              | In             | In               |
|-----------------|----------------|------------------|
| Bordeaux . . 50 | Germany . . 25 | Paris . . . 29   |
| Canada . . 70   | Glasgow . . 21 | Scotland . 38    |
| Copenhagen 35   | Iceland . . 80 | Switzerland 25   |
| Denmark . 70    | Ireland . . 56 | United States 59 |
| Edinburgh . 23  | Italy . . . 21 | Upsala . . 40    |
| England . . 50  | Lisbon . . 43  | Valparaiso . 44  |
| Frankfort . 46  | London . . 55  |                  |

Of 1000 cases of sickness the ratio of rheumatism is as follows :—

| In              | In             | In                |
|-----------------|----------------|-------------------|
| Algiers . . 12  | Hong-Kong . 30 | New Zealand . 32  |
| Amoy . . . 39   | India . . . 50 | Riga . . . 84     |
| Bombay . . 30   | Lisbon . . 40  | Sandwich Isds. 41 |
| Buda-Pesth . 65 | London . . 60  | Shanghai . . 92   |
| Burmah . . 48   | Lyons . . . 98 | Singapore . . 60  |
| Cape . . . 30   | Madras . . 60  | Sweden . . 77     |
| Corfu . . . 35  | Malaga . . 51  | Switzerland . 30  |
| England . . 100 | Mauritius . 31 | Tahiti . . . 41   |
| Gibraltar . 47  | Melbourne . 77 | Yokohama . 65     |
|                 | Natal . . . 30 |                   |

During the war of 1861-63 in the United States the Federals had 5,825,000 men under colours, and of these 254,700 were sent to hospital for rheumatism, being 44 per 1000. The French army at home has usually 30 rheumatic patients yearly per 1000 men, but in Algeria only 12; the garrison at Rome also averaged 12. In 1873 the deaths from this disease in the French army were 3 per 100,000 men.

In 14 years ending 1874 the ratio of British seamen on home and foreign stations attacked yearly with rheumatism was :—

| Per 1000 Seamen  |                  |                  |
|------------------|------------------|------------------|
| U. Kingdom . 56  | China . . . 84   | Australia . . 89 |
| West Indies . 71 | Mediterranean 85 | Pacific . . . 97 |
| South America 75 | East Indies . 87 | Cape . . . 104   |

The general average for the said period was 84.

The following table shows the distribution of rheumatism according to months, taking the year as 1200 :—

|                 | Cases  |       | Deaths    |          | Deaths to 1000 Cases | Relative Malignancy |
|-----------------|--------|-------|-----------|----------|----------------------|---------------------|
|                 | London | Paris | In France | At Paris |                      |                     |
| January . . .   | 96     | 83    | 107       | 109      | 25                   | 150                 |
| February . . .  | 115    | 92    | 105       | 79       | 12                   | 72                  |
| March . . . .   | 85     | 92    | 105       | 95       | 30                   | 180                 |
| April . . . .   | 114    | 109   | 105       | 102      | 7                    | 40                  |
| May . . . . .   | 90     | 104   | 97        | 103      | 21                   | 128                 |
| June . . . . .  | 118    | 112   | 92        | 94       | 6                    | 37                  |
| July . . . . .  | 102    | 120   | 92        | 121      | 22                   | 130                 |
| August . . . .  | 77     | 102   | 100       | 97       | 15                   | 90                  |
| September . . . | 91     | 92    | 109       | 110      | 23                   | 135                 |
| October . . . . | 115    | 97    | 100       | 107      | 16                   | 94                  |
| November . . .  | 95     | 97    | 95        | 85       | 16                   | 94                  |
| December . . .  | 102    | 100   | 93        | 98       | 8                    | 50                  |
| Year . . . . .  | 1,200  | 1,200 | 1,200     | 1,200    | 17                   | 100                 |

The ratio of age in deaths from rheumatism at Paris (1865-74) was as follows :—

In 1000 Deaths from Rheumatism

| Age              | Age             | Age               |
|------------------|-----------------|-------------------|
| Under 5 . . . 11 | 15-25 . . . 115 | 40-60 . . . 331   |
| 5-15 . . . . 58  | 25-40 . . . 279 | Over 60 . . . 206 |

There were 102 males to 100 female deaths.

**Scarlattina.**—In 10,000 deaths there were of this disease :—

| In              | In              | In                |
|-----------------|-----------------|-------------------|
| Amsterdam . 50  | England . . 350 | Rome . . . 10     |
| Bavaria . . 236 | Germany . . 160 | Switzerland . 430 |
| Berlin . . . 60 | Holland . . 40  | Scotland . . 180  |
| Brussels . 140  | Ireland . . 290 | St. Petersburg 90 |
| Copenhagen 240  | London . . 480  | U. States . . 220 |
|                 | Paris . . . 60  |                   |

The prevalence of this disease in Sweden, Norway, and Saxony, according to months (taking the year as 1200), is shown thus :—

| Month             | Sweden | Norway | Saxony |
|-------------------|--------|--------|--------|
| January . . . .   | 106    | 122    | 116    |
| February . . . .  | 99     | 110    | 102    |
| March . . . . .   | 93     | 103    | 78     |
| April . . . . .   | 95     | 92     | 63     |
| May . . . . .     | 91     | 90     | 59     |
| June . . . . .    | 90     | 85     | 59     |
| July . . . . .    | 81     | 80     | 68     |
| August . . . . .  | 80     | 76     | 84     |
| September . . . . | 91     | 72     | 113    |
| October . . . . . | 118    | 100    | 155    |
| November . . . .  | 136    | 137    | 151    |
| December . . . .  | 120    | 133    | 152    |

**Sciatica.**—Arnoldi gives the age of 1000 patients of this disease :—

|                 |                 |                  |
|-----------------|-----------------|------------------|
| Under 10 . . 36 | 30-40 . . . 218 | 60-70 . . . 115  |
| 10-20 . . . 101 | 40-50 . . . 199 | Over 70 . . . 28 |
| 20-30 . . . 145 | 50-60 . . . 158 |                  |

**Scrophula.**—In 10,000 deaths there were of this disease :—

| In               | In              | In                 |
|------------------|-----------------|--------------------|
| Amsterdam . 140  | England . . 56  | New York . . 83    |
| Berlin . . . 100 | France . . 130  | Norway . . . 80    |
| Bordeaux . . 67  | Glasgow . . 60  | Paris . . . 47     |
| Brussels . . 90  | Ireland . . 110 | Russia . . . 180   |
| Canada . . . 15  | Lisbon . . 110  | St. Petersburg 260 |
| Copenhagen 70    | London . . 60   | Scotland . . 150   |
| Dresden . . 90   | Lyons . . . 60  | Turin . . . 30     |
| Edinburgh . 95   | Munich . . 33   | United States 70   |

In German cities 50 per cent. of foundlings die of scrofula. In Buda-Pesth 2½ per cent. of hospital patients suffer from this disease. In Italy 7 per 1000 of conscripts are rejected for it.

**Scurvy.**—In the British navy the returns were:—

| Period            | Cases Yearly | Per 10,000 Seamen |
|-------------------|--------------|-------------------|
| 1856-65 . . . . . | 28           | 6                 |
| 1866-75 . . . . . | 4            | 1                 |

In the year 1820 the garrison of St. Peters, Iowa, 1000 men, had 500 cases, of whom 168 died. The United States army in 20 years ending 1859 had 26 cases yearly per 1000 men, but only 1 per cent. of the cases proved fatal. The French army in the Crimea had 23,400 cases and 639 deaths, say 3 per cent. In the hospital at Constantinople, 1855-56, there were 25,200 cases and 2916 deaths, or nearly 12 per cent. In the Franco-German war the French prisoners at Ingolstadt had 16 cases per 1000. In Lord Anson's expedition, 1740, the *Centurion* lost 58 per cent. and the *Gloucester* 78 per cent. of her crew from scurvy. Admiral Martin lost 10 per cent. of his men in 1746.

**Small-Pox.**—In 10,000 deaths there were of this disease:—

| In                  | In                 | In                 |
|---------------------|--------------------|--------------------|
| Amsterdam . . 100   | Denmark . . . 70   | Marseilles . . 152 |
| Austria . . . . 250 | England . . . 130  | Paris . . . . . 80 |
| Baltimore . . . 620 | Finland . . . 60   | Rome . . . . . 290 |
| Berlin . . . . . 4  | Germany . . . 8    | St. Petersburg 40  |
| Brussels . . . 150  | Glasgow . . . 8    | Scotland . . . 14  |
| Buda-Pesth . . 140  | Ireland . . . 41   | Sweden . . . 160   |
| Canada . . . . . 55 | Italy . . . . . 60 | Switzerland . 54   |
| Copenhagen . . 70   | London . . . 106   | Vienna . . . . 40  |

The months in which it is most prevalent are shown in the following table, taking the year as 1200:—

| Month              | Sweden | Norway | Bavaria | London |
|--------------------|--------|--------|---------|--------|
| January . . . . .  | 120    | 144    | 120     | 50     |
| February . . . . . | 130    | 161    | 152     | 23     |
| March . . . . .    | 129    | 157    | 162     | 45     |
| April . . . . .    | 156    | 142    | 165     | 38     |
| May . . . . .      | 152    | 172    | 142     | 65     |
| June . . . . .     | 128    | 133    | 110     | 57     |
| July . . . . .     | 91     | 78     | 70      | 68     |
| August . . . . .   | 52     | 46     | 52      | 80     |
| September . . . .  | 41     | 34     | 46      | 93     |
| October . . . . .  | 43     | 27     | 45      | 153    |
| November . . . . . | 68     | 40     | 58      | 225    |
| December . . . . . | 90     | 66     | 78      | 303    |
| Year . . . . .     | 1,200  | 1,200  | 1,200   | 1,200  |

The deaths per million inhabitants in the United Kingdom yearly averaged thus:—

| England   |        | London  |        | Scotland |        | Ireland |        |
|-----------|--------|---------|--------|----------|--------|---------|--------|
| Date      | Deaths | Date    | Deaths | Date     | Deaths | Date    | Deaths |
| ...       | ...    | 1660-80 | 4,170  | ...      | ...    | ...     | ...    |
| 1760-1800 | 3,000  | 1760-90 | 2,260  | ...      | ...    | ...     | ...    |
| 1840-54   | 430    | 1840-60 | 408    | ...      | ...    | 1844    | 403    |
| 1871-73   | 178    | 1871-73 | 1,040  | 1864     | 305    | 1864-74 | 108    |
| 1881      | 100    | 1881    | 640    | 1874-82  | 28     | 1875-82 | 82     |

In the epidemic of 1861 the deaths in England were per million: army, 455; civilians, 928; London, 2420. In that of 1881 the returns showed deaths per million inhabitants as follows:—

|                   | Vaccinated | Unvaccinated | Difference |
|-------------------|------------|--------------|------------|
| London . . . . .  | 90         | 3,350        | 35 to 1    |
| England . . . . . | 98         | 4,380        | 44 to 1    |

Deaths yearly from this disease in various European armies averaged thus:—

|                    | Per 100,000 Men |         |
|--------------------|-----------------|---------|
|                    | 1872-75         | 1876-81 |
| British . . . . .  | 8               | 3       |
| German . . . . .   | 1               | 0       |
| French . . . . .   | 8               | 16      |
| Austrian . . . . . | 99              | 18      |

In Germany the deaths from this disease averaged in 10,000 deaths as follows:—

|                   |     |
|-------------------|-----|
| 1816-70 . . . . . | 101 |
| 1871-74 . . . . . | 555 |
| 1875-82 . . . . . | 8   |

In 1874 a law was passed making re-vaccination compulsory on all persons in Germany over twelve years of age. The ratio in 10,000 deaths for Berlin and London was as follows:—

|                  | 1870-79 | 1880-83 |
|------------------|---------|---------|
| Berlin . . . . . | 324     | 4       |
| London . . . . . | 230     | 106     |

In Austria the ratio per 10,000 deaths showed:—

|                   |     |
|-------------------|-----|
| 1872-76 . . . . . | 560 |
| 1877-81 . . . . . | 250 |

French physicians have instituted a comparison between Paris and Rio Janeiro touching this disease at various seasons and temperatures, viz:—

| Quarter ending     | Mean Temperature, Fahrenheit |             | Ratio of Year's Death |             |
|--------------------|------------------------------|-------------|-----------------------|-------------|
|                    | Paris                        | Rio Janeiro | Paris                 | Rio Janeiro |
| 31st March . . . . | 38                           | 77          | 24.2                  | 12.6        |
| 30th June . . . .  | 50                           | 72          | 22.8                  | 15.6        |
| 30th September . . | 65                           | 70          | 16.5                  | 37.7        |
| 31st December . .  | 52                           | 76          | 36.5                  | 34.1        |
| Year . . . . .     | 51                           | 74          | 100.0                 | 100.0       |

In the hot season at both places the deaths are fewer. The ratio of ages showed thus:—

| Age               | Deaths |             |
|-------------------|--------|-------------|
|                   | Paris  | Rio Janeiro |
| Under 7 . . . . . | 30.3   | 28.4        |
| 7-25 . . . . .    | 19.6   | 34.2        |
| 25-40 . . . . .   | 34.2   | 26.9        |
| Over 40 . . . . . | 15.9   | 10.5        |
|                   | 100.0  | 100.0       |

In 10,000 deaths in London at the following periods those from small-pox were as follows:—

| Period              | Per 10,000 |
|---------------------|------------|
| 1622-1700 . . . . . | 525        |
| 1701-1800 . . . . . | 808        |
| 1801-30 . . . . .   | 480        |
| 1841-60 . . . . .   | 150        |
| 1861-70 . . . . .   | 105        |
| 1871-81 . . . . .   | 202        |

In the epidemic at Leipzig in 1871 the death-rate was 12,700 per million inhabitants, 70 per cent. of whom were unvaccinated. The following table shows the relative mortality as affected by vaccination:—

|                        | Vaccinated,<br>Per Cent. | Unvaccinated,<br>Per Cent. |
|------------------------|--------------------------|----------------------------|
| London . . . . .       | 15                       | 45                         |
| Montreal . . . . .     | 16                       | 54                         |
| Boston . . . . .       | 15                       | 50                         |
| Philadelphia . . . . . | 17                       | 64                         |

During the Franco-German war the Germans lost only 263 men from this disease, the French 23,499, the former having been re-vaccinated in barracks. In the war in Paraguay, the Brazilians lost 43,000 men from malignant or black small-pox, that is, 35 per cent. of their army, nine cases in ten proving fatal.

In ten years ending 1869 the average number of vaccinations in France was 587,000 per annum, leaving 405,000 children born yearly over that number unvaccinated.

The cases of small-pox averaged 18,100 yearly, and deaths 2490, or 14 per cent. Deaths in Paris from small-pox averaged yearly as follows:—

| Period            | Deaths Yearly | Per 10,000<br>Deaths |
|-------------------|---------------|----------------------|
| 1821-30 . . . . . | 585           | 180                  |
| 1831-40 . . . . . | 465           | 160                  |
| 1841-50 . . . . . | 319           | 90                   |
| 1851-60 . . . . . | 426           | 85                   |
| 1861-70 . . . . . | 1,512         | 310                  |
| 1871-80 . . . . . | 695           | 140                  |

In the ratio of sexes, 130 males died of this disease to 100 females. Swedish statistics compare vaccinations and deaths from small-pox as follows:—

| Period            | Vaccinations<br>per 1000 Births | Small-Pox,<br>Deaths Yearly per<br>Million Inhab. |
|-------------------|---------------------------------|---------------------------------------------------|
| 1800-9 . . . . .  | 280                             | 560                                               |
| 1810-19 . . . . . | 520                             | 190                                               |
| 1820-29 . . . . . | 680                             | 132                                               |
| 1830-39 . . . . . | 730                             | 270                                               |
| 1840-49 . . . . . | 720                             | 43                                                |
| 1850-55 . . . . . | 810                             | 160                                               |
| 1861-75 . . . . . | ...                             | 110                                               |

Between 1770 and 1799, when vaccination was not in use, the deaths in Sweden yearly from small-pox averaged 2100 per million inhabitants.

In Norway vaccination is not compulsory, but persons unvaccinated are not allowed to vote at elections. In Austria the number of vaccinations yearly shows:—

| Year           | Vaccinations | Per 1000 Births |                |
|----------------|--------------|-----------------|----------------|
|                |              | Vaccinated      | Not Vaccinated |
| 1882 . . . . . | 675,000      | 810             | 190            |
| 1884 . . . . . | 686,000      | 799             | 201            |
| 1886 . . . . . | 692,000      | 803             | 197            |

In Japan, in 1880, the number of vaccinations was 1,459,000, of which 3 per cent. were unsuccessful.

This disease was known in Ireland in 1241, and in Denmark in 1527.

**Sunstroke.**—In 10,000 deaths in England two are usually from this cause, the annual average of such deaths showing thus:—

|                 | 1863-70 | 1871-78 |
|-----------------|---------|---------|
| Men . . . . .   | 57      | 88      |
| Women . . . . . | 9       | 23      |
| Total . . . . . | 66      | 111     |

This disease is most prevalent at Bassorah in the Persian Gulf, and also in the United States. In 1874 the steamer *Liverpool* in the Persian Gulf lost in one day 3 officers and 21 seamen by sunstroke.

**Syphilis.**—In 10,000 deaths there were of this disease—

| In                 | In                | In                 |
|--------------------|-------------------|--------------------|
| Amsterdam . . 18   | London . . . 68   | Portugal . . . 30  |
| Bordeaux . . . 42  | Louisiana . . 23  | Riga . . . . . 36  |
| Brussels . . . 42  | Lyons . . . . . 9 | St. Petersburg 20  |
| Copenhagen . 34    | Massachusetts 12  | Scotland . . . 17  |
| Edinburgh . . 55   | Milan . . . . . 5 | Shanghai . . . 50  |
| England . . . 40   | New York . . . 40 | Strasbourg . . 14  |
| Genoa . . . . 20   | Norway . . . . 8  | Sweden . . . . 10  |
| Ireland . . . . 20 | Pennsylvania . 9  | Turin . . . . . 30 |

This disease was unknown in Norway till 1710, in Italy till 1786, in Canada till 1790, and in Tasmania till 1821. The percentage of patients in various hospitals found to be suffering from it was:—

| Hospital            | Men,<br>Per Cent. | Women,<br>Per Cent. |
|---------------------|-------------------|---------------------|
| Berlin . . . . .    | 20                | 25                  |
| Vienna . . . . .    | 15                | ...                 |
| Stettin . . . . .   | 10                | 51                  |
| Brunswick . . . . . | 33                | 85                  |

In Holland 10 per cent. of men in hospital, in Strasbourg 38 per cent., in Malaga 18, in Gibraltar 8, in Amoy 43, in Dantzic 10, in Bremen 7 per cent. suffered from syphilis. In Hanover 20, and in Magdeburg 30 per cent. of the women in hospital. The prevalence of this disease in 1000 soldiers was as follows:—

|                     |                     |                     |
|---------------------|---------------------|---------------------|
| Prussia . . . . 54  | France . . . . 102  | Canada . . . . 160  |
| Austria . . . . 63  | Holland . . . . 105 | Bengal . . . . 167  |
| Russia . . . . 65   | Australia . . 110   | Gibraltar . . 187   |
| Italy . . . . . 71  | Mauritius . . 122   | Cape . . . . . 303  |
| Malta . . . . . 81  | Jamaica . . . 123   | Algeria . . . . 309 |
| Belgium . . . . 90  | Spain . . . . . 115 | Java . . . . . 333  |
| Great Britain . 101 | Portugal . . . 135  |                     |

In Paris 23 per cent. of foundlings, and in Moscow and St. Petersburg 25 per cent. are infected with this disease. In French military hospitals 19 per cent. are syphilitic cases, in Belgium 7, in British 29.

**Tetanus.**—The ratio of wounded soldiers who got tetanus in various campaigns was as follows:—

| Date           | Army                            | Per 1000<br>Wounded |
|----------------|---------------------------------|---------------------|
| 1782 . . . . . | British in India                | 25                  |
| 1811 . . . . . | " Spain                         | 13                  |
| 1855 . . . . . | " Crimea                        | 2                   |
| 1798 . . . . . | French in Egypt                 | 35                  |
| 1836 . . . . . | " Algeria                       | 57                  |
| 1855 . . . . . | " Crimea                        | 3                   |
| 1859 . . . . . | " Italy                         | 7                   |
| 1870 . . . . . | " Strasburg                     | 5                   |
| 1864 . . . . . | German in Denmark               | 7                   |
| 1866 . . . . . | Hanoverian at Sadowa            | 12                  |
| 1870 . . . . . | German at Strasburg             | 9                   |
| 1871 . . . . . | " Paris                         | 10                  |
| 1859 . . . . . | Spanish in Morocco              | 18                  |
| 1862 . . . . . | War of United States, Northerns | 2                   |

Death-rate in cases of tetanus is stated thus:—

| Date              | Per Cent. | Observer                  |
|-------------------|-----------|---------------------------|
| 1793 . . . . .    | 100       | Heurteloup                |
| 1834 . . . . .    | 96        | Curling                   |
| 1825-50 . . . . . | 86        | Guy's Hospital            |
| 1855 . . . . .    | 91        | English in Crimea         |
| 1859 . . . . .    | 92        | French in Italy           |
| 1861-63 . . . . . | 90        | Federals in United States |
| 1870 . . . . .    | 70        | Glasgow Hospital          |
| 1877 . . . . .    | 85        | Richter                   |

In the American War, 1863, the rate was 87 per cent. when the wound was in the arm, 90 in the leg, 91 in the body, and 95 in the head or neck.

The *Lancet* (1870) gives the following ratio of mortality as to the number of days elapsing before tetanus pronounced itself:—

| Days            | Ratio of Cases | Death-Rate | Recovered |
|-----------------|----------------|------------|-----------|
|                 |                | Per Cent.  | Per Cent. |
| Before 10 . . . | 47.5           | 78         | 22        |
| 10 to 22 . . .  | 45.0           | 52         | 48        |
| Over 22 . . .   | 7.5            | 48         | 52        |

*Typhoid Fever.*—In 10,000 deaths there were of typhoid fever:—

| In                | In              | In                |
|-------------------|-----------------|-------------------|
| Algiers . . 340   | England . . 210 | Naples . . 300    |
| Amsterdam . 460   | France . . 720  | New York . 350    |
| Antwerp . . 290   | Frankfort . 420 | Norway . . 990    |
| Astrakan . . 870  | Geneva . . 350  | Palermo . . 890   |
| Athens . . 475    | Germany . 450   | Paris . . 680     |
| Belgium . . 460   | Glasgow . 810   | Rome . . 230      |
| Berlin . . 320    | Ireland . . 210 | Russia . . 480    |
| Brussels . . 220  | Italy . . 290   | Scotland . 235    |
| Catania . . 840   | Liege . . 270   | Strasbourg . 230  |
| Christiania . 630 | London . . 240  | Sweden . . 203    |
| Copenhagen . 700  | Lubeck . . 370  | Turin . . 460     |
| Danmark . . 400   | Lyons . . 270   | Vienna . . 560    |
| Edinburgh . 460   | Milan . . 320   | United States 450 |
|                   | Munich . . 450  |                   |

In Paris hospitals 21 per cent. of typhoid cases prove fatal. In St. Petersburg of 10,000 males between 15 and 20 years of age 38 die yearly of typhoid, and of women of the same age 17.

Wolfshugal states the yearly deaths from typhoid per 100,000 inhabitants as follows:—

|                  |                 |                 |
|------------------|-----------------|-----------------|
| Amsterdam . 39   | Hamburg . . 54  | New York . . 35 |
| Berlin . . . 96  | Leipzig . . 300 | Paris . . . 50  |
| Birmingham . 54  | Lille . . . 40  | Pesth . . . 96  |
| Bristol . . . 5  | Liverpool . 92  | Rome . . . 91   |
| Christiania . 7  | London . . 37   | Rotterdam . 17  |
| Dublin . . . 79  | Manchester . 58 | Strasbourg . 33 |
| Frankfort . . 42 | Metz . . . 48   | Turin . . . 143 |
| Genoa . . . 63   | Milan . . . 95  | Venice . . . 70 |
| Hague . . . 38   | Munich . . 118  | Vienna . . . 59 |
|                  | Naples . . 128  |                 |

The ratio of sickness shows 22 typhoid patients in 1000 sick at Bremen, 30 at Stuttgart, 31 at Hamburg and Munich, 34 at Breslau, and 54 at Vienna, during ten years ending 1855.

Deaths from typhoid in the French army average 18 per 10,000 yearly, in the Bavarian 28, and in the garrison of Munich 84. The rate of deaths yearly from this disease in the French army, according to years of military service, was thus:—

| Years of Service | Deaths per 10,000 Men | Years of Service | Deaths per 10,000 Men |
|------------------|-----------------------|------------------|-----------------------|
| 1st . . . . .    | 44                    | 6-7 . . . . .    | 12                    |
| 2-3 . . . . .    | 42                    | 8-9 . . . . .    | 5                     |
| 4-5 . . . . .    | 19                    | 10 or over . . . | 4                     |

Deaths from typhoid and other fevers, according to months, taking the year as 1200, occurred thus:—

|                 | Typhoid |         |        |             |        |         | Other Fevers |           | London | Ague    |
|-----------------|---------|---------|--------|-------------|--------|---------|--------------|-----------|--------|---------|
|                 | London  | Holland | Saxony | Switzerland | Norway | Belgium | W. Africa    | Mauritius | Typhus | Algeria |
| January . . .   | 87      | 60      | 102    | 106         | 150    | 62      | 118          | 20        | 135    | 119     |
| February . . .  | 62      | 30      | 95     | 83          | 103    | 95      | 129          | 65        | 108    | 78      |
| March . . . .   | 58      | 54      | 87     | 73          | 64     | 106     | 98           | 208       | 129    | 77      |
| April . . . .   | 41      | 55      | 81     | 67          | 43     | 99      | 105          | 340       | 133    | 50      |
| May . . . . .   | 48      | 54      | 80     | 85          | 38     | 72      | 110          | 275       | 133    | 42      |
| June . . . . .  | 70      | 55      | 79     | 92          | 32     | 62      | 107          | 111       | 110    | 60      |
| July . . . . .  | 97      | 36      | 92     | 98          | 57     | 69      | 102          | 71        | 92     | 101     |
| August . . . .  | 150     | 78      | 121    | 107         | 95     | 128     | 85           | 34        | 81     | 121     |
| September . .   | 171     | 158     | 131    | 131         | 117    | 128     | 83           | 25        | 68     | 126     |
| October . . . . | 165     | 240     | 126    | 126         | 116    | 167     | 78           | 15        | 72     | 152     |
| November . . .  | 151     | 240     | 105    | 130         | 209    | 113     | 84           | 16        | 71     | 146     |
| December . . .  | 100     | 140     | 101    | 102         | 176    | 99      | 101          | 20        | 68     | 128     |
| Year . . . . .  | 1,200   | 1,200   | 1,200  | 1,200       | 1,200  | 1,200   | 1,200        | 1,200     | 1,200  | 1,200   |

*Typhus.*—In 10,000 deaths there were of this disease in England 30, Scotland 47, Holland 21, Amsterdam 23. The rate of mortality among persons attacked is 20 per cent. in England. An epidemic of typhus occurred in Ireland in 1817-19, when 800,000 persons were attacked, of whom 45,000 died; a second was in 1847, caused by famine, and was still more fatal. Emigrants conveyed it to Quebec, where 8600 sick were at one time under treatment in 1847. The hospitals of Russia had 57,000 typhus patients in 1857. Deaths from typhus in Vienna averaged 734 per annum in the years 1865-71, but since the sanitary improvements of 1872 the average has been only 291 per annum.

*Whooping-Cough.*—In 10,000 deaths there were of this disease:—

| In                | In              | In               |
|-------------------|-----------------|------------------|
| Belgium . . 280   | Edinburgh . 360 | London . . 370   |
| Brussels . . 70   | England . . 250 | Norway . . 190   |
| Christiania . 100 | Glasgow . . 610 | Scotland . . 220 |
| Copenhagen . 160  | Holland . . 180 | Sweden . . 190   |
| Danmark . . 160   | Ireland . . 250 | U. States . 148  |
|                   | Italy . . . 50  |                  |

Of 100 cases in Belgium 64 occur under twelve months, 32 between that age and five years, and four over the age of five years.

*Yellow Fever.*—It made its first appearance at Rio Janeiro in December 1849. The official record of deaths from 1851 to 1860 averaged 910 per annum, and in 1870-74 they were 1245 per annum. This is supposed to represent one-fourth of the real number. An outbreak occurred at Buenos Ayres in January 1871, which carried off 26,200 persons, or nearly 10 per cent. of the population.

At Vera Cruz the deaths from this disease, according to months, taking the year as 1200, stand thus:—

|                  |     |                  |     |
|------------------|-----|------------------|-----|
| January . . .    | 26  | July . . . . .   | 125 |
| February . . .   | 42  | August . . . .   | 109 |
| March . . . .    | 90  | September . . .  | 109 |
| First quarter .  | 158 | Third quarter .  | 343 |
| April . . . . .  | 125 | October . . . .  | 34  |
| May . . . . .    | 195 | November . . .   | 42  |
| June . . . . .   | 212 | December . . . . | 41  |
| Second quarter . | 532 | Fourth quarter . | 107 |

At Rio Janeiro, where the seasons are reversed, the distribution is:—

|                          |     |                          |     |
|--------------------------|-----|--------------------------|-----|
| January . . . . .        | 112 | July . . . . .           | 52  |
| February . . . . .       | 140 | August . . . . .         | 36  |
| March . . . . .          | 214 | September . . . . .      | 24  |
| First quarter . . . . .  | 466 | Third quarter . . . . .  | 112 |
| April . . . . .          | 243 | October . . . . .        | 23  |
| May . . . . .            | 171 | November . . . . .       | 26  |
| June . . . . .           | 110 | December . . . . .       | 49  |
| Second quarter . . . . . | 524 | Fourth quarter . . . . . | 98  |

#### ENGLAND AND WALES

The following table shows the deaths from various diseases in England and Wales since 1861:—

|                          | Deaths Yearly per Million Inhabitants |         |         |        | Ratio in 10,000 Deaths in 1886 |
|--------------------------|---------------------------------------|---------|---------|--------|--------------------------------|
|                          | 1861-70                               | 1871-80 | 1881-85 | 1886   |                                |
| Cancer . . . . .         | 386                                   | 455     | 545     | 583    | 302                            |
| Cholera . . . . .        | 107                                   | 25      | 16      | 19     | 10                             |
| Convulsions . . . . .    | 1,231                                 | 1,041   | 844     | 821    | 426                            |
| Croup . . . . .          | 248                                   | 169     | 162     | 132    | 69                             |
| Diabetes . . . . .       | 30                                    | 38      | 51      | 59     | 30                             |
| Diarrhoea . . . . .      | 968                                   | 916     | 652     | 888    | 461                            |
| Diphtheria . . . . .     | 188                                   | 121     | 156     | 147    | 76                             |
| Erysipelas . . . . .     | 85                                    | 93      | 83      | 55     | 28                             |
| Intemperance . . . . .   | 38                                    | 40      | 48      | 49     | 26                             |
| Liver . . . . .          | 417                                   | 425     | 370     | 335    | 175                            |
| Measles . . . . .        | 443                                   | 379     | 410     | 431    | 224                            |
| Nervous system . . . . . | 1,575                                 | 1,760   | 1,800   | 1,835  | 955                            |
| Old age . . . . .        | 1,315                                 | 1,140   | 1,009   | 1,021  | 530                            |
| Phthisis . . . . .       | 2,487                                 | 2,130   | 1,820   | 1,718  | 891                            |
| Puerperal . . . . .      | 56                                    | 74      | 92      | 75     | 39                             |
| Respiratory . . . . .    | 3,357                                 | 3,742   | 3,580   | 3,595  | 1,870                          |
| Rheumatism . . . . .     | 112                                   | 133     | 132     | 91     | 47                             |
| Scarlatina . . . . .     | 971                                   | 720     | 434     | 215    | 112                            |
| Small-pox . . . . .      | 156                                   | 244     | 78      | 10     | 5                              |
| Typhoid . . . . .        | 885                                   | 485     | 272     | 213    | 111                            |
| Venerae . . . . .        | 84                                    | 94      | 93      | 91     | 47                             |
| Violent . . . . .        | 771                                   | 735     | 663     | 626    | 324                            |
| Whoop-cough . . . . .    | 530                                   | 513     | 457     | 464    | 241                            |
| Various . . . . .        | 6,063                                 | 5,906   | 5,533   | 5,805  | 3,001                          |
| Total . . . . .          | 22,503                                | 21,378  | 19,300  | 19,278 | 10,000                         |

The returns may be summed up thus:—

| Disease                  | Deaths per Million Inhabitants |         |         |        | No. of Deaths in 1886 |
|--------------------------|--------------------------------|---------|---------|--------|-----------------------|
|                          | 1871-80                        | 1881-82 | 1883-85 | 1886   |                       |
| Zymotic . . . . .        | 3,724                          | 2,874   | 2,747   | 2,648  | 73,747                |
| Constitutional . . . . . | 3,594                          | 3,627   | 3,362   | 3,330  | 92,751                |
| Local . . . . .          | 9,920                          | 9,470   | 9,780   | 9,915  | 276,302               |
| Various . . . . .        | 3,404                          | 2,566   | 2,814   | 2,759  | 77,032                |
| Violent . . . . .        | 736                            | 683     | 650     | 626    | 17,444                |
| Total . . . . .          | 21,378                         | 19,220  | 19,353  | 19,278 | 537,276               |

The bills of mortality in London show as follows:—

|                          | Deaths per Million Inhabitants |       |       |
|--------------------------|--------------------------------|-------|-------|
|                          | 1889                           | 1889  | 1879  |
| Bronchitis . . . . .     | 2,310                          | 2,995 | 3,622 |
| Phthisis . . . . .       | 2,850                          | 2,756 | 2,476 |
| Diarrhoea . . . . .      | 1,210                          | 1,061 | 495   |
| Fever . . . . .          | 657                            | 558   | 249   |
| Measles . . . . .        | 488                            | 455   | 670   |
| Scarlatina . . . . .     | 1,280                          | 1,325 | 719   |
| Small-pox . . . . .      | 425                            | 86    | 122   |
| Violent deaths . . . . . | 752                            | 747   | 774   |
| Whooping-cough . . . . . | 639                            | 1,178 | 792   |
| Total . . . . .          | ...                            | ...   | ...   |

Dr. Farr stated that if zymotic or preventable diseases were unknown in England the span of life would be six years longer. There is some improvement in this direction, as shown by zymotic deaths since 1838, viz:—

| Period            | Annual Average | Per Cent. of Deaths |
|-------------------|----------------|---------------------|
| 1838-40 . . . . . | 61,807         | 17.7                |
| 1848-50 . . . . . | 88,924         | 22.1                |
| 1858-60 . . . . . | 79,930         | 17.6                |
| 1867-68 . . . . . | 87,114         | 18.2                |
| 1871-80 . . . . . | 90,620         | 17.4                |
| 1881-85 . . . . . | 75,040         | 14.5                |
| 1886 . . . . .    | 73,747         | 13.7                |

The following table shows the ratio of deaths in 1886 according to sex:—

|                            | Per Million Inhabitants |        |        | In 10,000 Deaths |
|----------------------------|-------------------------|--------|--------|------------------|
|                            | Male                    | Female | Total  |                  |
| Apoplexy . . . . .         | 561                     | 592    | 577    | 300              |
| Asthma . . . . .           | 106                     | 70     | 87     | 45               |
| Brain . . . . .            | 366                     | 303    | 334    | 173              |
| Bright's disease . . . . . | 273                     | 219    | 245    | 128              |
| Bronchitis . . . . .       | 2,247                   | 2,164  | 2,208  | 1,143            |
| Cancer . . . . .           | 424                     | 733    | 583    | 302              |
| Convulsions . . . . .      | 951                     | 698    | 821    | 426              |
| Croup . . . . .            | 148                     | 117    | 132    | 69               |
| Diarrhoea . . . . .        | 954                     | 823    | 888    | 461              |
| Diphtheria . . . . .       | 141                     | 152    | 147    | 76               |
| Drink . . . . .            | 65                      | 35     | 49     | 26               |
| Dropsy . . . . .           | 10                      | 14     | 12     | 6                |
| Epilepsy . . . . .         | 123                     | 105    | 114    | 59               |
| Erysipelas . . . . .       | 59                      | 50     | 55     | 29               |
| Gout . . . . .             | 31                      | 7      | 19     | 10               |
| Heart . . . . .            | 277                     | 289    | 283    | 147              |
| Hydrophobia . . . . .      | 2                       | ...    | 1      | ...              |
| Liver . . . . .            | 354                     | 317    | 335    | 174              |
| Measles . . . . .          | 449                     | 414    | 431    | 224              |
| Old age . . . . .          | 906                     | 1,129  | 1,021  | 530              |
| Phthisis . . . . .         | 1,845                   | 1,596  | 1,718  | 891              |
| Pneumonia . . . . .        | 1,187                   | 839    | 1,008  | 523              |
| Puerperal fever . . . . .  | ...                     | 145    | 75     | 39               |
| Rheumatism . . . . .       | 28                      | 34     | 31     | 16               |
| Scarlatina . . . . .       | 221                     | 209    | 215    | 112              |
| Small-pox . . . . .        | 14                      | 6      | 10     | 5                |
| Syphilis . . . . .         | 86                      | 74     | 80     | 42               |
| Typhoid . . . . .          | 197                     | 167    | 182    | 95               |
| Typhus . . . . .           | 10                      | 7      | 9      | 5                |
| Whooping-cough . . . . .   | 435                     | 492    | 464    | 241              |
| Various . . . . .          | 7,870                   | 6,470  | 7,144  | 3,703            |
| Total . . . . .            | 20,341                  | 18,270 | 19,278 | 10,000           |

It will be observed that phthisis and pneumonia are more fatal among males than females, but cancer and apoplexy are more frequent among females.

|                          | Actual Number of Deaths in 1886 |         |        |
|--------------------------|---------------------------------|---------|--------|
|                          | Males                           | Females | Total  |
| Measles . . . . .        | 1,088                           | 1,003   | 2,091  |
| Scarlatina . . . . .     | 368                             | 362     | 730    |
| Typhoid . . . . .        | 321                             | 297     | 618    |
| Whooping-cough . . . . . | 1,289                           | 1,582   | 2,871  |
| Diphtheria . . . . .     | 427                             | 424     | 851    |
| Diarrhoea . . . . .      | 2,074                           | 1,922   | 3,996  |
| Phthisis . . . . .       | 4,884                           | 3,525   | 8,409  |
| Cancer . . . . .         | 967                             | 1,721   | 2,688  |
| Various . . . . .        | 30,739                          | 29,551  | 60,291 |
| Total . . . . .          | 42,157                          | 40,388  | 82,545 |

## SCOTLAND

The causes of death during ten years ending 1885 were:—

| Age                       | Per Million Males of each Age |            |           |           |          |          |        | Total from all Causes |
|---------------------------|-------------------------------|------------|-----------|-----------|----------|----------|--------|-----------------------|
|                           | Phthisis                      | Bronchitis | Pneumonia | Diarrhoea | Bright's | Apoplexy | Cancer |                       |
| 0-5 . . . . .             | 957                           | 8,263      | 3,108     | 2,713     | 134      | 362      | 27     | 49,170                |
| 5-10 . . . . .            | 615                           | 289        | 293       | 74        | 108      | 74       | 8      | 6,090                 |
| 10-15 . . . . .           | 856                           | 93         | 133       | 31        | 67       | 41       | 7      | 4,100                 |
| 15-20 . . . . .           | 2,552                         | 104        | 276       | 31        | 95       | 47       | 25     | 5,650                 |
| 20-30 . . . . .           | 3,624                         | 150        | 463       | 42        | 119      | 65       | 53     | 7,460                 |
| 30-40 . . . . .           | 3,308                         | 417        | 794       | 69        | 202      | 209      | 144    | 9,760                 |
| 40-50 . . . . .           | 2,741                         | 1,316      | 1,346     | 113       | 308      | 488      | 554    | 14,980                |
| 50-60 . . . . .           | 2,415                         | 3,286      | 1,935     | 262       | 481      | 1,278    | 1,401  | 24,370                |
| 60-70 . . . . .           | 1,925                         | 6,258      | 2,817     | 720       | 756      | 3,031    | 2,624  | 43,930                |
| 70-80 . . . . .           | 1,060                         | 11,418     | 3,387     | 1,867     | 1,022    | 6,243    | 3,745  | 90,770                |
| 80-90 . . . . .           | 445                           | 19,011     | 4,080     | 3,413     | 1,190    | 9,305    | 3,835  | 192,420               |
| 90-100 . . . . .          | 177                           | 24,113     | 4,078     | 5,142     | 887      | 7,447    | 3,901  | 407,350               |
| General average . . . . . | 2,093                         | 2,253      | 1,158     | 535       | 213      | 538      | 384    | 19,050                |

| Age                       | Per Million Females of each Age |            |           |           |          |          |        | Total from all Causes |
|---------------------------|---------------------------------|------------|-----------|-----------|----------|----------|--------|-----------------------|
|                           | Phthisis                        | Bronchitis | Pneumonia | Diarrhoea | Bright's | Apoplexy | Cancer |                       |
| 0-5 . . . . .             | 958                             | 7,118      | 2,567     | 2,361     | 92       | 285      | 19     | 43,270                |
| 5-10 . . . . .            | 764                             | 335        | 282       | 72        | 72       | 66       | 9      | 6,100                 |
| 10-15 . . . . .           | 1,459                           | 114        | 132       | 37        | 67       | 41       | 13     | 4,360                 |
| 15-20 . . . . .           | 3,434                           | 115        | 203       | 28        | 73       | 42       | 21     | 6,170                 |
| 20-30 . . . . .           | 3,928                           | 175        | 254       | 48        | 127      | 66       | 64     | 7,650                 |
| 30-40 . . . . .           | 3,592                           | 431        | 433       | 81        | 190      | 146      | 381    | 9,780                 |
| 40-50 . . . . .           | 2,559                           | 1,121      | 564       | 128       | 233      | 457      | 1,158  | 11,980                |
| 50-60 . . . . .           | 1,694                           | 2,873      | 874       | 289       | 319      | 1,182    | 2,162  | 20,030                |
| 60-70 . . . . .           | 1,192                           | 6,119      | 1,484     | 771       | 338      | 2,312    | 3,098  | 38,760                |
| 70-80 . . . . .           | 707                             | 12,366     | 2,489     | 1,977     | 531      | 4,462    | 3,844  | 79,150                |
| 80-90 . . . . .           | 317                             | 20,072     | 2,878     | 3,649     | 447      | 6,048    | 3,959  | 176,410               |
| 90-100 . . . . .          | 171                             | 26,199     | 3,425     | 5,479     | 171      | 6,678    | 2,911  | 354,760               |
| General average . . . . . | 2,273                           | 2,213      | 786       | 498       | 164      | 512      | 637    | 18,260                |

The following classification for 1886 distinguishes urban and rural:—

| Disease                  | Deaths per 100,000 Persons Living |              |              |              |              |              |              |              |
|--------------------------|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                          | Cities                            |              | Towns        |              | Rural        |              | All Scotland |              |
|                          | Males                             | Females      | Males        | Females      | Males        | Females      | Males        | Females      |
| Zymotic . . . . .        | 266                               | 259          | 197          | 230          | 125          | 140          | 203          | 211          |
| Constitutional . . . . . | 417                               | 434          | 313          | 371          | 257          | 304          | 342          | 380          |
| Nervous . . . . .        | 284                               | 244          | 246          | 214          | 193          | 185          | 248          | 220          |
| Respiratory . . . . .    | 495                               | 440          | 363          | 291          | 287          | 239          | 333          | 342          |
| Digestive . . . . .      | 152                               | 138          | 142          | 134          | 122          | 119          | 139          | 131          |
| Violent deaths . . . . . | 100                               | 39           | 92           | 32           | 87           | 30           | 93           | 34           |
| Various . . . . .        | 471                               | 464          | 481          | 519          | 504          | 548          | 487          | 508          |
| <b>Total . . . . .</b>   | <b>2,185</b>                      | <b>2,018</b> | <b>1,834</b> | <b>1,791</b> | <b>1,575</b> | <b>1,565</b> | <b>1,905</b> | <b>1,826</b> |
| Small-pox . . . . .      | 1                                 | 1            | 1            | 1            | 1            | 1            | 1            | 1            |
| Measles . . . . .        | 25                                | 22           | 22           | 22           | 9            | 8            | 18           | 17           |
| Scarlatina . . . . .     | 42                                | 35           | 24           | 29           | 15           | 15           | 28           | 26           |
| Whooping-cough . . . . . | 69                                | 76           | 33           | 41           | 19           | 20           | 45           | 51           |
| Diphtheria . . . . .     | 18                                | 15           | 15           | 15           | 13           | 12           | 16           | 14           |
| Typhoid . . . . .        | 15                                | 16           | 22           | 25           | 18           | 24           | 18           | 20           |
| Diarrhoea . . . . .      | 61                                | 54           | 53           | 59           | 28           | 25           | 49           | 46           |
| Erysipelas . . . . .     | 8                                 | 7            | 7            | 7            | 8            | 7            | 8            | 7            |
| Puerperal . . . . .      | ...                               | 13           | ...          | 12           | ...          | 15           | ...          | 13           |
| Rheumatism . . . . .     | 10                                | 13           | 10           | 14           | 9            | 12           | 10           | 13           |
| Cancer . . . . .         | 44                                | 72           | 43           | 72           | 42           | 81           | 43           | 74           |
| Phthisis . . . . .       | 245                               | 247          | 172          | 197          | 147          | 158          | 197          | 210          |
| Scrophula . . . . .      | 24                                | 19           | 18           | 18           | 12           | 11           | 18           | 16           |
| Old age . . . . .        | 46                                | 00           | 87           | 133          | 153          | 228          | 97           | 150          |
| Apoplexy . . . . .       | 55                                | 60           | 56           | 59           | 51           | 57           | 53           | 59           |
| Paralysis . . . . .      | 54                                | 53           | 53           | 50           | 55           | 51           | 53           | 51           |
| Convulsions . . . . .    | 44                                | 32           | 27           | 21           | 18           | 15           | 32           | 24           |
| Croup . . . . .          | 19                                | 18           | 19           | 15           | 17           | 10           | 19           | 15           |
| Bronchitis . . . . .     | 253                               | 261          | 183          | 177          | 146          | 145          | 200          | 205          |
| Pneumonia . . . . .      | 169                               | 122          | 109          | 65           | 78           | 52           | 123          | 85           |
| Various . . . . .        | 983                               | 792          | 880          | 759          | 746          | 618          | 877          | 729          |
| <b>Total . . . . .</b>   | <b>2,185</b>                      | <b>2,018</b> | <b>1,834</b> | <b>1,791</b> | <b>1,575</b> | <b>1,565</b> | <b>1,905</b> | <b>1,826</b> |

The following table was published in 1840, showing the distribution of diseases according to months :—

## LONDON IN 1840

|                 | Small-pox | Measles | Scarlatina | Whooping-Cough | Typhus | Apoplexy | Pneumonia | Phthisis | General Mortality |
|-----------------|-----------|---------|------------|----------------|--------|----------|-----------|----------|-------------------|
| January . . .   | 50        | 85      | 112        | 134            | 113    | 123      | 115       | 104      | 108               |
| February . . .  | 23        | 55      | 103        | 95             | 95     | 108      | 72        | 93       | 89                |
| March . . .     | 45        | 74      | 91         | 109            | 101    | 104      | 105       | 108      | 105               |
| April . . .     | 38        | 80      | 97         | 118            | 107    | 95       | 107       | 102      | 99                |
| May . . .       | 65        | 82      | 97         | 99             | 113    | 96       | 94        | 100      | 92                |
| June . . .      | 57        | 125     | 128        | 107            | 87     | 76       | 71        | 98       | 89                |
| July . . .      | 68        | 117     | 79         | 82             | 87     | 89       | 70        | 105      | 96                |
| August . . .    | 80        | 108     | 123        | 74             | 95     | 88       | 59        | 102      | 97                |
| September . . . | 93        | 96      | 109        | 65             | 102    | 98       | 62        | 91       | 93                |
| October . . .   | 153       | 100     | 116        | 76             | 96     | 89       | 107       | 93       | 97                |
| November . . .  | 225       | 119     | 86         | 81             | 100    | 120      | 140       | 92       | 103               |
| December . . .  | 303       | 159     | 59         | 160            | 104    | 114      | 198       | 112      | 132               |
| Year . . .      | 1,200     | 1,200   | 1,200      | 1,200          | 1,200  | 1,200    | 1,200     | 1,200    | 1,200             |

## IRELAND

Deaths in 1886 were as follows :—

| Disease                  | Number of Deaths |         |        | Ratio in 10,000 |         |        |
|--------------------------|------------------|---------|--------|-----------------|---------|--------|
|                          | Males            | Females | Total  | Males           | Females | Total  |
| Zymotic . . . . .        | 3,079            | 3,579   | 6,658  | 708             | 817     | 763    |
| Constitutional . . . . . | 7,883            | 8,900   | 16,783 | 1,811           | 2,033   | 1,922  |
| Local . . . . .          | 19,221           | 17,445  | 36,666 | 4,414           | 3,984   | 4,202  |
| Violent deaths . . . . . | 1,293            | 567     | 1,860  | 297             | 130     | 213    |
| Various . . . . .        | 12,017           | 13,308  | 25,325 | 2,770           | 3,036   | 2,900  |
| Total . . . . .          | 43,493           | 43,799  | 87,292 | 10,000          | 10,000  | 10,000 |

The causes of death in 1886 were as follows :—

| Disease                  | Number of Deaths |         |        | Ratio in 10,000 Deaths |         |        |
|--------------------------|------------------|---------|--------|------------------------|---------|--------|
|                          | Males            | Females | Total  | Males                  | Females | Total  |
| Phthisis . . . . .       | 4,903            | 5,791   | 10,694 | 1,127                  | 1,323   | 1,225  |
| Bronchitis . . . . .     | 4,763            | 5,175   | 9,938  | 1,095                  | 1,182   | 1,140  |
| Pneumonia . . . . .      | 1,793            | 1,014   | 2,807  | 412                    | 232     | 322    |
| Convulsions . . . . .    | 1,775            | 1,416   | 3,191  | 408                    | 323     | 365    |
| Diarrhoea . . . . .      | 734              | 747     | 1,481  | 169                    | 170     | 170    |
| Whooping-cough . . . . . | 541              | 678     | 1,219  | 124                    | 155     | 140    |
| Cancer . . . . .         | 894              | 1,135   | 2,029  | 205                    | 259     | 232    |
| Old age . . . . .        | 8,152            | 9,360   | 17,512 | 1,874                  | 2,136   | 2,005  |
| Small-pox . . . . .      | ...              | 2       | 2      | ...                    | ...     | ...    |
| Measles . . . . .        | 137              | 147     | 284    | 31                     | 33      | 32     |
| Scarlatina . . . . .     | 401              | 449     | 850    | 92                     | 102     | 97     |
| Typhus . . . . .         | 204              | 190     | 394    | 46                     | 43      | 45     |
| Typhoid . . . . .        | 385              | 387     | 772    | 89                     | 86      | 87     |
| Diphtheria . . . . .     | 156              | 180     | 336    | 34                     | 41      | 38     |
| Erysipelas . . . . .     | 127              | 105     | 232    | 29                     | 23      | 26     |
| Puerperal . . . . .      | ...              | 332     | 332    | ...                    | 75      | 38     |
| Rheumatism . . . . .     | 216              | 282     | 498    | 50                     | 64      | 57     |
| Apoplexy . . . . .       | 607              | 521     | 1,128  | 140                    | 120     | 130    |
| Croup . . . . .          | 410              | 352     | 762    | 95                     | 80      | 88     |
| Various . . . . .        | 17,295           | 15,536  | 32,831 | 3,980                  | 3,553   | 3,763  |
| Total . . . . .          | 43,493           | 43,799  | 87,292 | 10,000                 | 10,000  | 10,000 |

Deaths from violence were 1860, say 207 per 10,000 deaths, or 380 per million of population.

The average of deaths yearly from zymotic diseases for ten years, 1877-86, was as follows :—

## Per 100,000 Inhabitants

|                            |                                |                           |
|----------------------------|--------------------------------|---------------------------|
| Small-pox . . . . . 223    | Diphtheria . . . . . 315       | Erysipelas . . . . . 265  |
| Measles . . . . . 1,055    | Whooping-cough . . . . . 1,360 | Influenza . . . . . 58    |
| Scarlatina . . . . . 1,404 | Fever . . . . . 2,374          | Diarrhoea . . . . . 1,754 |

## FRANCE

In 10,000 deaths in France the following ratios occur :—

|                         |                          |                          |
|-------------------------|--------------------------|--------------------------|
| Erysipelas . . . . . 48 | Heart . . . . . 290      | Apoplexy . . . . . 400   |
| Puerperal . . . . . 100 | Meningitis . . . . . 300 | Typhoid . . . . . 720    |
| Scrofula . . . . . 130  | Diphtheria . . . . . 360 | Phthisis . . . . . 1,120 |



The returns of Paris hospitals in 1882 showed as follows :—

|                                   | Adults        |              | Children     |              | Death-Rate per Cent. |             |
|-----------------------------------|---------------|--------------|--------------|--------------|----------------------|-------------|
|                                   | Admitted      | Died         | Admitted     | Died         | Adults               | Children    |
| Bronchitis . . . . .              | 5,070         | 273          | 497          | 53           | 5.4                  | 10.6        |
| Croup . . . . .                   | 55            | 25           | 1,207        | 821          | 45.0                 | 68.0        |
| Diarrhoea and dysentery . . . . . | 494           | 49           | 541          | 212          | 10.0                 | 40.0        |
| Erysipelas . . . . .              | 1,175         | 109          | 76           | 32           | 9.1                  | 42.0        |
| Fractures, &c. . . . .            | 6,753         | 286          | 240          | 1            | 4.3                  | 0.4         |
| Heart disease . . . . .           | 2,116         | 659          | 31           | 11           | 31.0                 | 35.0        |
| Measles . . . . .                 | 261           | 3            | 404          | 111          | 1.1                  | 27.5        |
| Paralysis . . . . .               | 421           | 42           | ...          | ...          | 10.0                 | ...         |
| Phthisis . . . . .                | 6,348         | 3,477        | 163          | 116          | 55.0                 | 71.0        |
| Pleurisy . . . . .                | 1,407         | 176          | 85           | 6            | 12.6                 | 7.0         |
| Pneumonia . . . . .               | 2,211         | 722          | 322          | 151          | 33.0                 | 47.0        |
| Rheumatism . . . . .              | 4,416         | 39           | 67           | 1            | 0.9                  | 1.5         |
| Scarlatina . . . . .              | 477           | 29           | 258          | 31           | 6.2                  | 12.0        |
| Small-pox . . . . .               | 1,985         | 395          | 204          | 50           | 19.9                 | 24.5        |
| Syphilis . . . . .                | 3,861         | 18           | 115          | 26           | 0.5                  | 22.5        |
| Typhoid . . . . .                 | 3,616         | 823          | 470          | 83           | 22.8                 | 17.5        |
| Various . . . . .                 | 33,944        | 2,212        | 3,174        | 292          | 6.5                  | 9.1         |
| <b>Total . . . . .</b>            | <b>74,610</b> | <b>9,337</b> | <b>7,854</b> | <b>1,997</b> | <b>12.5</b>          | <b>25.5</b> |

In 10,000 deaths the various diseases stood thus :—

|                             |                          |                         |
|-----------------------------|--------------------------|-------------------------|
| Bronchitis . . . . . 292    | Measles . . . . . 103    | Rheumatism . . . . . 36 |
| Croup . . . . . 760         | Paralysis . . . . . 38   | Scarlatina . . . . . 54 |
| Diarrhoea . . . . . 235     | Phthisis . . . . . 3,233 | Small-pox . . . . . 401 |
| Erysipelas . . . . . 126    | Pleurisy . . . . . 164   | Syphilis . . . . . 40   |
| Fractures . . . . . 258     | Pneumonia . . . . . 786  | Typhoid . . . . . 815   |
| Heart disease . . . . . 603 |                          |                         |

In 10,000 cases of sickness they stood thus :—

|                             |                         |                          |
|-----------------------------|-------------------------|--------------------------|
| Bronchitis . . . . . 682    | Measles . . . . . 81    | Rheumatism . . . . . 550 |
| Croup . . . . . 155         | Paralysis . . . . . 51  | Scarlatina . . . . . 90  |
| Diarrhoea . . . . . 127     | Phthisis . . . . . 798  | Small-pox . . . . . 268  |
| Erysipelas . . . . . 153    | Pleurisy . . . . . 182  | Syphilis . . . . . 487   |
| Fractures . . . . . 857     | Pneumonia . . . . . 310 | Typhoid . . . . . 500    |
| Heart disease . . . . . 264 |                         |                          |

Of 10,000 deaths in the city of Paris in 1883 the ratios were :—

|                                | Male          | Female        | Total         |
|--------------------------------|---------------|---------------|---------------|
| Scarlatina . . . . .           | 15            | 20            | 17            |
| Small-pox . . . . .            | 78            | 86            | 81            |
| Whooping-cough . . . . .       | 97            | 146           | 115           |
| Measles . . . . .              | 170           | 212           | 185           |
| Bronchitis . . . . .           | 310           | 320           | 314           |
| Diphtheria and croup . . . . . | 330           | 370           | 345           |
| Typhoid . . . . .              | 368           | 366           | 367           |
| Violent . . . . .              | 435           | 147           | 301           |
| Pneumonia . . . . .            | 710           | 750           | 725           |
| Phthisis . . . . .             | 2,110         | 1,710         | 1,890         |
| Sundry . . . . .               | 5,377         | 5,874         | 5,660         |
| <b>Total . . . . .</b>         | <b>10,000</b> | <b>10,000</b> | <b>10,000</b> |

The reports of reformatories for 1880 showed the ratio of inmates who were sick during the year as follows :—

| Complaint                     | Per 1000   |            |                 | Deaths per 100 Cases |
|-------------------------------|------------|------------|-----------------|----------------------|
|                               | Boys       | Girls      | General Average |                      |
| Digestive disorders . . . . . | 73         | 65         | 71              | 3                    |
| Phthisis . . . . .            | 12         | 26         | 15              | 40                   |
| Scrofula . . . . .            | 11         | 84         | 25              | 3                    |
| Typhoid . . . . .             | 6          | 4          | 5               | 33                   |
| Various . . . . .             | 220        | 48         | 190             | 3                    |
| <b>Total . . . . .</b>        | <b>322</b> | <b>227</b> | <b>306</b>      | <b>5</b>             |

The death-rate at various seasons of pulmonary patients in the Paris hospitals was as follows :—

| Quarter Ending        | Per 100 Patients |            |             |           |           |
|-----------------------|------------------|------------|-------------|-----------|-----------|
|                       | Phthisis         | Pneu-monia | Bron-chitis | Pleurisy  | Average   |
| March . . . . .       | 55               | 40         | 6           | 16        | 29        |
| June . . . . .        | 53               | 27         | 4           | 13        | 29        |
| September . . . . .   | 50               | 25         | 2           | 9         | 22        |
| December . . . . .    | 56               | 39         | 6           | 13        | 33        |
| <b>Year . . . . .</b> | <b>54</b>        | <b>32</b>  | <b>5</b>    | <b>13</b> | <b>30</b> |

The ratio of age in the Paris hospitals in cases of certain diseases was in 1861-64 as follows :—

| Age                | Typhoid | Apoplexy | Aneurism | Cataract |
|--------------------|---------|----------|----------|----------|
| Under 20 . . . . . | 24.5    | 5.2      | 1.2      | 6.0      |
| 20-30 . . . . .    | 54.2    | 6.2      | 14.0     | 3.6      |
| 30-40 . . . . .    | 14.8    | 11.0     | 38.8     | 3.6      |
| Over 40 . . . . .  | 6.5     | 77.6     | 46.0     | 86.8     |
|                    | 100.0   | 100.0    | 100.0    | 100.0    |

The convict settlement of Cayenne, French Guiana, in 1876-81 gave the following averages :—

|                               | Sick per 1000 Convicts | Deaths in 100 Sick |
|-------------------------------|------------------------|--------------------|
| Phthisis . . . . .            | 14                     | 22                 |
| Enteric fever . . . . .       | 170                    | 4                  |
| Anæmia . . . . .              | 180                    | 10                 |
| Digestive disorders . . . . . | 35                     | 15                 |
| Various . . . . .             | 681                    | 4                  |
| <b>Total . . . . .</b>        | <b>1,080</b>           | <b>6</b>           |

The French garrison at Senegal in 22 years ending 1873 gave the following returns :—

|                                 | Per 1000 Men        |           | Relative Mortality |
|---------------------------------|---------------------|-----------|--------------------|
|                                 | Hospital Admissions | Deaths    |                    |
| Fever . . . . .                 | 920                 | 25        | 2.7                |
| Dysentery and cholera . . . . . | 301                 | 22        | 7.3                |
| Syphilis . . . . .              | 119                 | ...       | ...                |
| Sundry . . . . .                | 479                 | 30        | 6.3                |
| <b>Total . . . . .</b>          | <b>1,819</b>        | <b>77</b> | <b>4.2</b>         |

The death-rate of the French army in the years 1872-77 showed thus:—

|                        | Of 1000 Deaths | Deaths per 10,000 Men |
|------------------------|----------------|-----------------------|
| Typhoid . . . . .      | 307            | 33                    |
| Phthisis . . . . .     | 290            | 31                    |
| Diarrhoea, &c. . . . . | 76             | 8                     |
| Suicide . . . . .      | 33             | 4                     |
| Various . . . . .      | 294            | 31                    |
| Total . . . . .        | 1,000          | 107                   |

The average number invalided yearly was 50 officers per 10,000, and 220 men in the same number, being over double the death-rate.

The military hospital report in 1865 showed among 1000 sick the following ratios:—

|                     |    |                        |     |                    |     |
|---------------------|----|------------------------|-----|--------------------|-----|
| Phthisis . . . . .  | 18 | Rheumatism . . . . .   | 40  | Fever . . . . .    | 131 |
| Small-pox . . . . . | 20 | Dysentery, &c. . . . . | 76  | Syphilis . . . . . | 137 |
| Pneumonia . . . . . | 31 | Bronchitis . . . . .   | 115 | Various . . . . .  | 432 |

The expeditionary troops in Tonquin showed deaths, excluding those killed or wounded in war, made up of the following ratios:—

|                     |       |                  |       |
|---------------------|-------|------------------|-------|
| Phthisis . . . . .  | 3.8   | Spring . . . . . | 20.7  |
| Diarrhoea . . . . . | 4.8   | Summer . . . . . | 42.1  |
| Dysentery . . . . . | 30.2  | Autumn . . . . . | 23.9  |
| Fever . . . . .     | 45.6  | Winter . . . . . | 13.3  |
| Sundry . . . . .    | 15.6  |                  |       |
| Total . . . . .     | 100.0 | Total . . . . .  | 100.0 |

## GERMANY

The following table of mortality includes the whole urban population of the Empire, that is, of all towns over 15,000 population:—

|                                | Number of Deaths |           |           | Ratio  |         |        |
|--------------------------------|------------------|-----------|-----------|--------|---------|--------|
|                                | 1877             | 1877-86   | 1886      | 1877   | 1877-86 | 1886   |
| Small-pox . . . . .            | 42               | 101       | 49        | 2      | 5       | 2      |
| Measles . . . . .              | 2,179            | 2,670     | 3,981     | 111    | 121     | 155    |
| Scarlatina . . . . .           | 4,452            | 4,052     | 3,187     | 227    | 184     | 124    |
| Diphtheria and croup . . . . . | 7,523            | 9,360     | 12,208    | 384    | 426     | 475    |
| Typhoid . . . . .              | 7,325            | 3,020     | 2,589     | 170    | 142     | 101    |
| Puerperal . . . . .            | 1,115            | 1,067     | 998       | 57     | 48      | 39     |
| Phthisis . . . . .             | 27,027           | 29,370    | 32,981    | 1,378  | 1,344   | 1,283  |
| Respiratory . . . . .          | 18,710           | 22,820    | 26,984    | 954    | 1,040   | 1,049  |
| Enteritis . . . . .            | 9,985            | 11,430    | 11,979    | 509    | 520     | 466    |
| Diarrhoea . . . . .            | 8,259            | 10,210    | 17,197    | 421    | 460     | 669    |
| Various . . . . .              | 113,409          | 125,100   | 144,977   | 5,787  | 5,710   | 5,637  |
| Total . . . . .                | 196,026          | 219,200   | 257,130   | 10,000 | 10,000  | 10,000 |
| Population . . . . .           | 7,260,000        | 8,370,000 | 9,820,000 | ...    | ...     | ...    |

The urban death-rate of the Empire was 26.2 per 1000 inhabitants during the period of ten years down to 1886.

In 10,000 deaths all over Germany the following ratios occur:—

|                      |     |                      |     |                    |       |
|----------------------|-----|----------------------|-----|--------------------|-------|
| Rheumatism . . . . . | 25  | Heart . . . . .      | 230 | Apoplexy . . . . . | 390   |
| Erysipelas . . . . . | 35  | Cancer . . . . .     | 260 | Typhoid . . . . .  | 450   |
| Scarlatina . . . . . | 160 | Diphtheria . . . . . | 270 | Phthisis . . . . . | 1,270 |

In 10,000 deaths in Prussia (1843) the ratios showed—small-pox 80, puerperal 110, apoplexy and paralysis 690, acute internal disorders 240, and chronic disease 388; besides suicide 35, and accidental deaths 140.

Deaths in Saxony in the years 1873-76 showed the following diseases thus:—

Per 100,000 Inhabitants Yearly

|                      |    |                   |    |                                |     |
|----------------------|----|-------------------|----|--------------------------------|-----|
| Small-pox . . . . .  | 28 | Typhoid . . . . . | 39 | Diphtheria and croup . . . . . | 81  |
| Scarlatina . . . . . | 55 | Cancer . . . . .  | 61 | Phthisis . . . . .             | 232 |

Of 10,000 deaths in Berlin, Munich, and Frankfort there were:—

|                      | Berlin | Munich | Frankfort |
|----------------------|--------|--------|-----------|
| Scrofula . . . . .   | 100    | 33     | ...       |
| Cancer . . . . .     | 160    | ...    | 370       |
| Diphtheria . . . . . | 320    | 240    | 130       |
| Typhoid . . . . .    | 320    | 450    | 420       |
| Apoplexy . . . . .   | 410    | 390    | 380       |
| Phthisis . . . . .   | 990    | 1,320  | 1,550     |

The distribution of deaths in Saxony from various diseases according to months, taking the year as 1200, was thus:—

|                     | Measles | Scarlatina | Diphtheria and Croup | Whooping-Cough | Typhoid | Dysentery |
|---------------------|---------|------------|----------------------|----------------|---------|-----------|
| January . . . . .   | 119     | 116        | 135                  | 88             | 102     | 6         |
| February . . . . .  | 112     | 102        | 126                  | 85             | 95      | 20        |
| March . . . . .     | 84      | 78         | 100                  | 99             | 87      | 14        |
| April . . . . .     | 65      | 63         | 79                   | 84             | 81      | 13        |
| May . . . . .       | 90      | 59         | 75                   | 88             | 80      | 13        |
| June . . . . .      | 93      | 59         | 71                   | 75             | 79      | 27        |
| July . . . . .      | 93      | 68         | 54                   | 95             | 92      | 101       |
| August . . . . .    | 120     | 84         | 50                   | 107            | 121     | 367       |
| September . . . . . | 64      | 113        | 91                   | 118            | 131     | 352       |
| October . . . . .   | 64      | 155        | 119                  | 124            | 126     | 181       |
| November . . . . .  | 119     | 151        | 155                  | 126            | 105     | 73        |
| December . . . . .  | 176     | 152        | 145                  | 111            | 101     | 33        |
|                     | 1,200   | 1,200      | 1,200                | 1,200          | 1,200   | 1,200     |

The ratios of various diseases in 10,000 deaths in Bavaria were as follows:—

|                    |      |                      |     |
|--------------------|------|----------------------|-----|
| Phthisis . . . . . | 1010 | Apoplexy . . . . .   | 372 |
| Dropsy . . . . .   | 650  | Diphtheria . . . . . | 248 |
| Croup . . . . .    | 392  | Scarlatina . . . . . | 236 |

## DISEASE

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## DISEASE

In Hanover the prevalence of certain diseases among given trades is as follows :—

|                   | Percentage of Causes of Death |       |          |            |          |         |
|-------------------|-------------------------------|-------|----------|------------|----------|---------|
|                   | Glass-<br>blowers             | Dyers | Painters | Varnishers | Printers | Average |
| Phthisis . . .    | 18                            | 25    | 24       | 25         | 22       | 23      |
| Acute disease . . | 28                            | 22    | 19       | 18         | 30       | 23      |
| Heart disease . . | 4                             | 9     | 5        | 5          | 3        | 5       |
| Stomach disease . | 15                            | 16    | 15       | 35         | 14       | 19      |
| Rheumatism . . .  | 11                            | 13    | 11       | 5          | 8        | 10      |
| Various . . . . . | 24                            | 15    | 26       | 12         | 23       | 20      |
| Total . . . . .   | 100                           | 100   | 100      | 100        | 100      | 100     |

In Bavaria the prevalence of typhoid fever according to age was as follows :—

| Per Million Inhabitants of each Age |     |             |     |               |     |
|-------------------------------------|-----|-------------|-----|---------------|-----|
| Age                                 |     | Age         |     | Age           |     |
| Under 10 . . .                      | 300 | 21-30 . . . | 850 | 41-50 . . .   | 690 |
| 10-20 . . . .                       | 480 | 31-40 . . . | 650 | Over 50 . . . | 980 |

And the death-rate according to age was :—

| Age              |    | Age              |    |
|------------------|----|------------------|----|
| Per 100 Patients |    | Per 100 Patients |    |
| Under 5 . . .    | 24 | 41-60 . . .      | 29 |
| 5-15 . . . . .   | 10 | 61-70 . . .      | 46 |
| 16-40 . . . . .  | 20 | Over 70 . . .    | 75 |

At page 197 will be found a table from an English medical work showing the predisposition to fever according to age, which is at variance with the above table for Bavaria.

The prevalence of certain diseases in the different seasons was as follows :—

## CASES OF SICKNESS

| Season           | Diarrhoea |         | Cholera   |         | Phthisis | Pneumonia | Liver   |
|------------------|-----------|---------|-----------|---------|----------|-----------|---------|
|                  | Breslau   | Dresden | Stuttgart | Breslau | Breslau  | Breslau   | Dresden |
| Spring . . . . . | 15.5      | 19.0    | 10.6      | 8.7     | 30.1     | 34.1      | 20.5    |
| Summer . . . . . | 43.9      | 29.7    | 65.4      | 58.5    | 22.6     | 18.3      | 33.3    |
| Autumn . . . . . | 27.1      | 29.1    | 15.0      | 26.5    | 22.8     | 20.8      | 17.3    |
| Winter . . . . . | 13.5      | 22.2    | 9.0       | 6.3     | 25.5     | 26.8      | 28.9    |
|                  | 100.0     | 100.0   | 100.0     | 100.0   | 100.0    | 100.0     | 100.0   |

## DEATHS FROM VARIOUS DISEASES

| Season           | Measles |         | Diarrhoea | Phthisis | Convulsions |           | Diarrhoea | Scarlatina |
|------------------|---------|---------|-----------|----------|-------------|-----------|-----------|------------|
|                  | Berlin  | Dresden | Berlin    | Berlin   | Berlin      | Frankfort | Frankfort | Berlin     |
| Spring . . . . . | 9.9     | 61.0    | 9.5       | 27.6     | 26.2        | 27.8      | 15.7      | 21.6       |
| Summer . . . . . | 55.6    | 24.0    | 68.5      | 22.6     | 27.2        | 21.4      | 49.6      | 25.4       |
| Autumn . . . . . | 16.9    | 8.0     | 16.7      | 22.8     | 22.7        | 19.9      | 25.1      | 37.2       |
| Winter . . . . . | 17.6    | 7.0     | 5.3       | 27.0     | 23.9        | 30.9      | 9.6       | 15.8       |
|                  | 100.0   | 100.0   | 100.0     | 100.0    | 100.0       | 100.0     | 100.0     | 100.0      |

## DEATHS FROM APOPLEXY

| Season           | Berlin | Hamburg | Dresden | Breslau | Frankfort |
|------------------|--------|---------|---------|---------|-----------|
| Spring . . . . . | 25.5   | 26.3    | 28.9    | 25.9    | 26.3      |
| Summer . . . . . | 19.9   | 22.7    | 22.7    | 23.1    | 22.7      |
| Autumn . . . . . | 22.5   | 22.7    | 20.0    | 22.9    | 22.7      |
| Winter . . . . . | 32.1   | 28.3    | 28.4    | 28.1    | 28.3      |
|                  | 100.0  | 100.0   | 100.0   | 100.0   | 100.0     |

| Season           | Deaths from Pneumonia |         |           |         | From Typhoid |        |
|------------------|-----------------------|---------|-----------|---------|--------------|--------|
|                  | Berlin                | Hamburg | Frankfort | Dresden | Germany      | Berlin |
| Spring . . . . . | 30.0                  | 41.4    | 37.5      | 39.9    | 18.2         | 19.7   |
| Summer . . . . . | 18.4                  | 15.4    | 17.3      | 17.7    | 22.9         | 25.2   |
| Autumn . . . . . | 17.8                  | 13.5    | 15.7      | 16.7    | 35.5         | 33.4   |
| Winter . . . . . | 33.8                  | 29.7    | 29.5      | 25.7    | 23.4         | 21.7   |
|                  | 100.0                 | 100.0   | 100.0     | 100.0   | 100.0        | 100.0  |

It appears from the preceding tables that diarrhoea and cholera are most frequent in summer, phthisis and pneumonia in spring, apoplexy in winter, and typhoid in autumn. As regards measles and scarlatina, the seasons seem to have little effect.

## RUSSIA

The death-rate from various diseases per 10,000 inhabitants of each age at St. Petersburg was as follows :—

| Disease            | 6-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | Over 70 |
|--------------------|------|-------|-------|-------|-------|-------|-------|---------|
| Typhoid . . . . .  | 12   | 23    | 27    | 18    | 17    | 23    | 23    | 30      |
| Pneumonia . . . .  | 11   | 7     | 9     | 12    | 19    | 37    | 57    | 85      |
| Phthisis . . . . . | 10   | 27    | 61    | 71    | 72    | 72    | 53    | 50      |
| Various . . . . .  | 110  | 55    | 86    | 97    | 145   | 248   | 452   | 1,155   |
| Total . . . . .    | 142  | 112   | 183   | 198   | 253   | 380   | 585   | 1,320   |
| Males . . . . .    | 146  | 131   | 203   | 227   | 306   | 475   | 702   | 1,660   |
| Females . . . . .  | 133  | 79    | 147   | 159   | 193   | 297   | 510   | 1,160   |

The aggregate returns of the hospital at Astrakan for 25 years gave the ratio of sick thus :—

| In 10,000 Patients  |        |
|---------------------|--------|
| Cancer . . . . .    | 55     |
| Cholera . . . . .   | 375    |
| Dysentery . . . . . | 591    |
| Erysipelas . . . .  | 115    |
| Fever . . . . .     | 2,021  |
| Leprosy . . . . .   | 173    |
| Phthisis . . . . .  | 286    |
| Pleurisy . . . . .  | 187    |
| Pneumonia . . . . . | 265    |
| Rheumatism . . . .  | 1,398  |
| Scurvy . . . . .    | 147    |
| Small-pox . . . . . | 93     |
| Syphilis . . . . .  | 1,332  |
| Typhus . . . . .    | 1,498  |
| Various . . . . .   | 1,464  |
| Total . . . . .     | 10,000 |

The death-rate in the same hospital for various diseases was :—

| In 100 Patients         |                        |                        |  |
|-------------------------|------------------------|------------------------|--|
| Cancer . . . . . 30     | Leprosy . . . . . 41   | Scurvy . . . . . 16    |  |
| Cholera . . . . . 73    | Phthisis . . . . . 60  | Small-pox . . . . . 42 |  |
| Dysentery . . . . . 41  | Pleurisy . . . . . 15  | Syphilis . . . . . 2   |  |
| Erysipelas . . . . . 10 | Pneumonia . . . . . 35 | Typhus . . . . . 37    |  |
| Fever . . . . . 5       | Rheumatism . . . . . 1 | Various . . . . . 12   |  |

The annual death-rate in St. Petersburg of children under five years is 182 per 1000, made up as follows :—

|                               |                                      |
|-------------------------------|--------------------------------------|
| Bowel complaints . . . . . 60 | Croup . . . . . 9                    |
| Pneumonia . . . . . 36        | Small-pox and scarlatina . . . . . 8 |
| Meningitis . . . . . 18       | Bronchitis . . . . . 5               |
| Convulsions . . . . . 13      | Sundry . . . . . 24                  |
| Scrofula . . . . . 9          |                                      |

In 10,000 deaths at St. Petersburg the following ratios occurred :—

|                         |                           |                            |
|-------------------------|---------------------------|----------------------------|
| Small-pox . . . . . 40  | Heart . . . . . 200       | Scrofula . . . . . 260     |
| Puerperal . . . . . 74  | Convulsions . . . . . 200 | Meningitis . . . . . 500   |
| Scarlatina . . . . . 90 | Apoplexy . . . . . 210    | Phthisis . . . . . 1,510   |
| Cancer . . . . . 150    | Diphtheria . . . . . 210  | Bronchitis . . . . . 1,590 |

The occurrence of certain diseases according to season at St. Petersburg was shown by the ratio of deaths as follows :—

|                  | Infant Cholera | Typhoid | Apoplexy | Puerperal Fever |
|------------------|----------------|---------|----------|-----------------|
| Spring . . . . . | 33.4           | 30.8    | 24.0     | 29.0            |
| Summer . . . . . | 20.6           | 21.8    | 23.8     | 25.2            |
| Autumn . . . . . | 18.3           | 16.8    | 21.2     | 18.2            |
| Winter . . . . . | 27.7           | 30.6    | 31.0     | 27.6            |
|                  | 100.0          | 100.0   | 100.0    | 100.0           |

The death-rate in St. Petersburg is so high that deaths exceed births. In 125 years, from 1764 to 1888, there were 1,539,000 births and 1,772,000 deaths, being an excess of 233,000 deaths.

#### AUSTRIA-HUNGARY

The returns of Austria proper for 1886 showed thus :—

|                          | Number of Deaths |         |         | Ratio  |
|--------------------------|------------------|---------|---------|--------|
|                          | Males            | Females | Total   |        |
| Small-pox . . . . .      | 4,340            | 4,454   | 8,794   | 133    |
| Measles . . . . .        | 7,228            | 6,981   | 14,209  | 214    |
| Scarlatina . . . . .     | 6,258            | 5,889   | 12,147  | 183    |
| Typhoid . . . . .        | 8,008            | 7,882   | 15,890  | 240    |
| Diarrhoea . . . . .      | 4,895            | 4,718   | 9,613   | 146    |
| Whooping-cough . . . . . | 10,409           | 10,568  | 20,977  | 316    |
| Diphtheria . . . . .     | 16,231           | 15,435  | 31,666  | 477    |
| Respiratory . . . . .    | 36,459           | 32,907  | 69,366  | 1,045  |
| Phthisis . . . . .       | 46,912           | 44,643  | 91,555  | 1,380  |
| Enteritis . . . . .      | 17,670           | 15,298  | 32,968  | 496    |
| Apoplexy . . . . .       | 8,710            | 7,069   | 15,779  | 237    |
| Cancer . . . . .         | 4,809            | 6,313   | 11,122  | 168    |
| Various . . . . .        | 166,850          | 161,320 | 328,170 | 4,965  |
| Total . . . . .          | 338,779          | 323,477 | 662,256 | 10,000 |

The returns of Hungary for 1886 showed as follows :—

|                              | Number of Deaths |         |         |
|------------------------------|------------------|---------|---------|
|                              | Males            | Females | Total   |
| Unmarried . . . . .          | 36,800           | 31,800  | 68,600  |
| Married . . . . .            | 59,200           | 46,500  | 105,700 |
| Widowed . . . . .            | 18,300           | 36,200  | 54,500  |
| Over five years . . . . .    | 114,300          | 114,500 | 228,800 |
| Infants under five . . . . . | 134,700          | 116,800 | 251,500 |
| Total . . . . .              | 249,000          | 231,300 | 480,300 |

The municipal hospitals of Hungary showed the number of cases and deaths as follows :—

|                           | Cases  | Died   | Death-Rate | Ratio |        |
|---------------------------|--------|--------|------------|-------|--------|
|                           |        |        |            | Cases | Deaths |
| Small-pox . . . . .       | 16,055 | 3,740  | 23.4       | 268   | 348    |
| Measles . . . . .         | 24,801 | 1,752  | 7.0        | 413   | 163    |
| Scarlatina . . . . .      | 6,325  | 1,221  | 19.3       | 106   | 112    |
| Diphtheria . . . . .      | 4,189  | 2,292  | 54.6       | 70    | 214    |
| Diarrhoea . . . . .       | 3,211  | 500    | 15.6       | 54    | 46     |
| Typhoid . . . . .         | 771    | 102    | 13.2       | 13    | 9      |
| Whooping-cough . . . . .  | 1,890  | 147    | 7.7        | 32    | 14     |
| Cholera . . . . .         | 1,871  | 989    | 53.0       | 32    | 92     |
| Various . . . . .         | 710    | 19     | 2.7        | 12    | 2      |
| Year 1886 . . . . .       | 59,823 | 10,762 | 17.9       | 1,000 | 1,000  |
| Average 1880-85 . . . . . | 52,200 | 9,905  | 19.1       | ...   | ...    |

The hospital returns of Vienna give the following percentages :—

|                  | Cases of Sickness |           |       |           |          | Deaths        |            |
|------------------|-------------------|-----------|-------|-----------|----------|---------------|------------|
|                  | Measles           | Diarrhoea | Liver | Pneumonia | Phthisis | From Phthisis | Scarlatina |
| Spring . . . . . | 38.9              | 25.7      | 29.7  | 39.1      | 34.1     | 34.1          | 18.9       |
| Summer . . . . . | 33.7              | 31.6      | 25.9  | 17.9      | 24.5     | 24.7          | 26.9       |
| Autumn . . . . . | 8.7               | 21.7      | 20.4  | 17.3      | 17.7     | 17.5          | 23.8       |
| Winter . . . . . | 18.7              | 21.0      | 24.0  | 25.7      | 23.7     | 23.7          | 38.4       |
|                  | 100.0             | 100.0     | 100.0 | 100.0     | 100.0    | 100.0         | 100.0      |

In 10,000 deaths at Buda-Pesth 90 were of Bright's disease, 140 apoplexy, 460 meningitis, 730 convulsions, and 1545 phthisis. At Vienna the ratios were :—Puerperal 40, heart 170, small-pox 40, pneumonia 714, and phthisis 2080. The effects of overcrowding of population on the death-rate is shown in the returns at Buda-Pesth of deaths among the working classes for the years 1872-75.

|                               | Deaths Yearly of Work-People, Living |                    |       |
|-------------------------------|--------------------------------------|--------------------|-------|
|                               | Not more than Two in a Room          | Over Two in a Room | Total |
| Small-pox . . . . .           | 52                                   | 415                | 467   |
| Typhus . . . . .              | 45                                   | 155                | 200   |
| Scarlatina . . . . .          | 31                                   | 141                | 172   |
| Diphtheria . . . . .          | 11                                   | 63                 | 74    |
| Various . . . . .             | 19                                   | 180                | 199   |
| Contagious diseases . . . . . | 158                                  | 954                | 1,112 |
| Pneumonia . . . . .           | 65                                   | 286                | 351   |
| Phthisis . . . . .            | 194                                  | 704                | 898   |
| Diarrhoea . . . . .           | 48                                   | 453                | 501   |
| Various . . . . .             | 1,052                                | 3,900              | 4,952 |
| Total . . . . .               | 1,517                                | 6,297              | 7,814 |

It appears that 80 per cent. of the mortality among working-classes was of people living more than two in a room.

#### ITALY

Of 10,000 deaths at Rome the ratio showed :—

|                         |                         |                           |
|-------------------------|-------------------------|---------------------------|
| Scarlatina . . . . . 10 | Typhoid . . . . . 230   | Apoplexy . . . . . 530    |
| Bronchitis . . . . . 29 | Small-pox . . . . . 290 | Digestive . . . . . 1,100 |
| Cancer . . . . . 170    | Ague . . . . . 460      | Phthisis . . . . . 1,140  |

At Naples the ratios were in 10,000:—Ague, 107; typhoid, 300; and apoplexy, 370; at Genoa, ague, 133; digestive disorders, 1580. The mean ratios in 10,000 deaths of all Italian cities were:—

|                    |                   |                    |
|--------------------|-------------------|--------------------|
| Bright's . . . 40  | Measles . . . 95  | Apoplexy . . . 360 |
| Whoop.-cough 50    | Dysentery . . 130 | Diphtheria . . 360 |
| Erysipelas . . 50  | Small-pox . . 220 | Pneumonia . . 540  |
| Hepatitis . . . 90 | Typhoid . . . 240 | Heart . . . 585    |

The ratios in Turin in 10,000 deaths were:—

|                   |                   |                    |
|-------------------|-------------------|--------------------|
| Scrofula . . . 30 | Typhoid . . . 460 | Apoplexy . . 610   |
| Syphilis . . . 30 | Heart . . . 490   | Phthisis . . . 830 |
| Cancer . . . 160  | Convulsions . 560 | Digestive . 1,550  |

The prevalence of some diseases according to months, taking the year as 1200, is shown thus:—

|             | Deaths from Apoplexy |       |         | Admission to Fever Hospital | Deaths |          |
|-------------|----------------------|-------|---------|-----------------------------|--------|----------|
|             | Turin                | Milan | Bologna |                             | Ague   | Sciatica |
| January .   | 147                  | 132   | 149     | 38                          | 30     | 265      |
| February .  | 107                  | 128   | 169     | 44                          | 30     | 78       |
| March .     | 107                  | 108   | 114     | 56                          | 48     | 126      |
| April .     | 90                   | 99    | 95      | 63                          | 78     | 78       |
| May .       | 99                   | 93    | 91      | 62                          | 78     | 76       |
| June .      | 77                   | 79    | 67      | 65                          | 30     | 76       |
| July .      | 81                   | 78    | 76      | 122                         | 48     | 46       |
| August .    | 80                   | 73    | 64      | 299                         | 156    | 110      |
| September . | 83                   | 84    | 72      | 211                         | 270    | 92       |
| October .   | 90                   | 93    | 85      | 113                         | 204    | 76       |
| November .  | 120                  | 112   | 97      | 80                          | 114    | 110      |
| December .  | 119                  | 121   | 116     | 47                          | 114    | 67       |
| Year        | 1,200                | 1,200 | 1,200   | 1,200                       | 1,200  | 1,200    |

## SPAIN

Madrid hospitals publish the following table of proportions of deaths from phthisis according to age:—

|                    |      |
|--------------------|------|
| Under 20 . . . . . | 13.4 |
| 20-30 . . . . .    | 28.9 |
| 30-40 . . . . .    | 23.8 |
| 40-50 . . . . .    | 18.1 |
| Over 50 . . . . .  | 15.8 |

Total . . . . . 100.0

The prevalence of this disease according to months is shown in the number of deaths at Madrid, taking the year as 1200:—

|                          |     |                          |     |
|--------------------------|-----|--------------------------|-----|
| January . . . . .        | 162 | July . . . . .           | 18  |
| February . . . . .       | 126 | August . . . . .         | 27  |
| March . . . . .          | 131 | September . . . . .      | 86  |
| First quarter . . . . .  | 419 | Third quarter . . . . .  | 131 |
| April . . . . .          | 113 | October . . . . .        | 92  |
| May . . . . .            | 74  | November . . . . .       | 129 |
| June . . . . .           | 40  | December . . . . .       | 202 |
| Second quarter . . . . . | 227 | Fourth quarter . . . . . | 423 |

## PORTUGAL

Of 10,000 deaths in Lisbon the ratios showed:—

|                   |                    |                    |
|-------------------|--------------------|--------------------|
| Bright's . . . 30 | Scrofula . . . 110 | Bronchitis . . 420 |
| Rheumatism . 43   | Convulsions . 190  | Apoplexy . . 685   |
| Ague . . . . 60   | Cancer . . . 260   | Phthisis . . 1,147 |

## SWEDEN

The deaths per million inhabitants were as follows:—

|                  | 1861-65 | 1866-70 | 1871-75 |
|------------------|---------|---------|---------|
| Diphtheria . . . | 2,873   | 1,497   | 1,579   |
| Scarlatina . . . | 2,292   | 3,475   | 1,899   |
| Small-pox . . .  | 545     | 1,189   | 1,576   |
| Typhoid . . . .  | 1,449   | 3,408   | 2,031   |

The deaths in hospital in 1878 were as follows:—

| Diseases              | Number | Per Cent. |
|-----------------------|--------|-----------|
| Respiratory . . . . . | 4,353  | 31.4      |
| Digestive . . . . .   | 2,177  | 15.8      |
| Contagious . . . . .  | 2,123  | 15.3      |
| Nervous . . . . .     | 1,436  | 10.3      |
| Various . . . . .     | 3,785  | 27.2      |
| Total . . . . .       | 13,874 | 100.0     |

Hospital mortality in 1860 was 15 per cent. of the sick, and in the years 1870-76 only 12 per cent. The relative mortality of Sweden and Norway in different diseases was per 100 patients as follows:—Croup 52, diphtheria 20, scarlatina 18, pneumonia 15, small-pox 13, typhus 12, diarrhoea 11. The percentage of deaths under and over ten years of age in certain diseases was as follows:—

| Age                | Small-pox | Scarlatina | Diphtheria | Typhoid |
|--------------------|-----------|------------|------------|---------|
| Under 10 . . . . . | 41.2      | 89.8       | 86.4       | 13.2    |
| Over 10 . . . . .  | 58.8      | 10.2       | 13.6       | 86.8    |
| Total . . . . .    | 100.0     | 100.0      | 100.0      | 100.0   |

The hospital returns of sickness showed the following ratio:—

Per 10,000 Inhabitants

|                          |     |                      |    |
|--------------------------|-----|----------------------|----|
| Diarrhoea . . . . .      | 165 | Ague . . . . .       | 36 |
| Small-pox . . . . .      | 42  | Scarlatina . . . . . | 15 |
| Whooping-cough . . . . . | 40  | Typhus . . . . .     | 24 |
| Diphtheria . . . . .     | 38  | Dysentery . . . . .  | 7  |
| Typhoid . . . . .        | 37  |                      |    |

The death-rate of various diseases showed thus:—

Deaths per 1000 Patients of each Disease

|                     |    |                      |     |                      |     |
|---------------------|----|----------------------|-----|----------------------|-----|
| Ague . . . . .      | 2  | Typhoid . . . . .    | 110 | Small-pox . . . . .  | 171 |
| Diarrhoea . . . . . | 10 | Dysentery . . . . .  | 134 | Typhus . . . . .     | 204 |
| Whoop.-cough 70     |    | Pneumonia . . . . .  | 148 | Diphtheria . . . . . | 251 |
| Measles . . . . .   | 83 | Scarlatina . . . . . | 155 | Croup . . . . .      | 550 |

The effect of town-life on death-rate in Sweden is shown thus:—

|                                | Deaths Yearly per 100,000 Persons of each Class |       |               |      |
|--------------------------------|-------------------------------------------------|-------|---------------|------|
|                                | Under 10 Years Old                              |       | Over 10 Years |      |
|                                | Rural                                           | Town  | Rural         | Town |
| Typhoid . . . . .              | 18                                              | 53    | 32            | 96   |
| Diarrhoea, &c. . . . .         | 31                                              | 1,276 | 3             | 21   |
| Small-pox . . . . .            | 56                                              | 25    | 26            | 56   |
| Whooping-cough . . . . .       | 76                                              | 119   | ...           | ...  |
| Measles . . . . .              | 80                                              | 173   | 2             | 2    |
| Diphtheria and croup . . . . . | 292                                             | 425   | 8             | 7    |
| Scarlatina . . . . .           | 376                                             | 460   | 11            | 11   |
| Total, 7 diseases . . . . .    | 929                                             | 2,531 | 82            | 193  |

Deaths of puerperal fever average 27 per 10,000 births in rural parts, and 74 in towns, the rate for all Sweden being 34. The prevalence of certain diseases according to season shows thus:—

|                  | Pneumonia | Ague  |
|------------------|-----------|-------|
| Spring . . . . . | 37.9      | 31.1  |
| Summer . . . . . | 21.2      | 18.6  |
| Autumn . . . . . | 17.2      | 25.9  |
| Winter . . . . . | 23.7      | 24.4  |
| Total . . . . .  | 100.0     | 100.0 |

# DISEASE

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# DISEASE

The prevalence of diseases according to months, taking the year as 1200, shows:—

|                 | Bronchitis | Diarrhoea | Diphtheria | Scarlatina | Small-pox | Croup |
|-----------------|------------|-----------|------------|------------|-----------|-------|
| January . . .   | 150        | 41        | 121        | 106        | 120       | 144   |
| February . . .  | 160        | 41        | 119        | 99         | 130       | 136   |
| March . . .     | 143        | 31        | 99         | 93         | 129       | 130   |
| April . . .     | 130        | 33        | 93         | 95         | 156       | 110   |
| May . . .       | 102        | 30        | 85         | 91         | 152       | 88    |
| June . . .      | 67         | 55        | 72         | 90         | 128       | 64    |
| July . . .      | 49         | 150       | 69         | 81         | 91        | 45    |
| August . . .    | 46         | 292       | 77         | 80         | 52        | 48    |
| September . . . | 58         | 227       | 86         | 91         | 41        | 76    |
| October . . .   | 82         | 149       | 112        | 118        | 43        | 108   |
| November . . .  | 104        | 94        | 137        | 136        | 68        | 128   |
| December . . .  | 109        | 54        | 130        | 120        | 90        | 123   |
| Year . . .      | 1,200      | 1,200     | 1,200      | 1,200      | 1,200     | 1,200 |

In 10,000 deaths these ratios occurred:—

|                   |                    |                      |
|-------------------|--------------------|----------------------|
| Ague . . . 14     | Diarrhoea . . 190  | Small-pox . . 158    |
| Puerperal . . 38  | Whoop.-cough 190   | Scarlatina . . 190   |
| Rheumatism . . 40 | Cancer . . . 240   | Pneumonia . . 850    |
| Drink . . . 40    | Apoplexy . . 590   | Typhoid . . . 203    |
| Liver . . . 90    | Bronchitis . . 630 | Phthisis . . . 1,340 |
| Croup . . . 165   | Diphtheria . . 160 |                      |

## FINLAND

Official returns for 1870-71 give the distribution of 10,000 deaths as follows:—

|                   |                   |                      |
|-------------------|-------------------|----------------------|
| Measles . . . 50  | Dysentery . . 170 | Typhus . . . 810     |
| Small-pox . . 60  | Croup . . . 250   | Phthisis . . . 2,210 |
| Scarlatina . . 60 | Whoop.-cough 510  | Various . . . 5,880  |

Deaths of puerperal fever were 96 in 10,000 births; the rate in towns was 18 per cent. higher than in rural departments.

## NORWAY

In 1876 among 10,000 deaths the diseases stood thus:—

|                   |                    |                      |
|-------------------|--------------------|----------------------|
| Typhoid . . . 220 | Diarrhoea . . 280  | Infant con- } 784    |
| Apoplexy . . 240  | Cancer . . . 415   | vulsions . . .       |
| Heart . . . 260   | Bronchitis . . 608 | Scarlatina . . 1285  |
|                   |                    | Phthisis . . . 1,450 |

The prevalence of certain diseases according to months was as follows:—

|                 | Bronchitis | Pneumonia | Diarrhoea | Typhoid | Diphtheria | Scarlatina | Small-pox | Croup |
|-----------------|------------|-----------|-----------|---------|------------|------------|-----------|-------|
| January . . .   | 160        | 98        | 98        | 150     | 136        | 122        | 144       | 141   |
| February . . .  | 152        | 169       | 89        | 103     | 120        | 110        | 161       | 132   |
| March . . .     | 132        | 161       | 72        | 64      | 112        | 103        | 157       | 134   |
| April . . .     | 112        | 160       | 61        | 43      | 89         | 92         | 142       | 105   |
| May . . .       | 96         | 134       | 65        | 38      | 88         | 90         | 172       | 84    |
| June . . .      | 72         | 77        | 60        | 32      | 79         | 85         | 133       | 64    |
| July . . .      | 53         | 55        | 113       | 57      | 79         | 80         | 78        | 47    |
| August . . .    | 48         | 37        | 190       | 95      | 73         | 76         | 46        | 59    |
| September . . . | 62         | 55        | 143       | 117     | 87         | 72         | 34        | 89    |
| October . . .   | 82         | 76        | 95        | 116     | 102        | 100        | 27        | 103   |
| November . . .  | 110        | 91        | 109       | 209     | 118        | 137        | 40        | 125   |
| December . . .  | 121        | 87        | 105       | 176     | 117        | 133        | 66        | 126   |
| Year . . .      | 1,200      | 1,200     | 1,200     | 1,200   | 1,200      | 1,200      | 1,200     | 1,200 |

In 10,000 deaths at Christiania there were:—

|                   |                    |                      |
|-------------------|--------------------|----------------------|
| Whooping . . 100  | Cancer . . . 290   | Scarlatina . . 670   |
| Convulsions . 110 | Erysipelas . 270   | Diarrhoea . . 420    |
| Heart . . . 130   | Diphtheria . . 440 | Pneumonia . . 680    |
| Apoplexy . . 220  | Typhoid . . . 630  | Phthisis . . . 1,720 |

## DENMARK

Of 10,000 deaths at Copenhagen the ratios were:—

|                    |                   |                      |
|--------------------|-------------------|----------------------|
| Rheumatism . 35    | Diphtheria . 160  | Cancer . . . 360     |
| Scrofula . . . 70  | Whooping . . 160  | Convulsions . 560    |
| Drink . . . 70     | Puerperal . . 160 | Typhoid . . . 700    |
| Small-pox . . 70   | Apoplexy . . 230  | Pneumonia . . 710    |
| Bright's . . . 100 | Scarlatina . 240  | Phthisis . . . 1,270 |
|                    | Heart . . . 320   |                      |

## HOLLAND

In 10,000 deaths throughout Holland the principal diseases stood thus:—

|                   |                  |                     |
|-------------------|------------------|---------------------|
| Typhus . . . 21   | Diphtheria . 130 | Apoplexy . . 280    |
| Scarlatina . . 40 | Cancer . . . 180 | Dysentery . . 290   |
| Bright's . . . 50 | Heart . . . 180  | Phthisis . . . 950  |
| Puerperal . . 50  | Whooping- } 180  | Various . . . 7,649 |
|                   | cough . . . }    |                     |

In 10,000 deaths at Amsterdam the ratios were:—

|                   |                    |                    |
|-------------------|--------------------|--------------------|
| Syphilis . . . 18 | Bright's . . . 120 | Meningitis . 370   |
| Typhus . . . 23   | Scrofula . . . 140 | Apoplexy . . 380   |
| Scarlatina . . 50 | Measles . . . 150  | Typhoid . . . 460  |
| Puerperal . . 53  | Diphtheria . 200   | Pneumonia . 570    |
| Hepatitis . . 81  | Bronchitis . 220   | Convulsions . 600  |
| Small-pox . . 100 | Cancer . . . 230   | Phthisis . . . 870 |
| Ague . . . 106    | Heart . . . 290    |                    |

## BELGIUM

The prevalence of certain diseases according to season is shown thus:—

|              | Deaths from |          |            |            |           |           |
|--------------|-------------|----------|------------|------------|-----------|-----------|
|              | Phthisis    | Apoplexy | Rheumatism | Bronchitis | Pneumonia | Diarrhoea |
| Spring . . . | 27.7        | 26.9     | 33.4       | 26.4       | 32.6      | 24.4      |
| Summer . . . | 23.2        | 22.2     | 12.5       | 17.3       | 17.7      | 31.5      |
| Autumn . . . | 24.3        | 22.3     | 22.9       | 21.4       | 21.4      | 23.9      |
| Winter . . . | 24.8        | 28.6     | 31.2       | 34.9       | 28.3      | 20.2      |
| Total . . .  | 100.0       | 100.0    | 100.0      | 100.0      | 100.0     | 100.0     |

The ages of phthisis and other diseases stand thus:—

| Age            | Deaths from |         |          |            |                |           |
|----------------|-------------|---------|----------|------------|----------------|-----------|
|                | Phthisis    | Typhoid | Apoplexy | Bronchitis | Diarrhoea, &c. | Pneumonia |
| Under 20 . . . | 25.7        | 43.3    | 5.6      | 60.4       | 70.0           | 29.0      |
| 20-30 . . .    | 19.2        | 18.0    | 2.6      | 2.0        | 3.0            | 5.4       |
| 31-40 . . .    | 15.4        | 11.2    | 4.2      | 1.9        | 3.0            | 6.2       |
| 41-50 . . .    | 12.2        | 9.6     | 8.1      | 2.8        | 4.0            | 8.1       |
| 51-60 . . .    | 11.3        | 8.9     | 17.0     | 5.3        | 6.0            | 14.0      |
| Over 60 . . .  | 16.2        | 9.0     | 62.5     | 27.6       | 14.0           | 37.3      |
| Total . . .    | 100.0       | 100.0   | 100.0    | 100.0      | 100.0          | 100.0     |

The causes of death were as follows :—

|                 | Annual Averages |         |         | Ratio in 10,000 Deaths |         |         |
|-----------------|-----------------|---------|---------|------------------------|---------|---------|
|                 | 1856-60         | 1871-80 | 1886-87 | 1856-60                | 1871-80 | 1886-87 |
| Bronchitis, &c. | 10,237          | 16,827  | 19,974  | 997                    | 1,402   | 1,664   |
| Phthisis        | 14,523          | 17,642  | 16,606  | 1,416                  | 1,470   | 1,384   |
| Diarrhoea, &c.  | 3,451           | 8,552   | 9,107   | 336                    | 713     | 759     |
| Whooping-cough  | 2,172           | 3,840   | 3,885   | 212                    | 320     | 324     |
| Croup           | 3,033           | 3,250   | 3,758   | 296                    | 271     | 313     |
| Measles         | 1,062           | 3,452   | 2,943   | 10                     | 288     | 245     |
| Typhoid         | 4,630           | 4,161   | 2,480   | 451                    | 347     | 207     |
| Puerperal       | 654             | 1,313   | 1,342   | 63                     | 109     | 112     |
| Scarlatina      | 1,204           | 1,963   | 1,146   | 117                    | 164     | 95      |
| Small-pox       | 1,116           | 5,080   | 911     | 108                    | 423     | 76      |
| Accidents       | 1,542           | 2,039   | 1,964   | 150                    | 170     | 164     |
| Various         | 59,033          | 52,279  | 55,982  | 5,844                  | 4,323   | 4,657   |
| Total           | 102,657         | 120,398 | 120,098 | 10,000                 | 10,000  | 10,000  |

In 10,000 deaths throughout Belgium the ratios of some were :—

|                   |                        |                     |
|-------------------|------------------------|---------------------|
| Erysipelas . . 40 | Meningitis . . 280     | Pneumonia . . 450   |
| Cancer . . . 140  | Whooping-cough . . 280 | Typhoid . . 460     |
| Measles . . . 165 | Diphtheria . . 280     | Convulsions . . 720 |
| Heart . . . 190   | Diarrhoea . . 370      | Phthisis . . 1,825  |

The ratios at Brussels were as follows :—

|                       |                    |                               |
|-----------------------|--------------------|-------------------------------|
| Whooping-cough . . 70 | Puerperal . . 210  | Convulsions . . 450           |
| Hepatitis . . . 81    | Typhoid . . 220    | Bronchitis . . 480            |
| Scrofula . . . 90     | Apoplexy . . 310   | Heart . . . 685               |
| Scarlatina . . 140    | Cancer . . 420     | Phthisis . . 1,750            |
| Small-pox . . 150     | Pneumonia . . 430  | Digestive disorders . . 1,500 |
|                       | Diphtheria . . 440 |                               |

#### SWITZERLAND

In 10,000 deaths the various diseases stood thus :—

|                  |                    |                      |
|------------------|--------------------|----------------------|
| Measles . . . 46 | Scarlatina . . 146 | Heart . . . 385      |
| Puerperal . . 50 | Typhoid . . 184    | Phthisis . . 1,110   |
| Small-pox . . 54 | Diphtheria . . 304 | Bronchitis . . 1,180 |
| Whoop.-cough 112 | Apoplexy . . 370   | Pneumonia . . 1,180  |

In Berne, of 10,000 deaths, there were of puerperal fever, 80; of Bright's disease, 100; of cancer, 320; of apoplexy, 420.

In Geneva the ratios in 10,000 deaths showed :—

|                   |                  |                    |
|-------------------|------------------|--------------------|
| Bright's . . . 15 | Typhoid . . 350  | Cancer . . . 530   |
| Puerperal . . 95  | Apoplexy . . 400 | Phthisis . . 1,250 |

#### GREECE

At Athens the deaths from various diseases occurred in the following ratios according to season :—

| Quarter Ending | Digestive | Phthisis | Pneumonia | Heart Disease | Typhoid | Diphtheria | Liver | Bronchitis | General Mortality |
|----------------|-----------|----------|-----------|---------------|---------|------------|-------|------------|-------------------|
| March . . .    | 10.6      | 25.4     | 34.5      | 31.4          | 6.0     | 22.8       | 22.2  | 36.0       | 23.6              |
| June . . .     | 31.0      | 27.0     | 29.0      | 21.4          | 12.0    | 15.4       | 26.7  | 29.6       | 26.1              |
| September . .  | 36.1      | 22.9     | 14.0      | 17.5          | 66.5    | 19.6       | 28.9  | 9.6        | 25.9              |
| December . .   | 22.3      | 24.7     | 22.5      | 29.7          | 15.5    | 42.2       | 22.2  | 24.8       | 24.4              |
| Year . . .     | 100.0     | 100.0    | 100.0     | 100.0         | 100.0   | 100.0      | 100.0 | 100.0      | 100.0             |

In 10,000 deaths the averages during the years 1876-82 were as follows :—

|                    |                    |                      |
|--------------------|--------------------|----------------------|
| Liver . . . 124    | Heart disease 323  | Apoplexy . . 630     |
| Whoop.-cough 210   | Bronchitis . . 391 | Pneumonia . . 856    |
| Diphtheria . . 219 | Ague . . . 420     | Phthisis . . 1,076   |
| Convulsions . 266  | Typhoid . . 475    | Digestive dis. 1,658 |

The returns for ague, apoplexy, convulsions, and whooping-cough are not for the whole period.

Fever cases occur mostly from July to September; if we take the year as 1200, the various months will stand thus :—

| Cases            | Cases          | Cases             |
|------------------|----------------|-------------------|
| January . . . 40 | May . . . 69   | September . . 168 |
| February . . 41  | June . . . 101 | October . . . 103 |
| March . . . 50   | July . . . 240 | November . . 63   |
| April . . . 53   | August . . 226 | December . . 46   |

#### UNITED STATES

Of 10,000 deaths, according to the Census of 1880, the following ratios occurred :—

|                   |                    |                    |
|-------------------|--------------------|--------------------|
| Calculus . . . 1  | Apoplexy . . 140   | Convulsions . 250  |
| Bright's . . 35   | Whooping . . 148   | Typhoid . . . 310  |
| Puerperal . . 40  | Dysentery . . 160  | Heart . . . 350    |
| Rheumatism . 59   | Meningitis . . 190 | Diphtheria . 480   |
| Scrofula . . . 70 | Scarlatina . . 220 | Diarrhoea . . 880  |
| Cancer . . . 130  | Ague . . . 240     | Phthisis . . 1,420 |

The prevalence of diarrhoea at New York and of infant cholera at Philadelphia, according to seasons, was thus :—

| Season       | Diarrhoea, New York | Infant Cholera, Philadelphia |
|--------------|---------------------|------------------------------|
| Spring . . . | 9.2                 | 2.0                          |
| Summer . . . | 79.8                | 92.8                         |
| Autumn . . . | 7.0                 | 4.5                          |
| Winter . . . | 4.0                 | 0.7                          |
|              | 100.0               | 100.0                        |

The ratios in New York of 10,000 deaths showed :—

|                   |                   |                    |
|-------------------|-------------------|--------------------|
| Syphilis . . . 40 | Scrofula . . . 83 | Typhoid . . 350    |
| Puerperal . . 56  | Drink . . . 70    | Phthisis . . 1,550 |
| Cancer . . . 80   | Diphtheria . 300  |                    |

#### CANADA

Rates for phthisis and typhoid in 10,000 deaths are :—

|                 | Phthisis | Typhoid |
|-----------------|----------|---------|
| Ontario . . .   | 1,540    | 417     |
| Quebec . . .    | 1,380    | 374     |
| Nova Scotia . . | 2,410    | 205     |

In 10,000 deaths the various diseases, according to the *Dict. Medicale*, stand thus :—

|                         |     |                         |     |                          |       |                          |     |
|-------------------------|-----|-------------------------|-----|--------------------------|-------|--------------------------|-----|
| Ague . . . . .          | 43  | Croup . . . . .         | 182 | Hydrocephalus . . . . .  | 130   | Puerperal . . . . .      | 145 |
| Apoplexy . . . . .      | 110 | Diphtheria . . . . .    | 114 | Infant cholera . . . . . | 110   | Rheumatism . . . . .     | 70  |
| Bowel disease . . . . . | 320 | Diarrhoea . . . . .     | 410 | Liver disease . . . . .  | 140   | Scarlatina . . . . .     | 458 |
| Brain disease . . . . . | 420 | Dysentery . . . . .     | 107 | Measles . . . . .        | 220   | Small-pox . . . . .      | 55  |
| Bronchitis . . . . .    | 130 | Epilepsy . . . . .      | 30  | Paralysis . . . . .      | 210   | Typhoid . . . . .        | 364 |
| Cancer . . . . .        | 126 | Frysipelas . . . . .    | 68  | Phthisis . . . . .       | 1,620 | Whooping-cough . . . . . | 260 |
| Convulsions . . . . .   | 180 | Heart disease . . . . . | 370 | Pneumonia . . . . .      | 660   |                          |     |

Ague is almost confined to Ontario, showing only 10 in 10,000 deaths in the other provinces.

The deaths in the principal cities in 1886 were as follows :—

| Disease              | Montreal | Toronto | Quebec | Hamilton | Halifax | Winnipeg | Ottawa | Seven Cities |
|----------------------|----------|---------|--------|----------|---------|----------|--------|--------------|
| Phthisis . . . . .   | 486      | 236     | 182    | 96       | 95      | 30       | 62     | 1,187        |
| Lung . . . . .       | 465      | 351     | 164    | 98       | 102     | 51       | 83     | 1,314        |
| Diarrhoea . . . . .  | 687      | 177     | 257    | 79       | 57      | 65       | 248    | 1,570        |
| Brain . . . . .      | 341      | 127     | 244    | 51       | 47      | 21       | 30     | 861          |
| Diphtheria . . . . . | 235      | 184     | 118    | 76       | 39      | 23       | 46     | 721          |
| Throat . . . . .     | 200      | 111     | 120    | 21       | 56      | 19       | 28     | 564          |
| Heart . . . . .      | 216      | 127     | 76     | 48       | 47      | 14       | 27     | 555          |
| Debility . . . . .   | 1,014    | 255     | 235    | 68       | 39      | 15       | 40     | 1,666        |
| Various . . . . .    | 1,570    | 978     | 738    | 318      | 337     | 162      | 351    | 4,454        |
| Total . . . . .      | 5,214    | 2,546   | 2,143  | 855      | 819     | 400      | 915    | 12,822       |

| Disease              | Ratio in 10,000 Deaths |         |        |          |         |          |        |              |
|----------------------|------------------------|---------|--------|----------|---------|----------|--------|--------------|
|                      | Montreal               | Toronto | Quebec | Hamilton | Halifax | Winnipeg | Ottawa | Seven Cities |
| Phthisis . . . . .   | 930                    | 924     | 847    | 1,123    | 1,158   | 750      | 677    | 920          |
| Lung . . . . .       | 891                    | 1,378   | 766    | 1,147    | 1,244   | 1,275    | 905    | 1,020        |
| Diarrhoea . . . . .  | 1,317                  | 697     | 1,700  | 922      | 695     | 1,625    | 2,707  | 1,218        |
| Brain . . . . .      | 652                    | 497     | 1,140  | 597      | 573     | 525      | 328    | 668          |
| Diphtheria . . . . . | 447                    | 721     | 551    | 886      | 475     | 575      | 502    | 560          |
| Throat . . . . .     | 383                    | 437     | 602    | 246      | 683     | 475      | 306    | 438          |
| Heart . . . . .      | 415                    | 497     | 354    | 561      | 573     | 350      | 295    | 430          |
| Debility . . . . .   | 1,945                  | 1,003   | 1,093  | 796      | 475     | 375      | 437    | 1,293        |
| Various . . . . .    | 3,020                  | 3,846   | 3,447  | 3,722    | 4,124   | 4,050    | 3,843  | 3,453        |
| Total . . . . .      | 10,000                 | 10,000  | 10,000 | 10,000   | 10,000  | 10,000   | 10,000 | 10,000       |

## JAPAN

The prevalence of various diseases at certain ages is shown by the ratio of deaths according to age thus :—

| Age               | Small-pox | Diphtheria | Cholera | Age                | Typhoid | Typhus | Dysentery |
|-------------------|-----------|------------|---------|--------------------|---------|--------|-----------|
| Under 3 . . . . . | 29.6      | 34.9       | 1.8     | Under 10 . . . . . | 12.1    | 10.2   | 30.1      |
| 3-7 . . . . .     | 22.0      | 30.3       | 4.9     | 10-15 . . . . .    | 11.6    | 11.2   | 13.4      |
| 7-15 . . . . .    | 26.8      | 18.0       | 8.3     | 15-25 . . . . .    | 26.2    | 23.9   | 17.2      |
| 15-30 . . . . .   | 18.7      | 10.4       | 24.0    | 25-40 . . . . .    | 25.7    | 28.5   | 17.3      |
| 30-50 . . . . .   | 2.9       | 6.4        | 33.2    | 40-60 . . . . .    | 17.2    | 18.0   | 13.1      |
| Over 50 . . . . . |           |            | 27.8    | Over 60 . . . . .  | 7.2     | 8.2    | 8.9       |
| Total . . . . .   | 100.0     | 100.0      | 100.0   | Total . . . . .    | 100.0   | 100.0  | 100.0     |

The death-rate among typhoid patients was 32 per cent. The classification of sickness and of deaths was as follows :—

| Prevalent Diseases   | Causes of Death               |
|----------------------|-------------------------------|
| Typhoid . . . . .    | Contagious diseases . . . . . |
| Dysentery . . . . .  | Nervous . . . . .             |
| Small-pox . . . . .  | Digestive . . . . .           |
| Typhus . . . . .     | Respiratory . . . . .         |
| Diphtheria . . . . . | Sundry . . . . .              |
| Total . . . . .      | Total . . . . .               |

## DISTANCES

The principal ocean routes are as follows in nautical miles, of which six are equal to seven statute miles :—

|                                     |       |
|-------------------------------------|-------|
| Aden—Mauritius . . . . .            | 2,822 |
| Alexandria—Southampton . . . . .    | 2,960 |
| Amoor River—San Francisco . . . . . | 3,946 |

|                                           |       |
|-------------------------------------------|-------|
| Ascension—Cape Horn . . . . .             | 3,800 |
| Auckland—Panama . . . . .                 | 6,490 |
| Azores—Portsmouth . . . . .               | 1,390 |
| Bahia—Southampton . . . . .               | 4,366 |
| Batavia—Sydney . . . . .                  | 3,870 |
| Behring's Straits—San Francisco . . . . . | 2,720 |
| Bermuda—Southampton . . . . .             | 2,973 |
| Bombay—Cape of Good Hope . . . . .        | 4,527 |
| Mauritius . . . . .                       | 2,593 |
| Melbourne . . . . .                       | 5,530 |
| London . . . . .                          | 6,330 |
| Boston—Galway . . . . .                   | 2,385 |
| Calcutta—London . . . . .                 | 7,950 |
| Melbourne . . . . .                       | 5,230 |
| Suez . . . . .                            | 4,580 |
| Cape of Good Hope—Calcutta . . . . .      | 5,381 |
| Bombay . . . . .                          | 4,527 |
| Java . . . . .                            | 5,025 |
| Liverpool . . . . .                       | 5,998 |
| Cape Horn—Ascension . . . . .             | 3,800 |
| Liverpool . . . . .                       | 7,325 |
| Sydney . . . . .                          | 5,470 |



|                                       |        |
|---------------------------------------|--------|
| Demerara—London . . . . .             | 4,050  |
| Fernando Po—Plymouth . . . . .        | 4,130  |
| Galway—Boston . . . . .               | 2,385  |
| Gibraltar—Southampton . . . . .       | 1,160  |
| Glasgow—New York . . . . .            | 3,400  |
| Halifax—Galway . . . . .              | 2,165  |
| Havanna—New York . . . . .            | 1,190  |
| „ Portsmouth . . . . .                | 4,029  |
| Hong-Kong—Honolulu . . . . .          | 4,838  |
| Honolulu—Callao . . . . .             | 5,145  |
| „ San Francisco . . . . .             | 2,081  |
| „ Tahiti . . . . .                    | 2,378  |
| „ Valparaiso . . . . .                | 5,902  |
| Jamaica—Portsmouth . . . . .          | 4,050  |
| Java—Cape of Good Hope . . . . .      | 5,025  |
| Liverpool—Cape of Good Hope . . . . . | 5,998  |
| „ Cape Horn . . . . .                 | 7,325  |
| „ Melbourne . . . . .                 | 11,555 |
| „ New York . . . . .                  | 2,980  |
| „ Portland . . . . .                  | 2,770  |
| „ Quebec . . . . .                    | 2,634  |
| Lisbon—Madeira . . . . .              | 535    |
| London—Bombay . . . . .               | 6,330  |
| „ Calcutta . . . . .                  | 7,959  |
| „ Demerara . . . . .                  | 4,030  |
| „ Madras . . . . .                    | 7,330  |
| „ Singapore . . . . .                 | 8,345  |
| Madeira—Plymouth . . . . .            | 1,200  |
| Madras—London . . . . .               | 7,330  |
| Mauritius—Aden . . . . .              | 2,822  |
| „ Bombay . . . . .                    | 2,593  |
| „ Cape of Good Hope . . . . .         | 2,400  |
| „ Melbourne . . . . .                 | 4,570  |
| Melbourne—Calcutta . . . . .          | 5,230  |
| „ Liverpool . . . . .                 | 11,555 |
| „ Mauritius . . . . .                 | 4,570  |
| Montevideo—Falmouth . . . . .         | 2,886  |
| „ Valparaiso . . . . .                | 2,550  |
| New York—Galway . . . . .             | 2,731  |
| „ Glasgow . . . . .                   | 3,400  |
| „ Havanna . . . . .                   | 1,190  |
| „ Liverpool . . . . .                 | 2,980  |
| „ Portsmouth . . . . .                | 3,075  |
| „ Southampton . . . . .               | 3,080  |
| Pernambuco—Teneriffe . . . . .        | 2,450  |
| Plymouth—Fernando Po . . . . .        | 4,130  |
| „ Madeira . . . . .                   | 1,200  |
| Portsmouth—Azores . . . . .           | 1,390  |
| „ Havanna . . . . .                   | 4,029  |
| „ Jamaica . . . . .                   | 4,050  |
| „ New York . . . . .                  | 3,075  |
| „ St. Helena . . . . .                | 4,330  |
| „ Tahiti . . . . .                    | 11,530 |
| Quebec—Galway . . . . .               | 2,392  |
| „ Liverpool . . . . .                 | 2,634  |
| Rio Janeiro—Southampton . . . . .     | 5,060  |
| „ Valparaiso . . . . .                | 3,560  |
| St. Helena—Portsmouth . . . . .       | 4,330  |
| „ Cape of Good Hope . . . . .         | 1,800  |
| St. Thomas—Southampton . . . . .      | 3,570  |
| St. Vincent—Pernambuco . . . . .      | 1,608  |
| „ Teneriffe . . . . .                 | 850    |
| San Francisco—Amoor River . . . . .   | 3,946  |
| „ Behring's Straits . . . . .         | 2,720  |
| „ Honolulu . . . . .                  | 2,081  |
| „ Panama . . . . .                    | 3,150  |
| Shanghai—Sydney . . . . .             | 4,640  |
| Singapore—London . . . . .            | 8,345  |
| Suez—Calcutta . . . . .               | 4,580  |
| Sydney—Batavia . . . . .              | 3,870  |
| „ Cape Horn . . . . .                 | 5,470  |
| „ Shanghai . . . . .                  | 4,640  |
| „ Valparaiso . . . . .                | 6,198  |
| Tahiti—Honolulu . . . . .             | 2,378  |
| „ Portsmouth . . . . .                | 11,530 |
| Teneriffe—Pernambuco . . . . .        | 2,450  |
| Valparaiso—Honolulu . . . . .         | 5,902  |
| „ Tahiti . . . . .                    | 4,233  |
| „ Sydney . . . . .                    | 6,198  |
| „ Panama . . . . .                    | 2,700  |

The following table shows distances from London as the bird flies, in English statute miles :—

|                          |       |                          |        |
|--------------------------|-------|--------------------------|--------|
| Algiers . . . . .        | 1,050 | Jerusalem . . . . .      | 2,100  |
| Amsterdam . . . . .      | 210   | Lima . . . . .           | 6,900  |
| Astrakan . . . . .       | 2,180 | Lisbon . . . . .         | 980    |
| Azores . . . . .         | 1,680 | Madeira . . . . .        | 1,600  |
| Barcelona . . . . .      | 580   | Madras . . . . .         | 5,170  |
| Belgrade . . . . .       | 1,040 | Madrid . . . . .         | 780    |
| Berlin . . . . .         | 580   | Malta . . . . .          | 1,260  |
| Bordeaux . . . . .       | 460   | Manilla . . . . .        | 6,700  |
| Boston . . . . .         | 3,190 | Marselles . . . . .      | 620    |
| Bremen . . . . .         | 390   | Mauritius . . . . .      | 6,010  |
| Brussels . . . . .       | 190   | Melbourne . . . . .      | 9,990  |
| Bucharest . . . . .      | 1,270 | Mexico . . . . .         | 5,800  |
| Buda-Pesth . . . . .     | 900   | Montevideo . . . . .     | 7,150  |
| Buenos Ayres . . . . .   | 7,260 | Montreal . . . . .       | 3,340  |
| Cadiz . . . . .          | 1,080 | Moscow . . . . .         | 1,580  |
| Cairo . . . . .          | 2,160 | Naples . . . . .         | 1,000  |
| Calcutta . . . . .       | 4,870 | Natal . . . . .          | 5,850  |
| Canton . . . . .         | 5,960 | New Orleans . . . . .    | 4,820  |
| Cape Town . . . . .      | 5,950 | New York . . . . .       | 3,620  |
| Chicago . . . . .        | 4,050 | Palermo . . . . .        | 1,150  |
| Colombo . . . . .        | 5,370 | Paris . . . . .          | 200    |
| Constantinople . . . . . | 1,540 | Pekin . . . . .          | 5,400  |
| Copenhagen . . . . .     | 600   | Philadelphia . . . . .   | 3,700  |
| Cyprus . . . . .         | 1,980 | Quebec . . . . .         | 3,200  |
| Dresden . . . . .        | 600   | Quito . . . . .          | 6,500  |
| Dublin . . . . .         | 280   | Rio Janeiro . . . . .    | 6,000  |
| Edinburgh . . . . .      | 300   | Rome . . . . .           | 900    |
| Falklands . . . . .      | 8,150 | San Francisco . . . . .  | 6,000  |
| Florence . . . . .       | 730   | St. Petersburg . . . . . | 1,380  |
| Frankfort . . . . .      | 400   | Sierra Leone . . . . .   | 3,300  |
| Geneva . . . . .         | 460   | Singapore . . . . .      | 7,050  |
| Genoa . . . . .          | 650   | Stockholm . . . . .      | 910    |
| Gibraltar . . . . .      | 1,100 | Sydney . . . . .         | 10,120 |
| Halifax . . . . .        | 2,940 | Teneriffe . . . . .      | 2,080  |
| Hamburg . . . . .        | 450   | Utah . . . . .           | 5,500  |
| Havanna . . . . .        | 4,700 | Valparaiso . . . . .     | 7,850  |
| Hong-Kong . . . . .      | 6,040 | Vienna . . . . .         | 760    |
| Honolulu . . . . .       | 8,430 | Warsaw . . . . .         | 910    |
| Iceland . . . . .        | 1,060 | Washington . . . . .     | 3,800  |
| Jamaica . . . . .        | 4,800 | Yeddo . . . . .          | 6,600  |
| Jersey . . . . .         | 170   |                          |        |

Distances by railway route from London are :—

|                          | Miles |                          | Miles |
|--------------------------|-------|--------------------------|-------|
| Antwerp . . . . .        | 260   | Munich . . . . .         | 758   |
| Berlin . . . . .         | 733   | Paris . . . . .          | 283   |
| Constantinople . . . . . | 2,260 | Rome . . . . .           | 1,195 |
| Copenhagen . . . . .     | 854   | St. Petersburg . . . . . | 1,748 |
| Hamburg . . . . .        | 849   | Stockholm . . . . .      | 1,195 |
| Lisbon . . . . .         | 1,603 | Turin . . . . .          | 781   |
| Madrid . . . . .         | 1,191 | Vienna . . . . .         | 963   |
| Moscow . . . . .         | 1,940 | Warsaw . . . . .         | 1,130 |

## DIVORCE

Bertillon's and other tables show that the number of divorces compare with marriages in various countries as follows :—

|                      | Per 10,000 Marriages |         |                       | Per 10,000 Marriages |         |
|----------------------|----------------------|---------|-----------------------|----------------------|---------|
|                      | 1867-76              | 1877-86 |                       | 1867-76              | 1877-86 |
| England . . . . .    | 9                    | 19      | Norway . . . . .      | 24                   | 30      |
| Scotland . . . . .   | 16                   | 29      | Sweden . . . . .      | 56                   | 73      |
| Ireland . . . . .    | 1                    | 2       | Holland . . . . .     | 50                   | 91      |
| U. Kingdom . . . . . | 9                    | 18      | Belgium . . . . .     | 40                   | 69      |
| France . . . . .     | 72                   | 127     | Roumania . . . . .    | 99                   | 106     |
| Germany . . . . .    | 107                  | 152     | Switzerland . . . . . | ...                  | 468     |
| Russia . . . . .     | 18                   | 22      | Paris . . . . .       | 297                  | 322     |
| Poland . . . . .     | 49                   | 55      | Berlin . . . . .      | 420                  | 533     |
| Austria . . . . .    | 7                    | 10      | Vienna . . . . .      | 210                  | 290     |
| Hungary . . . . .    | ...                  | 64      | Australia . . . . .   | ...                  | 35      |
| Italy . . . . .      | 31                   | 24      | U. States . . . . .   | 339                  | 444     |
| Denmark . . . . .    | 353                  | 406     | Canada . . . . .      | 5                    | 12      |

Kummer's table for five countries covers a period of 50 years :—

| Period  | Divorces per 10,000 Marriages |         |        |         |       |          |        |
|---------|-------------------------------|---------|--------|---------|-------|----------|--------|
|         | Sweden                        | Belgium | Saxony | Holland | Paris | Brussels | France |
| 1831-40 | 49                            | 12      | 256    | ...     | 70    | 53       | 17     |
| 1841-50 | 43                            | 14      | 252    | ...     | 90    | 66       | 27     |
| 1851-60 | 43                            | 24      | 255    | 33      | 156   | 99       | 44     |
| 1861-70 | 49                            | 29      | 205    | 37      | 229   | 112      | 68     |
| 1871-80 | 65                            | 51      | 256    | 48      | 249   | 124      | 78     |

The following table shows the number of divorces (including judicial separations) in the various countries during twenty years ending December 1886. The figures are mainly from Commissioner Carroll Wright's work (Washington, 1889), compiled from Bertillon's and other returns :—

|                       | Actual Number of Divorces Granted |         |         |         |          |
|-----------------------|-----------------------------------|---------|---------|---------|----------|
|                       | 1867-71                           | 1872-76 | 1877-81 | 1882-86 | 20 Years |
| England . . .         | 724                               | 1,050   | 1,743   | 1,891   | 5,408    |
| Scotland . . .        | 177                               | 220     | 337     | 390     | 1,124    |
| Ireland . . .         | 4                                 | 13      | 21      | 17      | 55       |
| U. Kingdom            | 905                               | 1,283   | 2,101   | 2,298   | 6,587    |
| France . . .          | 9,850                             | 11,384  | 13,132  | 22,750  | 57,116   |
| Germany . . .         | 18,450                            | 22,085  | 24,143  | 29,140  | 93,818   |
| Russia . . .          | 4,597                             | 5,095   | 5,721   | 6,563   | 21,976   |
| Poland . . .          | 809                               | 1,073   | 1,432   | 1,725   | 5,039    |
| Austria . . .         | ...                               | 690     | 808     | 856     | ...      |
| Hungary . . .         | ...                               | ...     | 5,246   | 4,835   | ...      |
| Italy . . .           | 3,136                             | ...     | 3,195   | 2,828   | ...      |
| Sweden . . .          | 619                               | 953     | 1,053   | 1,109   | 3,734    |
| Norway . . .          | ...                               | 162     | 195     | ...     | ...      |
| Denmark . . .         | ...                               | 2,677   | 3,046   | ...     | ...      |
| Holland . . .         | 700                               | 810     | 1,160   | 1,570   | 4,240    |
| Switzerland . . .     | ...                               | ...     | 4,811   | 4,588   | ...      |
| Roumania . . .        | ...                               | 1,787   | 1,900   | ...     | ...      |
| Belgium . . .         | 620                               | 899     | 1,189   | 1,501   | 4,209    |
| Europe, approximately | 46,600                            | 57,500  | 69,132  | 85,100  | 258,332  |
| Canada . . .          | 15                                | 16      | 33      | 52      | 116      |
| U. States . . .       | 53,574                            | 68,547  | 89,284  | 117,311 | 328,716  |
| Total                 | 100,189                           | 126,063 | 158,449 | 202,463 | 587,164  |

In the above table Germany is an estimate down to 1881 (see p. 221), and in some cases where the record of a

The proportions of divorces according to length of marriage were :—

| Years Married | France  | Saxony  | Italy   | Switzerland | Sweden  | Roumania | Average |
|---------------|---------|---------|---------|-------------|---------|----------|---------|
| Under 5 . . . | 21.5    | 35.7    | 40.9    | 36.0        | 11.2    | 50.9     | 32.4    |
| 5-10 . . .    | 29.6    | 29.3    | 22.9    | 34.1        | 24.8    | 37.4     | 29.0    |
| Over 10 . . . | 48.9    | 35.0    | 36.2    | 39.9        | 64.0    | 11.7     | 38.6    |
| Total . . .   | 100.0   | 100.0   | 100.0   | 100.0       | 100.0   | 100.0    | 100.0   |
| Date . . .    | 1876-79 | 1875-77 | 1866-79 | 1876-80     | 1876-80 | 1875-77  | ...     |

The percentages of marriages dissolved at the petition of husband or of wife showed thus :—

| Petition by   | Scotland | Norway  | Belgium | Saxony  | Italy   | Roumania | Massachusetts | Average |
|---------------|----------|---------|---------|---------|---------|----------|---------------|---------|
| Husband . . . | 56       | 68      | 44      | 45      | 34      | 27       | 33            | 42      |
| Wife . . .    | 44       | 32      | 56      | 55      | 66      | 73       | 67            | 58      |
| Total . . .   | 100      | 100     | 100     | 100     | 100     | 100      | 100           | 100     |
| Date . . .    | 1878-81  | 1875-80 | 1880    | 1875-80 | 1866-79 | 1875-77  | 1860-78       | ...     |

year is missing, the average for the other four years of the period is added.

Kummer also gives the following table of the increase of divorce :—

|               | 1861-65 | 1866-70 | 1861-65 | 1866-70 | 1871-75 | 1876-80 |
|---------------|---------|---------|---------|---------|---------|---------|
| France . . .  | 100     | 128     | 150     | 190     | 163     | 225     |
| Belgium . . . | 100     | 140     | 160     | 190     | 280     | 420     |
| Holland . . . | 100     | 100     | 112     | 115     | 139     | 151     |
| Saxony . . .  | 100     | 83      | 75      | 72      | 80      | 105     |
| Sweden . . .  | 100     | 98      | 109     | 113     | 132     | 161     |

Classifying the nations according to creed, we find divorces per 10,000 marriages :—

Among Catholics . . . . . 41  
Among Protestants . . . . . 123

In countries of mixed creeds the ratios were as follows :—

|                   | Divorces per 10,000 Marriages |                    |                 | Date    |
|-------------------|-------------------------------|--------------------|-----------------|---------|
|                   | Protestant Provinces          | Catholic Provinces | Mixed Provinces |         |
| U. Kingdom . . .  | 15                            | 1                  | ...             | 1871-80 |
| Bavaria . . .     | 61                            | 57                 | 223             | 1862-75 |
| Holland . . .     | 45                            | 9                  | ...             | 1850-64 |
| Switzerland . . . | 595                           | 128                | 505             | 1876-80 |
| Hungary . . .     | 283                           | 12                 | ...             | 1878-79 |

As regards cities Kummer gives the following :—

| Divorces per 10,000 Marriages |     |                          |
|-------------------------------|-----|--------------------------|
| Antwerp . . .                 | 26  | Liege . . . 115          |
| Augsburg . . .                | 15  | London . . . 40          |
| Berlin . . .                  | 103 | Munich . . . 153         |
| Breslau . . .                 | 307 | Nuremberg . . . 77       |
| Brussels . . .                | 124 | Paris . . . 250          |
| Bucharest . . .               | 443 | Prague . . . 18          |
| Christiania . . .             | 17  | Ratisbon . . . 63        |
| Cologne . . .                 | 64  | Rotterdam . . . 197      |
| Copenhagen . . .              | 292 | San Francisco . . . 2233 |
| Frankfort . . .               | 171 | Stockholm . . . 281      |
| Ghent . . .                   | 17  | Vienna . . . 233         |
| Hague . . .                   | 111 |                          |

The above results are for different periods between 1860 and 1875, usually averages of five years.

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The proportion of marriages dissolved, with or without children, shows thus :—

|                      | France<br>(1851-80) | Italy<br>(1866-79) | Holland<br>(1876-78) | Switzerland<br>(1877-80) |
|----------------------|---------------------|--------------------|----------------------|--------------------------|
| With children . . .  | 62                  | 52                 | 35                   | 63                       |
| Without children . . | 38                  | 48                 | 65                   | 37                       |
| Total . . .          | 100                 | 100                | 100                  | 100                      |

In the term of five years ending 1880 the number of children corresponding to 100 divorce couples in Holland was 75, and in Sweden 130. Want of children in Holland seems a primary pretext for divorce ; not so much so elsewhere.

The ratio of persons divorced per million inhabitants yearly of each class was as follows :—

|                     | France<br>(1865-75) | Switzerland<br>(1876-80) | Sweden<br>(1876-80) |
|---------------------|---------------------|--------------------------|---------------------|
| Learned class . . . | 125                 | 470                      | 130                 |
| Merchants . . . .   | 135                 | 620                      | 218                 |
| Farmers . . . . .   | 20                  | 190                      | 20                  |
| Operatives . . . .  | 133                 | 490                      | 140                 |
| Gen. population . . | 55                  | 370                      | 46                  |

The number of divorced persons married in every 10,000 marriages, according to various returns down to 1880, averaged thus :—

|                     | Men | Women |
|---------------------|-----|-------|
| England . . . . .   | 7   | 5     |
| Holland . . . . .   | 10  | 8     |
| Hungary . . . . .   | 12  | 10    |
| Prussia . . . . .   | 22  | 24    |
| Denmark . . . . .   | 32  | 32    |
| Switzerland . . . . | 60  | 42    |

There is apparently some relationship between divorce and suicide in the various countries, viz. :—

|                    | Divorces<br>per 10,000<br>Marriages | Suicides per<br>Million<br>Inhabitants |                     | Divorces<br>per 10,000<br>Marriages | Suicides per<br>Million<br>Inhabitants |
|--------------------|-------------------------------------|----------------------------------------|---------------------|-------------------------------------|----------------------------------------|
| Ireland . . . . .  | 2                                   | 17                                     | Germany . . . . .   | 210                                 | 143                                    |
| England . . . . .  | 22                                  | 67                                     | Denmark . . . . .   | 410                                 | 282                                    |
| Scotland . . . . . | 29                                  | 40                                     | Switzerland . . . . | 478                                 | 202                                    |
| Italy . . . . .    | 22                                  | 37                                     | London . . . . .    | 40                                  | 86                                     |
| Sweden . . . . .   | 75                                  | 81                                     | Berlin . . . . .    | 103                                 | 170                                    |
| Belgium . . . . .  | 74                                  | 71                                     | Brussels . . . . .  | 124                                 | 271                                    |
| Holland . . . . .  | 73                                  | 96                                     | Vienna . . . . .    | 233                                 | 287                                    |
| France . . . . .   | 91                                  | 156                                    | Paris . . . . .     | 250                                 | 422                                    |

## UNITED KINGDOM

The official report of the working of the Divorce Act in Great Britain during 30 years showed thus :—

| Period             | Number of<br>Petitions | Granted | Annual Average<br>per Million<br>Inhabitants |
|--------------------|------------------------|---------|----------------------------------------------|
| 1858-67 . . . . .  | 2,724                  | 1,492   | 6                                            |
| 1868-77 . . . . .  | 4,199                  | 1,971   | 7                                            |
| 1878-87 . . . . .  | 5,991                  | 3,832   | 13                                           |
| 30 Years . . . . . | 12,914                 | 7,295   | 9                                            |

The total of divorces and marriages in 20 years was :—

|                    | Number   |           | Ratio of<br>Divorces per<br>10,000 Marriages |
|--------------------|----------|-----------|----------------------------------------------|
|                    | Divorces | Marriages |                                              |
| England . . . . .  | 5,408    | 3,881,000 | 14.0                                         |
| Scotland . . . . . | 1,124    | 499,000   | 22.5                                         |
| Ireland . . . . .  | 55       | 492,000   | 1.1                                          |
| U. Kingdom         | 6,587    | 4,872,000 | ...                                          |

The returns for England and Wales showed as follows :—

| Period             | Divorces | Annual<br>Average | Per Million<br>Population |
|--------------------|----------|-------------------|---------------------------|
| 1867-71 . . . . .  | 724      | 145               | 6.2                       |
| 1872-76 . . . . .  | 1,050    | 210               | 9.0                       |
| 1877-81 . . . . .  | 1,743    | 349               | 13.0                      |
| 1882-86 . . . . .  | 1,891    | 378               | 14.0                      |
| 20 Years . . . . . | 5,408    | 271               | 11.0                      |

The returns for Scotland were as follows :—

| Period             | Divorces | Annual<br>Average | Per Million<br>Population |
|--------------------|----------|-------------------|---------------------------|
| 1867-71 . . . . .  | 177      | 35                | 11.0                      |
| 1872-76 . . . . .  | 220      | 44                | 12.5                      |
| 1877-81 . . . . .  | 337      | 67                | 15.3                      |
| 1882-86 . . . . .  | 390      | 78                | 21.0                      |
| 20 years . . . . . | 1,124    | 56                | 15.0                      |

The returns for Ireland were as follows :—

| Period             | Divorces | Annual<br>Average | Per Million<br>Population |
|--------------------|----------|-------------------|---------------------------|
| 1867-71 . . . . .  | 4        | 1                 | 0.2                       |
| 1872-76 . . . . .  | 13       | 3                 | 0.6                       |
| 1877-81 . . . . .  | 21       | 4                 | 0.8                       |
| 1882-86 . . . . .  | 17       | 3                 | 0.6                       |
| 20 years . . . . . | 55       | 3                 | 0.5                       |

The number of divorces compared with marriages thus :—

| Period             | England and Wales |          |                                |
|--------------------|-------------------|----------|--------------------------------|
|                    | Marriages         | Divorces | Divorces per<br>1000 Marriages |
| 1867-71 . . . . .  | 905,000           | 724      | 0.8                            |
| 1872-76 . . . . .  | 1,012,000         | 1,050    | 1.0                            |
| 1877-81 . . . . .  | 955,000           | 1,743    | 1.8                            |
| 1882-86 . . . . .  | 1,009,000         | 1,891    | 1.9                            |
| 20 years . . . . . | 3,881,000         | 5,408    | 1.4                            |
| Period             | Scotland          |          |                                |
|                    | Marriages         | Divorces | Divorces per<br>1000 Marriages |
| 1867-71 . . . . .  | 115,000           | 177      | 1.5                            |
| 1872-76 . . . . .  | 131,000           | 220      | 1.7                            |
| 1877-81 . . . . .  | 125,000           | 337      | 2.7                            |
| 1882-86 . . . . .  | 128,000           | 390      | 3.1                            |
| 20 years . . . . . | 490,000           | 1,124    | 2.2                            |

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| Period         | Ireland   |          |                             |
|----------------|-----------|----------|-----------------------------|
|                | Marriages | Divorces | Divorces per 1000 Marriages |
| 1867-71 . . .  | 142,000   | 4        | 0.03                        |
| 1872-76 . . .  | 126,000   | 13       | 0.10                        |
| 1877-81 . . .  | 116,000   | 21       | 0.18                        |
| 1882-86 . . .  | 108,000   | 17       | 0.16                        |
| 20 years . . . | 492,000   | 55       | 0.11                        |

## UNITED KINGDOM

| Period   | Marriages | Divorces | Divorces per 1000 Marriages |
|----------|-----------|----------|-----------------------------|
| 1867-71  | 1,162,000 | 905      | 0.8                         |
| 1872-76  | 1,269,000 | 1,283    | 1.0                         |
| 1877-81  | 1,196,000 | 2,101    | 1.7                         |
| 1882-86  | 1,245,000 | 2,298    | 1.8                         |
| 20 years | 4,872,000 | 6,587    | 1.3                         |

## FRANCE

The number of divorces and judicial separations, according to Bertillon, compares with marriages thus :—

| Period   | Divorces | Marriages  | Per 10,000 Marriages | Divorce Yearly | Per Million Pop. |
|----------|----------|------------|----------------------|----------------|------------------|
| 1802-10  | 4,853    | 2,029,000  | 23                   | 539            | 20               |
| 1811-19  | 1,561    | 2,136,000  | 7                    | 173            | 6                |
| 1820-29  | 2,730    | 2,411,000  | 11                   | 273            | 9                |
| 1830-39  | 5,173    | 3,013,000  | 17                   | 470            | 14               |
| 1841-50  | 7,687    | 2,800,000  | 27                   | 769            | 22               |
| 1851-60  | 12,835   | 2,878,000  | 44                   | 1,284          | 35               |
| 1861-70  | 19,884   | 2,942,000  | 66                   | 1,988          | 52               |
| 1871-80  | 22,817   | 2,952,000  | 76                   | 2,282          | 60               |
| 1881-86  | 20,608   | 1,704,000  | 121                  | 3,435          | 90               |
| 85 years | 98,148   | 22,865,000 | 43                   | 1,154          | 38               |

The following table shows the number of petitions for divorce compared with the divorces granted from 1841 to 1880 :—

| Period  | Petitions | Granted | Ratio Granted per Cent. | Percentage of Application |         |
|---------|-----------|---------|-------------------------|---------------------------|---------|
|         |           |         |                         | By Husband                | By Wife |
| 1841-50 | 10,620    | 7,687   | 72                      | 7                         | 93      |
| 1851-60 | 17,210    | 12,835  | 74                      | 9                         | 91      |
| 1861-70 | 26,140    | 19,884  | 76                      | 11                        | 89      |
| 1871-80 | 29,550    | 22,817  | 77                      | 13                        | 87      |

The various causes alleged in petitions for divorce were :—

|               | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 40 Years |
|---------------|---------|---------|---------|---------|----------|
| Cruelty . . . | 9,720   | 15,690  | 24,840  | 28,500  | 78,750   |
| Adultery . .  | 655     | 1,170   | 1,005   | 735     | 3,565    |
| Various . . . | 245     | 350     | 295     | 315     | 1,205    |
| Total         | 10,620  | 17,210  | 26,140  | 29,550  | 83,520   |

In several cases there were double charges and cross-bills, which makes the above classification difficult.

Altogether the charges and cross-charges of adultery in forty years were as follows :—

| Period         | Alleged Adultery Committed by |       |       | Yearly Average |
|----------------|-------------------------------|-------|-------|----------------|
|                | Husband                       | Wife  | Total |                |
| 1841-50 . . .  | 565                           | 525   | 1,090 | 109            |
| 1851-60 . . .  | 910                           | 1,135 | 2,045 | 204            |
| 1861-70 . . .  | 870                           | 1,485 | 2,355 | 236            |
| 1871-80 . . .  | 870                           | 1,530 | 2,400 | 240            |
| 40 years . . . | 3,215                         | 4,675 | 7,890 | 197            |

The occupations of persons applying for divorce were :—

|               | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 40 Years |
|---------------|---------|---------|---------|---------|----------|
| Professions . | 3,245   | 4,280   | 4,900   | 4,890   | 17,315   |
| Merchants .   | 2,195   | 3,490   | 5,385   | 5,110   | 16,180   |
| Farmers . .   | 1,840   | 2,690   | 3,670   | 3,860   | 12,060   |
| Labourers .   | 2,380   | 6,050   | 10,550  | 13,015  | 31,995   |
| Various . .   | 960     | 700     | 1,635   | 2,675   | 5,970    |
| Total . . .   | 10,620  | 17,210  | 26,140  | 29,550  | 83,520   |

The condition of the parents, as to with or without children, was as follows :—

| Period         | Had Children | Had None | Not Known | Total  | Ratio with Children |
|----------------|--------------|----------|-----------|--------|---------------------|
| 1841-50 . . .  | 5,910        | 3,850    | 860       | 10,620 | 56                  |
| 1851-60 . . .  | 10,150       | 6,660    | 400       | 17,210 | 59                  |
| 1861-70 . . .  | 16,440       | 9,610    | 90        | 26,140 | 63                  |
| 1871-80 . . .  | 18,750       | 10,800   | ...       | 29,550 | 64                  |
| 40 years . . . | 51,250       | 30,920   | 1,350     | 83,520 | 62                  |

The number of marriages and that of divorces compared thus :—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1867-71 . . .  | 1,391,000 | 9,850    | 7.1                         |
| 1872-76 . . .  | 1,569,000 | 11,384   | 7.3                         |
| 1877-81 . . .  | 1,403,000 | 13,132   | 9.4                         |
| 1882-86 . . .  | 1,422,000 | 22,750   | 16.0                        |
| 20 years . . . | 5,785,000 | 57,116   | 9.9                         |

The French Government published a table of divorces granted in five years ending December 1889, in all 15,521, viz. :—

|                           | Number | Annual Average |
|---------------------------|--------|----------------|
| Paris . . . . .           | 4,607  | 921            |
| Towns . . . . .           | 7,047  | 1,410          |
| Rural districts . . . . . | 3,867  | 773            |
| Total . . . . .           | 15,521 | 3,104          |

The ages of the divorced persons in the said five years were :—

| Age                | Men    | Women  | Total  | Ratio |
|--------------------|--------|--------|--------|-------|
| Under 25 . . . . . | 198    | 1,313  | 1,511  | 4.9   |
| 25-35 . . . . .    | 3,926  | 6,096  | 10,022 | 32.2  |
| 35-40 . . . . .    | 3,669  | 3,155  | 6,824  | 22.0  |
| 40-50 . . . . .    | 4,696  | 3,331  | 8,027  | 25.9  |
| Over 50 . . . . .  | 3,032  | 1,626  | 4,658  | 15.0  |
| Total . . . . .    | 15,521 | 15,521 | 31,042 | 100.0 |

# DIVORCE

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# DIVORCE

|                      |        |                    |        |
|----------------------|--------|--------------------|--------|
| Petition by husband  | 8,621  | For adultery . . . | 6,980  |
| Petition by wife . . | 6,900  | Other causes . . . | 8,541  |
| Total . . .          | 15,521 | Total . . .        | 15,521 |

The returns for Paris in twenty years to December 1886 were :—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1867-71 . . .  | 69,000    | 2,148    | 31.1                        |
| 1872-76 . . .  | 96,000    | 2,733    | 28.4                        |
| 1877-81 . . .  | 96,000    | 3,177    | 33.0                        |
| 1882-86 . . .  | 103,000   | 3,228    | 31.3                        |
| 20 years . . . | 364,000   | 11,286   | 30.9                        |

In 1889 there were in France 23 divorces in 10,000 couples, and at Paris 100. The mean duration of the dissolved marriages was 15 years in 1884, and fell to 13 years in 1889.

## GERMANY

The returns are incomplete, and may be summed up thus :—

|                  | 1867-71 | 1872-76 | 1877-81 | 1882-86 | 20 Years |
|------------------|---------|---------|---------|---------|----------|
| Prussia . . .    | ...     | ...     | ...     | 17,450  | ...      |
| Bavaria . . .    | 1,400   | 1,170   | ...     | 1,189   | ...      |
| Saxony . . .     | 2,342   | 3,234   | 3,535   | 4,526   | 13,637   |
| Wurtemberg . .   | 518     | 593     | 609     | 707     | 2,427    |
| Baden . . .      | 170     | 305     | 396     | 522     | 1,393    |
| Hesse . . .      | 159     | 189     | 225     | 321     | 894      |
| Alsace . . .     | ...     | ...     | 398     | 629     | ...      |
| Hamburg . . .    | ...     | ...     | ...     | 1,115   | ...      |
| Other States . . | ...     | ...     | ...     | 2,681   | ...      |
| Total . . .      | ...     | ...     | ...     | 29,140  | ...      |

If the ratio for Prussia be supposed to have been the same as regards the whole of Germany in previous periods as in the years 1882-86, namely, 60 per cent., and the minor States, for which we have no returns, in like manner, the whole number of divorces for Germany will stand thus :—

|                  | 1867-71 | 1872-76 | 1877-81 | 1882-86 | 20 Years |
|------------------|---------|---------|---------|---------|----------|
| Prussia . . .    | 11,070  | 13,251  | 14,486  | 17,450  | 56,257   |
| Bavaria . . .    | 1,400   | 1,170   | 1,253   | 1,189   | 5,012    |
| Saxony . . .     | 2,342   | 3,234   | 3,535   | 4,526   | 13,637   |
| Wurtemberg . .   | 518     | 593     | 609     | 707     | 2,427    |
| Baden . . .      | 170     | 305     | 396     | 522     | 1,393    |
| Small States . . | 2,950   | 3,532   | 3,864   | 4,746   | 15,092   |
| Total . . .      | 18,450  | 22,085  | 24,143  | 29,140  | 93,818   |

According to the Census of 1880, the number and ratio of divorced persons living in the various States was as follows :—

|                | Number | Per 100,000 Inhabitants |               | Number | Per 100,000 Inhabitants |
|----------------|--------|-------------------------|---------------|--------|-------------------------|
| Prussia . . .  | 37,162 | 135                     | Baden . . .   | 825    | 55                      |
| Saxony . . .   | 8,121  | 270                     | Hesse . . .   | 612    | 65                      |
| Wurtemberg . . | 3,637  | 184                     | Brunswick . . | 558    | 160                     |
| Bavaria . . .  | 3,108  | 60                      | Weimar . . .  | 589    | 190                     |
| Hamburg . . .  | 2,883  | 634                     | Various . . . | 3,208  | 107                     |
| Alsace . . .   | 1,359  | 85                      | All Germany   | 62,062 | 136                     |

The comparison between marriages and divorces in the various States during the five years ending 1886 showed thus :—

|                 | Marriages | Divorces | Divorces per 1000 Marriages |
|-----------------|-----------|----------|-----------------------------|
| Prussia . . . . | 1,126,000 | 17,450   | 15.5                        |
| Bavaria . . . . | 204,000   | 1,189    | 5.9                         |
| Saxony . . . .  | 142,000   | 4,526    | 32.0                        |
| Wurtemberg . .  | 64,000    | 707      | 11.0                        |
| Baden . . . .   | 53,000    | 522      | 9.8                         |
| Hesse . . . .   | 34,000    | 321      | 9.4                         |
| Alsace . . . .  | 52,000    | 629      | 12.1                        |
| Hamburg . . . . | 22,000    | 1,115    | 50.7                        |
| Various . . . . | 109,000   | 2,681    | 24.5                        |
| Total . . . .   | 1,806,000 | 29,140   | 16.2                        |

The following table compares marriages and divorces for all Germany :—

| Period           | Marriages | Divorces | Divorces per 1000 Marriages |
|------------------|-----------|----------|-----------------------------|
| 1867-71 . . . .  | 1,756,000 | 18,450   | 10.5                        |
| 1872-76 . . . .  | 1,994,000 | 22,085   | 11.0                        |
| 1877-81 . . . .  | 1,701,000 | 24,143   | 14.2                        |
| 1882-86 . . . .  | 1,805,000 | 29,140   | 16.2                        |
| 20 years . . . . | 7,256,000 | 93,818   | 13.0                        |

At Berlin the number of marriages and of divorces in twenty years showed as follows :—

| Period           | Marriages | Divorces | Divorces per 1000 Marriages |
|------------------|-----------|----------|-----------------------------|
| 1867-71 . . . .  | 42,000    | 1,988    | 47.0                        |
| 1872-76 . . . .  | 64,000    | 2,360    | 36.8                        |
| 1877-81 . . . .  | 53,000    | 2,574    | 48.5                        |
| 1882-86 . . . .  | 66,000    | 3,830    | 58.1                        |
| 20 years . . . . | 225,000   | 10,752   | 47.7                        |

Berlin divorces in the five years ending 1884 showed thus :—

| <i>Cause</i>     | <i>Husband's Occupation</i> | <i>Religion</i>    |                     |
|------------------|-----------------------------|--------------------|---------------------|
| Adultery . . .   | 1,071                       | Merchants . . 688  | Protestants . 2,585 |
| Desertion . .    | 817                         | Artisans . . 1,033 | Catholics . . 64    |
| Mutual consent } | 746                         | Labourers . . 713  | Jews . . . 97       |
| Various . . .    | 533                         | Various . . . 733  | Various . . . 421   |
| Total . . .      | 3,167                       | Total . . .        | 3,167               |

Of the above couples 45 per cent. had children, 55 per cent. had none.

Returns for Saxony, covering 14 years down to 1879, give the mean duration of marriages dissolved by divorce as follows :—

| Years         | Number | Ratio | Cause     | 13 Years |
|---------------|--------|-------|-----------|----------|
| Under 5 . . . | 2,737  | 33.7  | Adultery  | 2,571    |
| 5-10 . . . .  | 2,454  | 30.2  | Desertion | 2,273    |
| 10-20 . . . . | 2,289  | 28.2  | Cruelty   | 1,807    |
| Over 20 . . . | 636    | 7.9   | Various   | 774      |
| Total . . . . | 8,116  | 100.0 | Total     | 7,425    |

# DIVORCE

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# DIVORCE

## ITALY

The returns for 14 years ending 1879 may be summed up thus:—

| Petition by         | Cause                 | Result                 |
|---------------------|-----------------------|------------------------|
| Husband . . . 1,269 | Cruelty . . . 4,462   | Granted . . . 6,056    |
| Wife . . . 4,945    | Desertion . . . 1,835 | Withdrawn . . . 4,173  |
| Both . . . 5,217    | Adultery . . . 982    | Disallowed . . . 1,202 |
|                     | Various . . . 4,152   |                        |
| Total . . . 11,431  | Total . . . 11,431    | Total . . . 11,431     |

Marriages and divorces compared as follows:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1869-73 . . .  | 1,004,000 | 3,141    | 3.1                         |
| 1879-81 . . .  | 640,000   | 1,917    | 3.0                         |
| 1882-85 . . .  | 929,000   | 1,632    | 1.7                         |
| 12 years . . . | 2,573,000 | 6,690    | 2.5                         |

## AUSTRIA

Marriages and divorces compared as follows:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1872-76 . . .  | 932,000   | 690      | 0.7                         |
| 1877-81 . . .  | 839,000   | 808      | 1.0                         |
| 1882-86 . . .  | 893,000   | 856      | 1.0                         |
| 15 years . . . | 2,664,000 | 2,354    | 0.9                         |

The returns for Vienna showed as follows:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1872-76 . . .  | 33,000    | 689      | 21                          |
| 1877-81 . . .  | 27,000    | 708      | 26                          |
| 1882-86 . . .  | 33,000    | 1,069    | 32                          |
| 15 years . . . | 93,000    | 2,466    | 26                          |

## HUNGARY

Marriages and divorces compared as follows:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1877-81 . . .  | 754,000   | 5,246    | 7.0                         |
| 1882-86 . . .  | 825,000   | 4,835    | 5.9                         |
| 10 years . . . | 1,579,000 | 10,081   | 6.4                         |

The returns for Buda-Pesth showed thus:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1877-81 . . .  | 13,000    | 91       | 7.0                         |
| 1882-86 . . .  | 19,000    | 129      | 6.8                         |
| 10 years . . . | 32,000    | 220      | 6.9                         |

## ROUMANIA

The returns are to the following effect:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1871-75 . . .  | 157,000   | 1,560    | 9.9                         |
| 1876-80 . . .  | 182,000   | 1,932    | 10.6                        |
| 10 years . . . | 339,000   | 3,492    | 10.3                        |

## RUSSIA

The returns of marriages and divorces in the Greek Church were as follows:—

| Period         | Marriages  | Divorces | Divorces per 1000 Marriages |
|----------------|------------|----------|-----------------------------|
| 1867-71 . . .  | 2,832,000  | 3,910    | 1.4                         |
| 1872-76 . . .  | 3,031,000  | 4,322    | 1.4                         |
| 1877-81 . . .  | 2,846,000  | 4,705    | 1.7                         |
| 1882-86 . . .  | 3,111,000  | 5,474    | 1.8                         |
| 20 years . . . | 11,820,000 | 18,411   | 1.5                         |

Those in the Protestant congregations were as follows:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1867-71 . . .  | 104,000   | 687      | 6.5                         |
| 1872-76 . . .  | 116,000   | 773      | 6.7                         |
| 1877-81 . . .  | 115,000   | 778      | 6.8                         |
| 1882-86 . . .  | 129,000   | 870      | 6.7                         |
| 20 years . . . | 464,000   | 3,108    | 6.7                         |

The returns for Poland showed as follows:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1867-71 . . .  | 176,000   | 809      | 4.6                         |
| 1872-76 . . .  | 208,000   | 1,073    | 5.2                         |
| 1877-81 . . .  | 262,000   | 1,432    | 5.5                         |
| 1882-86 . . .  | 308,000   | 1,725    | 5.6                         |
| 20 years . . . | 954,000   | 5,039    | 5.3                         |

The returns for Finland are as follows:—

| Period        | Marriages | Divorces | Divorces per 1000 Marriages |
|---------------|-----------|----------|-----------------------------|
| 1877-81 . . . | 76,000    | 238      | 3.2                         |
| 1882-86 . . . | 81,000    | 219      | 2.7                         |

The gross total for European Russia was as follows:—

| Period         | Marriages  | Divorces | Divorces per 1000 Marriages |
|----------------|------------|----------|-----------------------------|
| 1867-71 . . .  | 3,112,000  | 5,406    | 1.7                         |
| 1872-76 . . .  | 3,355,000  | 6,168    | 1.8                         |
| 1877-81 . . .  | 3,299,000  | 7,153    | 2.2                         |
| 1882-86 . . .  | 3,629,000  | 8,288    | 2.3                         |
| 20 years . . . | 13,395,000 | 27,015   | 2.0                         |

The causes for divorces granted in the Greek Church were:—

|               | 1866-75 | 1876-85 | 20 Years | Ratio |
|---------------|---------|---------|----------|-------|
| Adultery . .  | 426     | 1,302   | 1,728    | 9.3   |
| Exile . . .   | 1,541   | 2,745   | 4,286    | 23.2  |
| Disappearance | 5,872   | 5,606   | 11,478   | 62.3  |
| Sterility . . | 70      | 178     | 248      | 1.3   |
| Consanguinity | 100     | 85      | 185      | 1.0   |
| Bigamy . . .  | 223     | 304     | 527      | 2.9   |
| Total . . .   | 8,232   | 10,220  | 18,452   | 100.0 |

Marriages and divorces in Poland, according to creed, were :—

|                   | Marriages |         |         | Divorces |         |       | Divorces per 1000 Marriages |         |       |
|-------------------|-----------|---------|---------|----------|---------|-------|-----------------------------|---------|-------|
|                   | 1867-76   | 1877-86 | Total   | 1867-76  | 1877-86 | Total | 1867-76                     | 1877-86 | Total |
| Roman Catholics . | 343,000   | 501,000 | 844,000 | 330      | 340     | 670   | 1.0                         | 0.7     | 0.8   |
| Protestants . . . | 30,000    | 37,000  | 67,000  | 170      | 205     | 375   | 5.7                         | 5.5     | 5.6   |
| Jews, &c. . . .   | 11,000    | 32,000  | 43,000  | 1,382    | 2,612   | 3,994 | 125.6                       | 81.5    | 92.8  |
| Total . . .       | 384,000   | 570,000 | 954,000 | 1,882    | 3,157   | 5,039 | 4.9                         | 5.5     | 5.3   |

DENMARK

The returns are as follows :—

| Period   | Marriages | Divorces | Divorces per 1000 Marriages |
|----------|-----------|----------|-----------------------------|
| 1871-76  | 89,000    | 3,156    | 35.3                        |
| 1877-81  | 75,000    | 3,046    | 40.6                        |
| 11 Years | 164,000   | 6,202    | 37.5                        |

NORWAY

The returns of marriages and divorces show thus :—

| Period   | Marriages | Divorces | Divorces per 1000 Marriages |
|----------|-----------|----------|-----------------------------|
| 1872-76  | 67,000    | 162      | 2.4                         |
| 1877-81  | 65,000    | 195      | 3.0                         |
| 1882-84  | 39,000    | 120      | 3.1                         |
| 13 Years | 171,000   | 477      | 2.8                         |

SWEDEN

The number of marriages and of divorces was as follows :—

| Period   | Marriages | Divorces | Divorces per 1000 Marriages |
|----------|-----------|----------|-----------------------------|
| 1867-71  | 124,000   | 619      | 5.0                         |
| 1872-76  | 154,000   | 953      | 6.2                         |
| 1877-81  | 146,000   | 1,053    | 7.2                         |
| 1882-86  | 149,000   | 1,109    | 7.4                         |
| 20 years | 573,000   | 3,734    | 6.5                         |

The returns for Stockholm were as follows :—

| Period   | Marriages | Divorces | Divorces per 1000 Marriages |
|----------|-----------|----------|-----------------------------|
| 1867-71  | 4,810     | 146      | 30.2                        |
| 1872-76  | 6,930     | 190      | 27.4                        |
| 1877-81  | 7,512     | 285      | 38.0                        |
| 1882-86  | 9,280     | 306      | 32.8                        |
| 20 years | 28,532    | 927      | 32.5                        |

The causes of divorce in Sweden were as follows :—

| Causes            | Number | Ratio |
|-------------------|--------|-------|
| Adultery . . . .  | 537    | 14.4  |
| Desertion . . . . | 2,195  | 58.6  |
| Various . . . . . | 1,002  | 27.0  |
| Total . . . . .   | 3,734  | 100.0 |

The above is the aggregate for twenty years ending 1886.

BELGIUM

The number of marriages and of divorces was as follows :—

| Period   | Marriages | Divorces | Divorces per 1000 Marriages |
|----------|-----------|----------|-----------------------------|
| 1831-40  | 302,000   | 135      | 0.4                         |
| 1841-50  | 290,000   | 224      | 0.8                         |
| 1851-60  | 335,000   | 412      | 1.2                         |
| 1861-70  | 363,000   | 866      | 2.4                         |
| 1871-80  | 389,000   | 1,923    | 4.9                         |
| 1881-86  | 237,000   | 1,785    | 7.5                         |
| 56 years | 1,916,000 | 5,345    | 2.8                         |

In order to compare Belgium with the other countries in the twenty years ending 1886, the following table will be useful :—

| Period             | Marriages | Divorces | Divorces per 1000 Marriages |
|--------------------|-----------|----------|-----------------------------|
| 1867-71 . . . . .  | 185,000   | 620      | 3.4                         |
| 1872-76 . . . . .  | 198,000   | 899      | 4.5                         |
| 1877-81 . . . . .  | 192,000   | 1,189    | 6.2                         |
| 1882-86 . . . . .  | 197,000   | 1,501    | 7.6                         |
| 20 years . . . . . | 772,000   | 4,209    | 5.5                         |

By the Census of 1880 it appeared that 43 persons per 100,000 of the population were divorced, viz., 1028 men and 1347 women. The growth of divorce, especially in cities, appears as follows; the Belgian cities included below are Brussels, Antwerp, Ghent, and Liege :—

| Year | Cities    |          |                             | All Belgium |          |                             |
|------|-----------|----------|-----------------------------|-------------|----------|-----------------------------|
|      | Marriages | Divorces | Divorces per 1000 Marriages | Marriages   | Divorces | Divorces per 1000 Marriages |
| 1870 | 4,735     | 41       | 8.9                         | 35,300      | 81       | 2.3                         |
| 1875 | 5,337     | 64       | 12.0                        | 39,050      | 126      | 3.2                         |
| 1880 | 5,219     | 102      | 19.6                        | 38,900      | 214      | 5.5                         |
| 1885 | 5,503     | 129      | 23.5                        | 39,900      | 230      | 5.8                         |

HOLLAND

Marriages and divorces during twenty years were thus :—

| Period             | Marriages | Divorces | Divorces per 1000 Marriages |
|--------------------|-----------|----------|-----------------------------|
| 1867-71 . . . . .  | 144,000   | 699      | 4.8                         |
| 1872-76 . . . . .  | 157,000   | 811      | 5.2                         |
| 1877-81 . . . . .  | 153,000   | 1,161    | 7.6                         |
| 1882-86 . . . . .  | 150,000   | 1,571    | 10.5                        |
| 20 years . . . . . | 604,000   | 4,242    | 7.0                         |

SWITZERLAND

The marriages and divorces were as follows :—

| Period             | Marriages | Divorces | Divorces per 1000 Marriages |
|--------------------|-----------|----------|-----------------------------|
| 1877-81 . . . . .  | 101,000   | 4,811    | 47.6                        |
| 1882-86 . . . . .  | 100,000   | 4,588    | 45.9                        |
| 10 years . . . . . | 201,000   | 9,399    | 46.7                        |

The returns of age were in 1880 as follows :—

| Years              | Husband | Wife | Total | Ratio |
|--------------------|---------|------|-------|-------|
| Under 30 . . . . . | 144     | 217  | 361   | 21.1  |
| 30-40 . . . . .    | 302     | 287  | 589   | 34.5  |
| 40-50 . . . . .    | 211     | 178  | 389   | 22.7  |
| Over 50 . . . . .  | 199     | 174  | 373   | 21.7  |
| Total . . . . .    | 856     | 856  | 1,712 | 100.0 |

The occupations of persons divorced are shown thus :—

|                          | Per Million Inhabitants |
|--------------------------|-------------------------|
| Agriculturists . . . . . | 190                     |
| Mechanics . . . . .      | 510                     |
| Merchants . . . . .      | 620                     |

The duration of marriage was as follows :—

| Years             | Marriages | Ratio |
|-------------------|-----------|-------|
| Under 2 . . . . . | 81        | 9.5   |
| 2-5 . . . . .     | 220       | 25.4  |
| 5-10 . . . . .    | 230       | 27.0  |
| 10-20 . . . . .   | 235       | 27.6  |
| Over 20 . . . . . | 90        | 10.5  |
| Total . . . . .   | 856       | 100.0 |

Youthful marriages seem most exposed to divorce, the ratios being as follows :—

| Marrying Age       | Divorces per 10,000 Marriages |
|--------------------|-------------------------------|
| Under 20 . . . . . | 620                           |
| 20-40 . . . . .    | 330                           |
| Over 40 . . . . .  | 320                           |

UNITED STATES

The following table compares marriages with divorces in the only States in which the former are fully reported, viz. :—Connecticut, District of Columbia, Massachusetts, Ohio, Rhode Island, and Vermont :—

| Period              | Aggregate of Six States |          |                             |
|---------------------|-------------------------|----------|-----------------------------|
|                     | Marriages               | Divorces | Divorces per 1000 Marriages |
| 1867-71 . . . . .   | 258,000                 | 10,753   | 41                          |
| 1872-76 . . . . .   | 261,000                 | 12,577   | 48                          |
| 1877-81 . . . . .   | 263,000                 | 13,929   | 53                          |
| 1882-86 . . . . .   | 296,000                 | 16,308   | 55                          |
| 20 years* . . . . . | 1,078,000               | 53,567   | 50                          |

\* The ratio of divorces to marriages in the United States may be estimated from the above six States, which, during twenty years, had a marriage-rate of 9 per 1000 inhabitants.

The several States in their aggregate returns for twenty years showed as follows :—

|                                | Marriages | Divorces | Divorces per 1000 Marriages |
|--------------------------------|-----------|----------|-----------------------------|
| Connecticut . . . . .          | 97,000    | 8,542    | 88                          |
| District of Columbia . . . . . | 24,000    | 1,105    | 45                          |
| Massachusetts . . . . .        | 308,000   | 9,853    | 32                          |
| Ohio . . . . .                 | 544,000   | 26,367   | 48                          |
| Rhode Island . . . . .         | 50,000    | 4,462    | 89                          |
| Vermont . . . . .              | 55,000    | 3,238    | 59                          |
| Total . . . . .                | 1,078,000 | 53,567   | 50                          |

The number of divorces yearly compared with the mean population of the great sections of the United States was approximately as follows :—

| States               | Divorces Yearly per 100,000 Population |         |         |         |          |
|----------------------|----------------------------------------|---------|---------|---------|----------|
|                      | 1867-71                                | 1872-76 | 1877-81 | 1882-86 | 20 Years |
| N. England . . . . . | 52                                     | 54      | 53      | 52      | 53       |
| Middle . . . . .     | 17                                     | 15      | 16      | 19      | 17       |
| South . . . . .      | 13                                     | 17      | 24      | 31      | 24       |
| West . . . . .       | 43                                     | 50      | 54      | 65      | 60       |
| The Union . . . . .  | 30                                     | 32      | 35      | 42      | 36       |

The figures for twenty years will, therefore, stand thus :—

| Period             | Marriages | Divorces | Divorces per 1000 Marriages |
|--------------------|-----------|----------|-----------------------------|
| 1867-71 . . . . .  | 1,710,000 | 53,574   | 31.3                        |
| 1872-76 . . . . .  | 1,980,000 | 68,547   | 34.6                        |
| 1877-81 . . . . .  | 2,210,000 | 89,284   | 40.4                        |
| 1882-86 . . . . .  | 2,430,000 | 117,311  | 48.3                        |
| 20 years . . . . . | 8,330,000 | 328,716  | 39.5                        |

The causes for divorces granted were as follows :—

| Cause                 | Summary of Divorces Granted |         |         | Ratio |
|-----------------------|-----------------------------|---------|---------|-------|
|                       | To Husband                  | To Wife | Total   |       |
| Adultery . . . . .    | 38,184                      | 29,502  | 67,686  | 20.6  |
| Cruelty . . . . .     | 6,122                       | 45,473  | 51,595  | 15.7  |
| Desertion . . . . .   | 51,485                      | 75,191  | 126,676 | 38.5  |
| Drunkenness . . . . . | 1,434                       | 12,432  | 13,866  | 4.3   |
| Neglect . . . . .     | 7,426                       | 40,374  | 47,800  | 14.5  |
| Various . . . . .     | 7,889                       | 13,204  | 21,093  | 6.4   |
| Total . . . . .       | 112,540                     | 216,176 | 328,716 | 100.0 |

The average duration of marriage before divorce was :—

| Cause                 | Years of Marriage before Divorce Granted |         |       |
|-----------------------|------------------------------------------|---------|-------|
|                       | To Husband                               | To Wife | Total |
| Adultery . . . . .    | 7.8                                      | 9.5     | 8.6   |
| Cruelty . . . . .     | 9.8                                      | 9.2     | 9.3   |
| Desertion . . . . .   | 9.8                                      | 9.2     | 9.4   |
| Drunkenness . . . . . | 10.9                                     | 11.0    | 11.0  |
| Neglect . . . . .     | 8.7                                      | 9.3     | 9.2   |
| Various . . . . .     | 7.6                                      | 7.2     | 7.4   |
| All causes . . . . .  | 9.0                                      | 9.3     | 9.2   |



# DIVORCE

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# DIVORCE

The number of divorces compared with the medium population of each State in 1870-80 thus :—

|                                | Number of Divorces |               |               |                |                | Yearly Average per 100,000 Pop. |
|--------------------------------|--------------------|---------------|---------------|----------------|----------------|---------------------------------|
|                                | 1867-71            | 1871-76       | 1877-81       | 1881-86        | Twenty Years   |                                 |
| Maine . . . . .                | 1,948              | 2,101         | 2,511         | 1,852          | 8,412          | 67                              |
| New Hampshire . . . . .        | 781                | 1,173         | 1,392         | 1,633          | 4,979          | 75                              |
| Vermont . . . . .              | 830                | 851           | 798           | 759            | 3,238          | 50                              |
| Rhode Island . . . . .         | 938                | 1,030         | 1,197         | 1,297          | 4,462          | 89                              |
| Connecticut . . . . .          | 2,314              | 2,319         | 1,923         | 1,986          | 8,542          | 74                              |
| Massachusetts . . . . .        | 1,781              | 2,448         | 2,624         | 3,000          | 9,853          | 30                              |
| <b>New England . . . . .</b>   | <b>8,592</b>       | <b>9,922</b>  | <b>10,445</b> | <b>10,527</b>  | <b>39,486</b>  | <b>53</b>                       |
| New York . . . . .             | 3,755              | 3,224         | 3,617         | 4,759          | 15,355         | 16                              |
| New Jersey . . . . .           | 390                | 528           | 652           | 1,072          | 2,642          | 13                              |
| Pennsylvania . . . . .         | 3,158              | 3,325         | 4,117         | 5,420          | 16,020         | 21                              |
| Delaware . . . . .             | 69                 | 43            | 83            | 94             | 289            | 10                              |
| District of Columbia . . . . . | 161                | 318           | 294           | 332            | 1,105          | 37                              |
| Maryland . . . . .             | 425                | 465           | 495           | 800            | 2,185          | 13                              |
| <b>Middle . . . . .</b>        | <b>7,958</b>       | <b>7,903</b>  | <b>9,258</b>  | <b>12,477</b>  | <b>37,596</b>  | <b>17</b>                       |
| Virginia (2) . . . . .         | 758                | 932           | 1,435         | 2,065          | 5,190          | 14                              |
| North Carolina . . . . .       | 130                | 266           | 364           | 578            | 1,338          | 5                               |
| South Carolina . . . . .       | 6                  | 92            | 65            | ...            | 163            | 1                               |
| Georgia . . . . .              | 587                | 893           | 1,025         | 1,454          | 3,959          | 15                              |
| Florida . . . . .              | 198                | 340           | 625           | 965            | 2,128          | 48                              |
| Alabama . . . . .              | 479                | 752           | 1,502         | 2,471          | 5,204          | 23                              |
| Mississippi . . . . .          | 373                | 858           | 1,506         | 2,303          | 5,040          | 25                              |
| Louisiana . . . . .            | 173                | 319           | 446           | 759            | 1,697          | 10                              |
| Texas . . . . .                | 699                | 1,547         | 3,338         | 5,888          | 11,472         | 48                              |
| Arkansas . . . . .             | 562                | 846           | 1,947         | 2,686          | 6,041          | 48                              |
| Kentucky . . . . .             | 1,726              | 2,242         | 2,845         | 3,435          | 10,248         | 34                              |
| Tennessee . . . . .            | 1,415              | 1,954         | 2,838         | 3,418          | 9,625          | 34                              |
| <b>South . . . . .</b>         | <b>7,106</b>       | <b>11,041</b> | <b>17,936</b> | <b>26,022</b>  | <b>62,105</b>  | <b>24</b>                       |
| Ohio . . . . .                 | 4,729              | 5,611         | 7,093         | 8,934          | 26,367         | 46                              |
| Illinois . . . . .             | 5,803              | 8,516         | 9,702         | 12,051         | 36,072         | 64                              |
| Missouri . . . . .             | 2,281              | 3,220         | 4,073         | 5,704          | 15,278         | 38                              |
| Indiana . . . . .              | 5,741              | 5,089         | 6,523         | 7,840          | 25,193         | 67                              |
| Iowa . . . . .                 | 2,838              | 3,509         | 4,614         | 5,603          | 16,564         | 59                              |
| Michigan . . . . .             | 2,635              | 3,783         | 5,492         | 6,523          | 18,433         | 66                              |
| Wisconsin . . . . .            | 2,006              | 2,146         | 2,484         | 3,352          | 9,988          | 42                              |
| Minnesota . . . . .            | 403                | 659           | 918           | 1,643          | 3,623          | 30                              |
| Kansas . . . . .               | 725                | 1,293         | 1,891         | 3,282          | 7,191          | 52                              |
| Nebraska . . . . .             | 151                | 391           | 818           | 1,674          | 3,034          | 50                              |
| Colorado . . . . .             | 80                 | 338           | 1,005         | 2,264          | 3,687          | 152                             |
| California . . . . .           | 1,288              | 2,553         | 3,400         | 4,877          | 12,118         | 87                              |
| Oregon . . . . .               | 369                | 448           | 759           | 1,033          | 2,609          | 98                              |
| Utah . . . . .                 | 387                | 1,387         | 1,594         | 710            | 4,078          | 170                             |
| Nevada, Dakota, &c. . . . .    | 482                | 738           | 1,279         | 2,795          | 5,294          | ...                             |
| <b>West . . . . .</b>          | <b>29,918</b>      | <b>39,681</b> | <b>51,645</b> | <b>68,285</b>  | <b>189,529</b> | <b>60</b>                       |
| <b>Total . . . . .</b>         | <b>53,574</b>      | <b>68,547</b> | <b>89,284</b> | <b>117,311</b> | <b>328,716</b> | <b>36</b>                       |

The number of married couples and that of divorces in certain States and cities were as follows :—

| States                  | Estimated Married Couples |                  | Divorces     |              | Divorces per 100,000 Couples |            |
|-------------------------|---------------------------|------------------|--------------|--------------|------------------------------|------------|
|                         |                           |                  |              |              |                              |            |
|                         | 1870                      | 1880             | 1870         | 1880         | 1870                         | 1880       |
| New York . . . . .      | 828,000                   | 961,000          | 731          | 834          | 88                           | 87         |
| Pennsylvania . . . . .  | 666,000                   | 809,000          | 623          | 951          | 93                           | 114        |
| Massachusetts . . . . . | 275,000                   | 337,000          | 404          | 595          | 147                          | 178        |
| Illinois . . . . .      | 480,000                   | 582,000          | 1,178        | 2,139        | 245                          | 369        |
| Ohio . . . . .          | 504,000                   | 601,000          | 992          | 1,553        | 197                          | 259        |
| Maryland . . . . .      | 148,000                   | 177,000          | 84           | 128          | 56                           | 72         |
| Louisiana . . . . .     | 137,000                   | 178,000          | 30           | 109          | 22                           | 61         |
| Missouri . . . . .      | 325,000                   | 410,000          | 491          | 930          | 152                          | 227        |
| California . . . . .    | 106,000                   | 163,000          | 298          | 683          | 280                          | 410        |
| <b>9 States</b>         | <b>3,469,000</b>          | <b>4,218,000</b> | <b>4,831</b> | <b>7,922</b> | <b>140</b>                   | <b>187</b> |

| Cities                  | Estimated Married Couples |                | Divorces     |              | Divorces per 100,000 Couples |            |
|-------------------------|---------------------------|----------------|--------------|--------------|------------------------------|------------|
|                         |                           |                |              |              |                              |            |
|                         | 1870                      | 1880           | 1870         | 1880         | 1870                         | 1880       |
| New York . . . . .      | 178,000                   | 228,000        | 265          | 227          | 150                          | 100        |
| Philadelphia . . . . .  | 127,000                   | 160,000        | 124          | 194          | 97                           | 121        |
| Boston . . . . .        | 51,000                    | 73,000         | 113          | 156          | 223                          | 214        |
| Baltimore . . . . .     | 51,000                    | 63,000         | 60           | 98           | 118                          | 156        |
| Washington . . . . .    | 25,000                    | 34,000         | 39           | 66           | 156                          | 194        |
| New Orleans . . . . .   | 36,000                    | 41,000         | 15           | 38           | 42                           | 93         |
| St. Louis . . . . .     | 59,000                    | 66,000         | 155          | 241          | 263                          | 365        |
| San Francisco . . . . . | 28,000                    | 44,000         | 87           | 242          | 311                          | 550        |
| Brooklyn . . . . .      | 79,000                    | 113,000        | 54           | 111          | 68                           | 98         |
| Cleveland . . . . .     | 25,000                    | 37,000         | 114          | 168          | 456                          | 454        |
| Memphis . . . . .       | 14,000                    | 15,000         | 26           | 61           | 186                          | 406        |
| Milwaukee . . . . .     | 17,000                    | 26,000         | 57           | 104          | 335                          | 400        |
| <b>12 cities</b>        | <b>690,000</b>            | <b>600,000</b> | <b>1,109</b> | <b>1,706</b> | <b>160</b>                   | <b>190</b> |

## CANADA

The number of marriages is not known, but if we assume the medium rate of 8 per 1000 inhabitants (as compared with 7½ in Australia and 9 in the United States), the record will stand thus:—

| Period         | Marriages | Divorces | Divorces per 1000 Marriages |
|----------------|-----------|----------|-----------------------------|
| 1867-71 . . .  | 31,000    | 15       | 0.5                         |
| 1872-76 . . .  | 33,000    | 16       | 0.5                         |
| 1877-81 . . .  | 35,000    | 33       | 0.9                         |
| 1882-86 . . .  | 37,000    | 52       | 1.4                         |
| 20 years . . . | 136,000   | 116      | 0.9                         |

## AUSTRALIA

The returns for five years ending 1888 were as follows:—

| Colony             | Marriages | Divorces | Divorces per 1000 Marriages |
|--------------------|-----------|----------|-----------------------------|
| New South Wales .  | 38,400    | 135      | 3.5                         |
| Victoria . . .     | 34,000    | 93       | 2.7                         |
| Queensland . . .   | 12,500    | 8        | 0.6                         |
| South Australia .  | 12,400    | 115      | 9.3                         |
| New Zealand . . .  | 20,100    | 72       | 3.6                         |
| Tasmania . . .     | 5,500     | 12       | 2.2                         |
| West Australia . . | 1,500     | 2        | 1.4                         |
| Total . . .        | 124,400   | 437      | 3.5                         |

## DOCKS AND HARBOURS

The sums spent on docks and harbours in recent years are as follows:—

|                  | £         |                   | £          |
|------------------|-----------|-------------------|------------|
| Alexandria . . . | 2,550,000 | Glasgow . . .     | 7,600,000  |
| Amsterdam . . .  | 2,600,000 | Hamburg . . .     | 5,500,000  |
| Antwerp . . .    | 6,800,000 | Havre . . .       | 6,400,000  |
| Bordeaux . . .   | 1,700,000 | Holyhead . . .    | 2,000,000  |
| Boulogne . . .   | 1,200,000 | Hull . . .        | 1,200,000  |
| Bremen . . .     | 1,800,000 | Liverpool . . .   | 18,200,000 |
| Bristol . . .    | 900,000   | London . . .      | 20,100,000 |
| Calais . . .     | 1,500,000 | Marseilles . . .  | 3,400,000  |
| Cette . . .      | 1,800,000 | Plymouth . . .    | 1,550,000  |
| Cherbourg . . .  | 3,500,000 | Rotterdam . . .   | 2,400,000  |
| Dieppe . . .     | 1,200,000 | St. Nazaire . . . | 1,800,000  |
| Dundee . . .     | 800,000   | Trieste . . .     | 1,100,000  |
| Dunkirk . . .    | 4,600,000 |                   |            |

The area under docks and average dues are:—

|                 | Docks, Acres | Dock-Dues on Vessels of 1000 Tons |
|-----------------|--------------|-----------------------------------|
| London . . .    | 690          | £125                              |
| Liverpool . . . | 560          | 133                               |
| Antwerp . . .   | 105          | 93                                |
| Cardiff . . .   | 113          | ...                               |
| Trieste . . .   | 86           | ...                               |

The largest lock in the world is that of Cardiff, 600 feet long by 80 feet in width; ordinary depth of water, 36 feet.

Dock-dues in Hamburg for a vessel of 1000 tons would be £110, in Amsterdam £81. As regards length of quay-wall, Marseilles has 8 miles, Amsterdam 7, Antwerp 7, Trieste 3, Rotterdam 3, Genoa 2.

As regards warehouses, Marseilles has 20 acres, Trieste 7, Genoa 4. Depth of water in docks, 60 feet at Antwerp, 36 at Cardiff, 30 at Trieste, 25 at Amsterdam. The new dock at Barry, in the Bristol Channel, covers 70 acres, depth of water 34 feet.

The following table shows the depth of water and mileage of quay-wall at the principal French ports:—

|                  | Feet, Water | Quay, Miles |                   | Feet, Water | Quay, Miles |
|------------------|-------------|-------------|-------------------|-------------|-------------|
| Marseilles . . . | 23          | 8.3         | St. Nazaire . . . | 22          | 2.8         |
| Havre . . .      | 26          | 8.0         | Boulogne . . .    | 26          | 2.0         |
| Cette . . .      | 22          | 4.8         | Bordeaux . . .    | 19          | 2.0         |
| Dunkirk . . .    | 20          | 3.5         | Dieppe . . .      | 18          | 1.8         |
| Rouen . . .      | 17          | 3.0         | Calais . . .      | 25          | 1.5         |

The French Government has expended the following sums on the above ports:—

|                        |              |
|------------------------|--------------|
| Down to 1876 . . . . . | £ 24,800,000 |
| 1876-90 . . . . .      | 22,600,000   |
| Total . . . . .        | 47,400,000   |

The following are some of the finest breakwaters:—

| Name             | Date      | Yards Long | Cost, £   | Builder  |
|------------------|-----------|------------|-----------|----------|
| Plymouth . . .   | 1812-41   | 1,720      | 1,550,000 | Rennie   |
| Cherbourg . . .  | 1784-1857 | 4,100      | 3,200,000 | ...      |
| Delaware . . .   | ...       | 1,200      | ...       | ...      |
| Alexandria . . . | 1873-76   | 2,000      | 2,550,000 | Greenway |

The Plymouth breakwater has the same quantity of stone, 3,800,000 tons, as the great pyramid of Cheops, and encloses 1120 acres of harbour; Cherbourg, 1927 acres; and Delaware, 420 acres.

## DRUGS AND CHEMICALS

The British trade returns show imports under this head thus:—

|                              | Value, £  |            |            |            |
|------------------------------|-----------|------------|------------|------------|
|                              | 1880      | 1870       | 1860       | 1858       |
| Bones . . .                  | 300,000   | 630,000    | 530,000    | 390,000    |
| Caoutchouc . . .             | 470,000   | 1,600,000  | 2,400,000  | 2,600,000  |
| Chemicals, sundry . . .      | ...       | 530,000    | 1,140,000  | 1,300,000  |
| Chinchona . . .              | ...       | ...        | 1,180,000  | 550,000    |
| Cinnamon . . .               | 50,000    | 250,000    | 100,000    | 40,000     |
| Cochineal . . .              | 410,000   | 580,000    | 430,000    | 50,000     |
| Cutch . . .                  | 220,000   | 470,000    | 660,000    | 710,000    |
| Drugs, various . . .         | ...       | 310,000    | 670,000    | 900,000    |
| Dye-woods and extracts . . . | 240,000   | 280,000    | 2,030,000  | 2,120,000  |
| Esparto . . .                | ...       | ...        | 1,640,000  | 2,300,000  |
| Guano . . .                  | 1,560,000 | 3,480,000  | 810,000    | 200,000    |
| Gum . . .                    | ...       | ...        | 1,120,000  | 1,140,000  |
| Gutta-percha . . .           | 160,000   | 500,000    | 530,000    | 180,000    |
| Indigo . . .                 | 2,530,000 | 2,720,000  | 1,710,000  | 1,700,000  |
| Madder . . .                 | 690,000   | 430,000    | ...        | ...        |
| Nitre . . .                  | 500,000   | 880,000    | 700,000    | 980,000    |
| Opium . . .                  | ...       | ...        | 360,000    | 360,000    |
| Paints . . .                 | ...       | ...        | 820,000    | 900,000    |
| Pepper . . .                 | 240,000   | 420,000    | 400,000    | 920,000    |
| Rosin . . .                  | 180,000   | 370,000    | 340,000    | 270,000    |
| Saltpetre . . .              | 660,000   | 380,000    | 300,000    | 300,000    |
| Shumach . . .                | 170,000   | 230,000    | 150,000    | 140,000    |
| Sulphur . . .                | 500,000   | 390,000    | 250,000    | 170,000    |
| Turpentine . . .             | 220,000   | 130,000    | 380,000    | 520,000    |
| Valonia . . .                | 270,000   | 400,000    | 520,000    | 460,000    |
| Yeast . . .                  | 180,000   | 290,000    | 540,000    | 730,000    |
| Total . . .                  | 9,550,000 | 15,270,000 | 19,710,000 | 19,930,000 |

The exports show as follows :—

|                               | Value, £         |                  |                   |                   |
|-------------------------------|------------------|------------------|-------------------|-------------------|
|                               | 1860             | 1870             | 1880              | 1888              |
| Alkali . . . . .              | 960,000          | 1,490,000        | 2,400,000         | 1,640,000         |
| Bleaching materials . . . . . | ...              | ...              | 440,000           | 620,000           |
| Caoutchouc . . . . .          | 140,000          | 550,000          | 1,060,000         | 1,340,000         |
| Chemicals, sundries . . . . . | ...              | 1,330,000        | 2,380,000         | 2,400,000         |
| Chinchona . . . . .           | 210,000          | 120,000          | 610,000           | 340,000           |
| Cinnamon . . . . .            | 50,000           | 170,000          | 80,000            | 40,000            |
| Cochineal . . . . .           | 300,000          | 320,000          | 280,000           | 30,000            |
| Cutch . . . . .               | ...              | ...              | 210,000           | 250,000           |
| Drugs, sundry . . . . .       | 590,000          | 170,000          | 510,000           | 370,000           |
| Gum . . . . .                 | ...              | ...              | 630,000           | 640,000           |
| Gunpowder . . . . .           | 350,000          | 430,000          | 370,000           | 360,000           |
| Indigo . . . . .              | 1,900,000        | 1,600,000        | 1,300,000         | 1,100,000         |
| Medicine . . . . .            | ...              | ...              | 810,000           | 930,000           |
| Opium . . . . .               | ...              | 200,000          | 190,000           | 330,000           |
| Paints . . . . .              | ...              | 880,000          | 1,160,000         | 1,450,000         |
| Pepper . . . . .              | 170,000          | 260,000          | 240,000           | 590,000           |
| <b>Total . . . . .</b>        | <b>4,670,000</b> | <b>7,520,000</b> | <b>12,670,000</b> | <b>12,430,000</b> |

*Alkali.*—The annual production in 1882 was as follows :—

|                                     | Tons           |
|-------------------------------------|----------------|
| Great Britain . . . . .             | 432,000        |
| France . . . . .                    | 127,000        |
| Germany . . . . .                   | 101,000        |
| Austria . . . . .                   | 40,000         |
| Belgium, United States, &c. . . . . | 11,000         |
| <b>Total . . . . .</b>              | <b>711,000</b> |

The production in Great Britain has quadrupled since 1850, when it was 104,000 tons. The exportation from Great Britain showed the following quantities and prices :—

| Year           | Tons    | Value, £ per Ton |
|----------------|---------|------------------|
| 1853 . . . . . | 53,000  | 9.0              |
| 1860 . . . . . | 102,000 | 9.5              |
| 1870 . . . . . | 193,000 | 8.0              |
| 1880 . . . . . | 344,000 | 7.0              |
| 1888 . . . . . | 317,000 | 5.1              |

*Arsenic.*—In Styria in 1875 two men were seen to eat 30 centigrammes of yellow arsenic without injury.

*Blacking.*—For boots. The consumption in England in 1880 amounted to a value of £560,000.

*Chinchona or Peruvian Bark.*—The annual production was in 1882 as follows :—

|                        | Lbs.              |
|------------------------|-------------------|
| Peru . . . . .         | 8,900,000         |
| India . . . . .        | 2,200,000         |
| Java . . . . .         | 110,000           |
| Jamaica . . . . .      | 21,000            |
| <b>Total . . . . .</b> | <b>11,231,000</b> |

The Indian plantations showed as follows in 1880 :—

| Planted                | Locality             | Trees             | Crops, Lbs. Bark |
|------------------------|----------------------|-------------------|------------------|
| A.D.                   |                      |                   |                  |
| 1860 . . . . .         | Nilghiri . . . . .   | 540,000           | 180,000          |
| 1861 . . . . .         | Darjeeling . . . . . | 4,680,000         | 378,000          |
| 1869 . . . . .         | Ceylon . . . . .     | 77,000,000        | 1,260,000        |
| 1875 . . . . .         | Burmah . . . . .     | 2,000             | 200              |
| <b>Total . . . . .</b> |                      | <b>82,222,000</b> | <b>1,818,200</b> |

The exports from Ceylon rose very rapidly, viz :—

|                | Lbs.       |
|----------------|------------|
| 1880 . . . . . | 1,260,000  |
| 1884 . . . . . | 11,000,000 |
| 1886 . . . . . | 15,000,000 |
| 1888 . . . . . | 11,000,000 |

Indian bark yields from 4 to 5 per cent. of sulphate of quinine, but the superior quality introduced into Java by Mr. Charles Ledger gives from 6 up to 15 per cent. The plantations in India and Ceylon are valued at 5 millions sterling. Some Germans have planted near La Paz, Bolivia, 600,000 trees of the Ledger or Caupolican species.

The quantities of bark imported into Great Britain have been as follows :—

| Year           | Tons  | Value per Ton, £ | Net Imports, Tons |
|----------------|-------|------------------|-------------------|
| 1874 . . . . . | 2,100 | 210              | 400               |
| 1880 . . . . . | 4,000 | 300              | 1,600             |
| 1888 . . . . . | 7,200 | 76               | 1,000             |

The manufacture of quinine in 1879 was, according to the Archivio, as follows :—

|                       | Lbs.   |                   | Lbs.   |
|-----------------------|--------|-------------------|--------|
| East Indies . . . . . | 11,000 | Germany . . . . . | 55,000 |
| England . . . . .     | 26,000 | Italy . . . . .   | 44,000 |
| France . . . . .      | 40,000 | America . . . . . | 60,000 |

Making a total of 236,000 lbs., which was only 2 per cent. on the crop of bark.

*Cochineal.*—Canary Islands exported in 1880 three million lbs., valued at £350,000.

*Dynamite.*—Messrs. Nobel of Glasgow make 1200 tons yearly.

*Glycerine.*—Production in 1880 :—

|                   | Tons  |                   | Tons |
|-------------------|-------|-------------------|------|
| England . . . . . | 300   | Russia . . . . .  | 900  |
| France . . . . .  | 4,000 | Belgium . . . . . | 800  |
| Germany . . . . . | 1,500 | Italy . . . . .   | 400  |
| Holland . . . . . | 900   | Spain . . . . .   | 200  |

*Guano.*—The Peruvian Government exported from the Chinch Islands between 1850 and 1880 more than 12 million tons, worth 110 millions sterling. Great Britain paid 55 millions for 5,200,000 tons since 1855. The first quantity exported to Europe was in 1840. The supply is now almost exhausted. The analysis is as follows :—

|                             |              |
|-----------------------------|--------------|
| Azote . . . . .             | 52.5         |
| Phosphate of lime . . . . . | 19.3         |
| Alkali . . . . .            | 7.6          |
| Water . . . . .             | 15.8         |
| Sundry . . . . .            | 4.8          |
| <b>Total . . . . .</b>      | <b>100.0</b> |

*Gunpowder*

|                    | Saltpetre | Charcoal | Sulphur | Total |
|--------------------|-----------|----------|---------|-------|
| English . . . . .  | 75        | 15       | 10      | 100   |
| French . . . . .   | 75        | 13       | 12      | 100   |
| German . . . . .   | 75        | 11       | 14      | 100   |
| Russian . . . . .  | 74        | 14       | 12      | 100   |
| Austrian . . . . . | 72        | 17       | 11      | 100   |
| Spanish . . . . .  | 76        | 11       | 13      | 100   |
| Swedish . . . . .  | 75        | 16       | 9       | 100   |
| Chinese . . . . .  | 76        | 14       | 10      | 100   |
| American . . . . . | 75        | 13       | 12      | 100   |
| Sporting . . . . . | 77        | 13       | 10      | 100   |

The quantities exported from Great Britain, and the price per ton were :—

| Year           | Tons  | Value, £ per Ton |
|----------------|-------|------------------|
| 1853 . . . . . | 4,200 | 55               |
| 1860 . . . . . | 5,000 | 70               |
| 1870 . . . . . | 7,800 | 55               |
| 1880 . . . . . | 6,700 | 55               |
| 1888 . . . . . | 6,000 | 60               |

*India-rubber.*—This is mostly obtained from the Seringueros of the Amazon, who sell it for sixpence a pound to the merchants of Para, but its value on reaching England or United States is over two shillings a pound. The quantities imported into Great Britain and United States have been as follows :—

| Into                | Tons Imported |        |        |        |
|---------------------|---------------|--------|--------|--------|
|                     | 1860          | 1870   | 1880   | 1887   |
| Great Britain . . . | 2,150         | 7,606  | 8,479  | 11,800 |
| United States . . . | 1,610         | 4,316  | 7,599  | 12,900 |
| Total . . . . .     | 3,760         | 11,922 | 16,008 | 24,700 |
| Value per ton . . . | £224          | £215   | £277   | £215   |

The best rubber-forests in Brazil will ultimately be exhausted, owing to the reckless mode followed by the Seringueros or tappers. The ordinary product of a tapper's work is from 10 to 16 lbs. daily. A tree 15 inches diameter bled 8 feet high will yield 3 pints of milk. There are 120 india-rubber manufacturers in the United States, employing 15,000 operatives, who produce 280,000 tons of goods, valued at 52 millions sterling per annum.

*Madder.*—The best is grown near Avignon, on irrigated lands, for which the tenants pay £5 an acre rent. Average crop, 2 tons per acre, worth £50, leaving small profit to the cultivator.

Official returns of this crop in France are as follows :—

| Year           | Acres  | Tons   |
|----------------|--------|--------|
| 1840 . . . . . | 36,000 | 25,000 |
| 1862 . . . . . | 51,000 | 54,000 |
| 1874 . . . . . | 12,500 | 17,300 |

It gives 9 per cent. of ashes, of which 4 per cent. soluble salts and 3½ per cent. carbonate of lime.

*Maqui.*—This berry is grown in Chili for colouring wine. Exports thus :—

|                | Tons |
|----------------|------|
| 1887 . . . . . | 26   |
| 1888 . . . . . | 431  |

France takes 75 per cent. of the total.

*Nitre.*—Atacama (Chile) exports 350,000 tons per annum. The nitre is about 2 feet below the surface; one bed covers 5000 acres, 4 feet in thickness, say 25 million tons, worth 300 millions sterling. The quantities imported into Great Britain and the value per ton were :—

| Year           | Tons    | Value, £ per Ton |
|----------------|---------|------------------|
| 1853 . . . . . | 17,000  | 20               |
| 1860 . . . . . | 37,000  | 14               |
| 1870 . . . . . | 57,000  | 15               |
| 1880 . . . . . | 46,000  | 15               |
| 1888 . . . . . | 103,000 | 10               |

It is also called nitrate of potash.

Chili, in 1880, exported 930,000 tons valued at £7,800,000, or £8 per ton.

*Opium.*—Annual shipments from India :—

| Years   | Chests  | Tons  | Value      | Per Ton |
|---------|---------|-------|------------|---------|
| 1861-65 | 73,100  | 4,305 | 10,810,000 | 2,510   |
| 1866-70 | 82,800  | 4,870 | 11,240,000 | 2,290   |
| 1871-75 | 89,200  | 5,250 | 11,790,000 | 2,250   |
| 1876-80 | 102,100 | 6,005 | 12,640,000 | 2,106   |
| 1881-86 | 90,200  | 5,400 | 11,800,000 | 2,160   |
| 1887-88 | 93,000  | 5,600 | 10,600,000 | 1,900   |

The Chinese impose a duty of £5 per ton. It is retailed at 2s. per ounce, or double the price of native opium. The province of Hankow produces 5300 tons per annum. There are in China 3 million opium-smokers. The average importation yearly into Great Britain shows :—

| Year              | Imported | Re-Shipped | Home Use |
|-------------------|----------|------------|----------|
|                   | Tons     | Tons       | Tons     |
| 1875-80 . . . . . | 220      | 115        | 105      |
| 1881-85 . . . . . | 290      | 170        | 120      |
| 1886-88 . . . . . | 270      | 185        | 85       |

The cultivation in India gives an average crop of 30 lbs. per acre, value £100.

## DRUNKENNESS

The returns of insanity caused by drunkenness, and those of suicide from the same cause, in various countries show :—

| Insanity          |              | Suicide             |              |
|-------------------|--------------|---------------------|--------------|
| England . . . . . | 14 per cent. | England . . . . .   | 12 per cent. |
| Ireland . . . . . | 12 "         | France . . . . .    | 12 "         |
| France . . . . .  | 14 "         | Prussia . . . . .   | 14 "         |
| Prussia . . . . . | 10 "         | Oldenburg . . . . . | 17 "         |
| Denmark . . . . . | 11 "         | Saxony . . . . .    | 9 "          |
| Finland . . . . . | 12 "         | Belgium . . . . .   | 8 "          |
| Norway . . . . .  | 20 "         | Russia . . . . .    | 38 "         |
| Holland . . . . . | 16 "         | Baden . . . . .     | 6 "          |
| Austria . . . . . | 14 "         | Europe . . . . .    | 15 "         |

Kaspar considers that the official returns are much too low, and estimates that 25 per cent. of suicides in Germany are produced by drunkenness.

The increase of alcoholic insanity and suicide in France is remarkable, viz. :—

| Period            | Ratio of Dipsomaniacs (France) |                   |
|-------------------|--------------------------------|-------------------|
|                   | Per 1000 Insane                | Per 1000 Suicides |
| 1840-49 . . . . . | 78                             | 67                |
| 1861-70 . . . . . | 108                            | 130               |
| 1871-80 . . . . . | 148                            | 113               |
| 1881-85 . . . . . | 144                            | 120               |

In France drunkenness and alcoholic insanity have progressed with the consumption of spirits, the average of which is now three times as much per head as in 1840-42. See *Alcohol*, p. 59.

Drunkenness as a cause of insanity and of suicide is much commoner among men than women, viz. :—

| Males to Females  |       | Males to Females          |       |
|-------------------|-------|---------------------------|-------|
| England . . . . . | 75-25 | Austria . . . . .         | 89-11 |
| France . . . . .  | 74-26 | Denmark . . . . .         | 82-18 |
| Prussia . . . . . | 88-12 | Oldenburg . . . . .       | 85-15 |
| Belgium . . . . . | 72-28 | General average . . . . . | 80-20 |

Of insane males in Italy, 12 per cent. are caused by drink; in United States, 26 per cent.; and in Scotland, 28 per cent.

DEATHS FROM DRINK YEARLY

|                     | Number | Per 1000 Deaths of Population | Per Million Inhabitants |
|---------------------|--------|-------------------------------|-------------------------|
| England . . . .     | 1,082  | 2.04                          | 40                      |
| Scotland . . . .    | 230    | 3.29                          | 60                      |
| Ireland . . . .     | 280    | 2.78                          | 56                      |
| United Kingdom      | 1,592  | 2.27                          | 43                      |
| France . . . .      | 872    | 1.05                          | 23                      |
| Germany . . . .     | 3,240  | 2.70                          | 70                      |
| Belgium . . . .     | 456    | 3.83                          | 80                      |
| Sweden . . . .      | 502    | 6.25                          | 106                     |
| Norway . . . .      | 72     | 2.36                          | 40                      |
| Switzerland . . . . | 244    | 3.81                          | 85                      |
| Italy . . . .       | 709    | 0.85                          | 24                      |

Deaths from drink in New York are said to average 12 per 1000 of the total, that is, five times more numerous than in the United Kingdom.

YEARS OF INTemperance TO PRODUCE DEATH

| Class                 | Liquor |    |
|-----------------------|--------|----|
| Women . . . .         | 14     | 22 |
| Gentlemen . . . .     | 15     | 17 |
| Working class . . . . | 18     | 16 |

This shows that the working class can stand drink longest, and that beer is the least deadly form of intemperance.

RATIO OF DRUNKENNESS TO POPULATION.

The number of drunkards fined yearly per 1000 inhabitants in some of the large towns of the United Kingdom is as follows (1880-84):—

|                       |                      |                   |
|-----------------------|----------------------|-------------------|
| Belfast . . . . 21    | Glasgow . . . . 38   | Dublin . . . . 43 |
| Manchester . . . . 31 | Liverpool . . . . 42 | Cork . . . . 56   |

The prevalence of drunkenness in the rural districts is much less than in towns, the general average of persons fined in England being about 6 per 1000 of the population,\* viz:—

| Year         | Persons Fined | Per 1000 Inhabitants |
|--------------|---------------|----------------------|
| 1860 . . . . | 88,400        | 4.4                  |
| 1870 . . . . | 137,200       | 6.0                  |
| 1881 . . . . | 174,500       | 6.7                  |
| 1888 . . . . | 166,300       | 6.0                  |

\* As the same person will be fined probably ten times in the year, it may be assumed that drunkards are not 6 per 1000, but 6 in 20,000 of the population.

In 1880 there were 61,000 persons fined in France for drunkenness, say 1.7 per 1000 inhabitants, or one-fourth of the ratio in England.

DRUNKENNESS AND CRIME

According to the *Dict. des Sciences Medicales* the proportion of crime caused by habits of intemperance is as follows:—

|                 | Per Cent. |                         | Per Cent. |
|-----------------|-----------|-------------------------|-----------|
| England . . . . | 43        | Germany . . . .         | 44        |
| Belgium . . . . | 80        | Denmark . . . .         | 74        |
| Sweden . . . .  | 31        | General average . . . . | 54        |

In Denmark 23 per cent. of divorces originate in habits of intemperance.

VALUE OF LIFE, DRUNK AND SOBER

| Age        | Expectancy of Years |       |
|------------|---------------------|-------|
|            | Drunk               | Sober |
| 20 . . . . | 15                  | 44    |
| 30 . . . . | 14                  | 36    |
| 40 . . . . | 11                  | 29    |

In a period of 35 years down to 1874, the United Kingdom Assurance Company issued 25,500 policies in two distinct sections, temperance and general. The number of insured persons who died, compared with those expected to die by the actuaries, were:—

| Section            | Expected to Die | Died  |
|--------------------|-----------------|-------|
| Temperance . . . . | 2,644           | 1,861 |
| General . . . .    | 4,408           | 4,339 |

This would seem to indicate that "teetotallers" and blue-ribbon men live 17 years longer than others.

DWARFS

| Name                  | Height (Inches) | Date of Birth | Birthplace |
|-----------------------|-----------------|---------------|------------|
| Borowlaski . . . .    | 39              | 1739          | Warsaw     |
| Tom Thumb . . . .     | 31              | 1838          | New York   |
| Mrs. T. Thumb . . . . | 32              | 1842          | "          |
| Che-Mah . . . .       | 25              | 1838          | China      |
| Lucia Zarate . . . .  | 20              | 1863          | Mexico     |
| General Mite . . . .  | 21              | 1864          | New York   |

Count Borowlaski was a friend of George III., and one of the most accomplished men in London society. Tom Thumb's real name was Charles Stratton

E.

EARTH

The area and cubic contents, according to Murray (*Challenger* expedition), are shown thus:—

|               | Area, Square Miles | Cubic Miles |
|---------------|--------------------|-------------|
| Land . . . .  | 51,410,700         | 21,923,200  |
| Water . . . . | 137,199,000        | 323,722,000 |
| Total . . . . | 188,609,700        | 345,645,200 |

The mean height of the land has been stated thus:—

FEET OVER SEA-LEVEL

|                       | Humboldt | Lapparent | Murray | Tillo |
|-----------------------|----------|-----------|--------|-------|
| Europe . . . .        | 672      | 958       | 939    | 1,046 |
| Asia . . . .          | 1,151    | 2,884     | 3,180  | 3,160 |
| North America . . . . | 748      | 1,952     | 1,888  | 2,052 |
| South America . . . . | 1,132    | 1,762     | 2,078  | 2,036 |
| Africa . . . .        | ...      | 1,975     | 2,021  | 2,020 |
| Australia . . . .     | ...      | 1,188     | 805    | 790   |
| Mean . . . .          | 1,007    | 2,120     | 2,252  | 2,290 |

The elevation of the various continents is as follows :—

|                         | Square Miles   |                  |                   |                |            | Mean Height in Feet |
|-------------------------|----------------|------------------|-------------------|----------------|------------|---------------------|
|                         | Under 600 Feet | 600 to 1500 Feet | 1500 to 3000 Feet | Over 3000 Feet | Total      |                     |
| Europe . . . . .        | 2,040,600      | 991,800          | 362,000           | 275,700        | 3,670,100  | 939                 |
| Asia . . . . .          | 4,049,500      | 2,603,700        | 3,551,900         | 6,163,400      | 16,368,500 | 3,189               |
| Africa . . . . .        | 1,410,100      | 3,859,800        | 3,066,200         | 2,756,700      | 11,092,800 | 2,021               |
| North America . . . . . | 2,466,200      | 2,450,600        | 1,015,900         | 1,690,400      | 7,623,100  | 1,888               |
| South America . . . . . | 2,725,600      | 1,842,800        | 1,151,000         | 1,142,000      | 6,861,400  | 2,078               |
| Australia . . . . .     | 896,300        | 1,935,700        | 123,900           | 58,200         | 3,014,100  | 805                 |
| Islands . . . . .       | 476,400        | 600,000          | 611,500           | 1,092,800      | 2,780,700  | 2,387               |
| The world . . . . .     | 14,064,700     | 14,284,400       | 9,882,400         | 13,179,200     | 51,410,700 | 2,252               |

The cubic contents and area of the various oceans and seas, according to Murray's measurement (*Challenger* expedition), are shown thus :—

|                          | Depth, Feet |        | Cubic Miles | Square Miles | Ratio         |       |
|--------------------------|-------------|--------|-------------|--------------|---------------|-------|
|                          | Greatest    | Mean   |             |              | Cubic Measure | Area  |
| North Atlantic . . . . . | 27,366      | 12,810 | 34,804,000  | 14,343,000   | 10.8          | 10.4  |
| South Atlantic . . . . . | 18,600      | 14,250 | 27,510,000  | 10,193,000   | 8.5           | 7.4   |
| Arctic Ocean . . . . .   | 9,000       | 3,780  | 3,418,000   | 4,781,000    | 1.1           | 3.5   |
| Norwegian Sea . . . . .  | 12,030      | 5,448  | 1,162,000   | 1,127,000    | 0.3           | 0.9   |
| Caribbean Sea . . . . .  | 19,014      | 7,614  | 1,675,000   | 1,161,000    | 0.5           | 0.9   |
| Gulf of Mexico . . . . . | 12,714      | 4,632  | 628,000     | 716,000      | 0.2           | 0.6   |
| Mediterranean . . . . .  | 12,900      | 4,608  | 710,000     | 813,000      | 0.2           | 0.6   |
| Black Sea . . . . .      | 6,420       | 2,472  | 65,000      | 139,000      | ...           | 0.1   |
| Baltic . . . . .         | 2,580       | 342    | 13,000      | 196,000      | ...           | 0.2   |
| North Pacific . . . . .  | 30,000      | 15,420 | 77,994,000  | 26,705,000   | 24.1          | 19.4  |
| South Pacific . . . . .  | 19,830      | 14,208 | 63,522,000  | 23,604,000   | 19.6          | 17.2  |
| China Sea . . . . .      | 13,200      | 3,228  | 835,000     | 1,367,000    | 0.3           | 1.0   |
| Behring Sea . . . . .    | 9,000       | 3,816  | 622,000     | 859,000      | 0.2           | 0.6   |
| Indian Ocean . . . . .   | 18,582      | 13,716 | 44,377,000  | 17,084,000   | 13.7          | 12.4  |
| Red Sea . . . . .        | 7,200       | 2,250  | 68,000      | 159,000      | ...           | 0.1   |
| Southern Ocean . . . . . | 25,200      | 12,020 | 64,875,000  | 30,592,000   | 20.1          | 22.3  |
| Other seas . . . . .     | 25,200      | 4,800  | 1,434,000   | 3,360,000    | 0.4           | 2.4   |
| ...                      | ...         | ...    | 323,722,000 | 137,199,000  | 100.0         | 100.0 |

According to Tillo, the mean depth of the ocean is 12,550 feet.

The area and cubic contents of the continents show thus :—

|                      | Sq. Miles  | Cubic Miles | Superficial Ratio | Cubic Ratio |
|----------------------|------------|-------------|-------------------|-------------|
| Europe . . . . .     | 3,670,100  | 652,800     | 7.2               | 3.0         |
| Asia . . . . .       | 16,368,500 | 9,887,000   | 31.8              | 45.2        |
| Africa . . . . .     | 11,092,800 | 4,246,400   | 21.6              | 19.3        |
| N. America . . . . . | 7,623,100  | 2,725,500   | 14.7              | 12.4        |
| S. America . . . . . | 6,861,400  | 2,699,900   | 13.4              | 12.3        |
| Australia . . . . .  | 3,014,100  | 459,400     | 5.8               | 2.1         |
| Islands . . . . .    | 2,780,700  | 1,252,200   | 5.5               | 5.7         |
| Total . . . . .      | 51,410,700 | 21,923,200  | 100.0             | 100.0       |

The following table shows the elevation of various places over sea-level, in feet :—

|                      |       |                        |       |
|----------------------|-------|------------------------|-------|
| Bangalore . . . . .  | 3,015 | Mexico . . . . .       | 7,480 |
| Berne . . . . .      | 1,775 | Milan . . . . .        | 420   |
| Bogota . . . . .     | 8,680 | Moscow . . . . .       | 985   |
| Darjeeling . . . . . | 7,460 | Munich . . . . .       | 1,740 |
| Erzeroum . . . . .   | 5,255 | Quito . . . . .        | 9,545 |
| Friburg . . . . .    | 2,050 | Rome . . . . .         | 150   |
| Geneva . . . . .     | 1,250 | St. Gall . . . . .     | 1,820 |
| Gondar . . . . .     | 7,260 | St. Helena . . . . .   | 1,775 |
| Gratz . . . . .      | 1,295 | St. Remy . . . . .     | 5,205 |
| Guatemala . . . . .  | 4,705 | Salzburg . . . . .     | 1,350 |
| Innsbruck . . . . .  | 1,895 | Seringapatam . . . . . | 2,390 |
| Jerusalem . . . . .  | 2,515 | Vevay . . . . .        | 1,245 |
| Kandy . . . . .      | 1,695 | Zurich . . . . .       | 1,240 |
| Madrid . . . . .     | 2,090 |                        |       |

The depth of the minor seas is shown thus :—

|                           | Average, Feet | Maximum, Feet |
|---------------------------|---------------|---------------|
| Irish Sea . . . . .       | 240           | 710           |
| English Channel . . . . . | 110           | 300           |
| Levant . . . . .          | 72            | ...           |
| Adriatic . . . . .        | 45            | ...           |

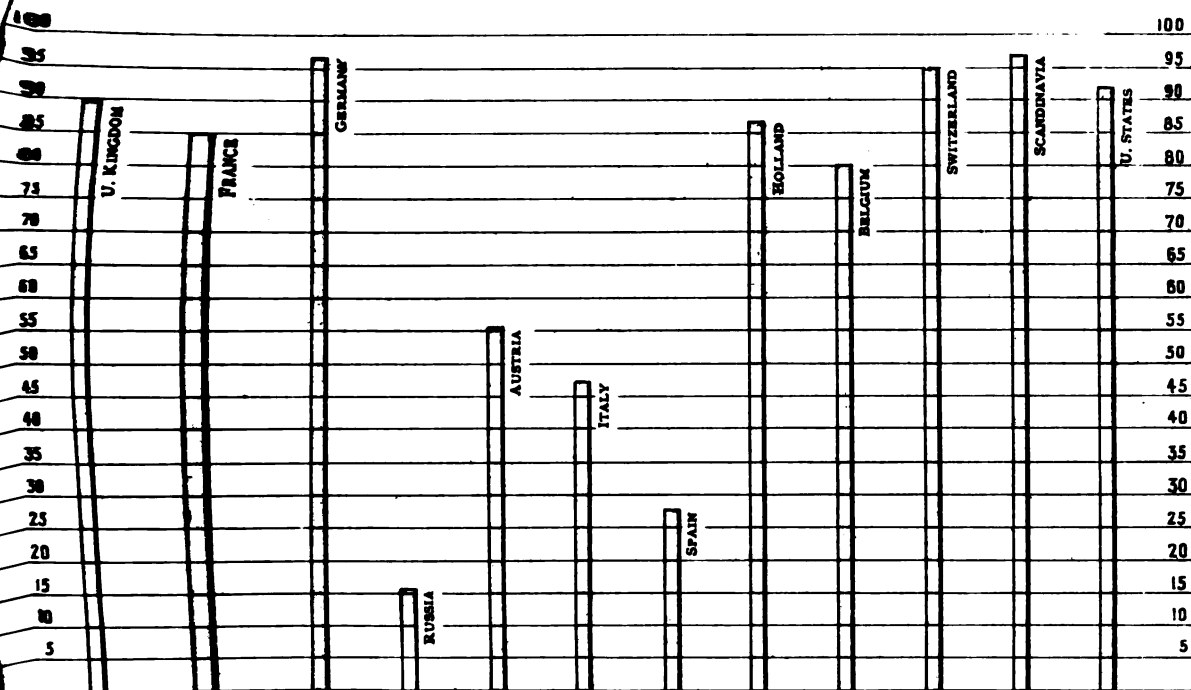
## EARTHQUAKES

Since the beginning of the eighteenth century the most destructive have been the following :—

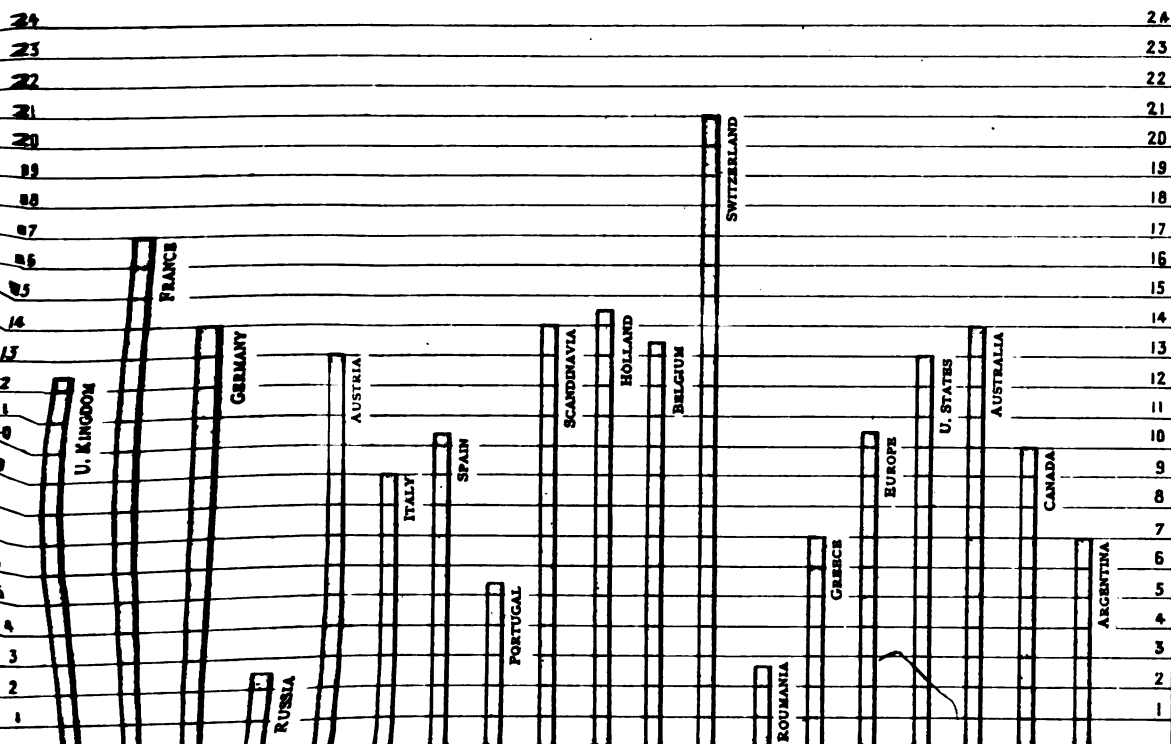
| Year | Place                            | Lives Lost |
|------|----------------------------------|------------|
| 1703 | Yeddo . . . . .                  | 190,000    |
| 1716 | Algiers . . . . .                | 18,000     |
| 1726 | Palermo . . . . .                | 6,000      |
| 1731 | Pekin . . . . .                  | 95,000     |
| 1746 | Lima . . . . .                   | 18,000     |
| 1754 | Cairo . . . . .                  | 40,000     |
| 1755 | Lisbon . . . . .                 | 35,000     |
| 1773 | Guatemala . . . . .              | 33,000     |
| 1797 | Quito . . . . .                  | 41,000     |
| 1822 | Aleppo . . . . .                 | 22,000     |
| 1861 | Mendoza, South America . . . . . | 12,000     |
| 1868 | Arica . . . . .                  | 6,000      |
| 1880 | Manilla . . . . .                | 3,000      |
| 1883 | Ischia . . . . .                 | 2,000      |

*Percentage of Adults able to write.*

**EDUCATION.**



*Percentage of population attending school; average attendance.*







## EDUCATION

The following is a general view of the educational condition of the various countries according to latest information :—

| Country               | Year | Schools | Teachers | Pupils     | Expenditure, £ | School Children per 1000 Pop. |
|-----------------------|------|---------|----------|------------|----------------|-------------------------------|
| United Kingdom        | 1888 | 30,522  | 85,000   | 4,605,000  | 9,690,000      | 123                           |
| France . . . . .      | 1887 | 85,545  | 136,800  | 6,308,000  | 6,000,000      | 170                           |
| Germany . . . . .     | 1881 | 57,000  | 120,000  | 7,100,000  | 4,000,000      | 140                           |
| Russia . . . . .      | 1889 | 43,100  | ...      | 2,510,000  | 3,800,000      | 25                            |
| Austria . . . . .     | 1889 | 35,718  | 99,200   | 4,903,000  | 2,400,000      | 130                           |
| Italy . . . . .       | 1887 | 70,507  | 86,400   | 3,071,000  | 3,100,000      | 90                            |
| Spain . . . . .       | 1885 | 31,880  | 36,000   | 1,843,000  | 1,200,000      | 106                           |
| Portugal . . . . .    | 1886 | 5,663   | ...      | 257,000    | 200,000        | 54                            |
| Switzerland . . . . . | 1886 | 6,794   | 12,720   | 630,000    | 400,000        | 210                           |
| Belgium . . . . .     | 1887 | 8,257   | 10,800   | 808,000    | 1,100,000      | 135                           |
| Holland . . . . .     | 1888 | 5,448   | 19,870   | 758,000    | 1,300,000      | 145                           |
| Scandinavia . . . . . | 1886 | 19,936  | ...      | 1,263,000  | 1,200,000      | 140                           |
| Roumania . . . . .    | 1883 | 2,807   | ...      | 134,000    | ...            | 27                            |
| Servia . . . . .      | 1888 | 702     | 1,650    | 60,000     | 200,000        | 30                            |
| Greece . . . . .      | 1884 | 2,700   | 3,374    | 143,000    | 240,000        | 72                            |
| Europe                |      | 406,579 | ...      | 34,393,000 | 34,830,000     | 105                           |
| United States         | 1888 | 171,200 | 272,700  | 7,850,000  | 25,500,000     | 130                           |
| Canada . . . . .      | 1887 | 15,607  | 18,942   | 487,000    | 1,100,000      | 100                           |
| Australia . . . . .   | 1888 | 9,104   | 13,200   | 510,000    | 1,900,000      | 140                           |
| India . . . . .       | 1888 | 133,352 | ...      | 3,474,000  | 2,100,000      | 17                            |
| South Africa          | 1888 | 1,530   | ...      | 56,000     | 250,000        | 40                            |
| Ceylon . . . . .      | 1888 | 3,650   | ...      | 131,000    | ...            | 50                            |
| Algeria . . . . .     | 1888 | 1,214   | ...      | 110,000    | ...            | 30                            |
| Argentina . . . . .   | 1888 | 3,227   | 7,300    | 255,000    | 500,000        | 70                            |
| Chile . . . . .       | 1888 | 1,450   | ...      | 86,000     | ...            | 34                            |
| Uruguay . . . . .     | 1888 | 780     | 1,530    | 54,000     | 120,000        | 90                            |
| Venezuela . . . . .   | 1888 | 2,042   | ...      | 105,000    | 30,000         | 45                            |
| Brazil . . . . .      | 1889 | 7,500   | ...      | 300,000    | ...            | 30                            |
| Egypt . . . . .       | 1887 | 6,640   | 7,240    | 170,000    | ...            | 25                            |
| Japan . . . . .       | 1888 | 27,550  | 62,520   | 2,835,000  | ...            | 70                            |
| Total . . . . .       | ...  | 791,425 | ...      | 50,816,000 | ...            | ...                           |

The following table shows approximately the spread of education in the last fifty years :—

|                       | Average Attendance at School |            |                    | Percentage of Adults able to Write |      |
|-----------------------|------------------------------|------------|--------------------|------------------------------------|------|
|                       | 1840                         | 1888       | Increase per Cent. | 1840                               | 1889 |
| U. Kingdom            | 2,100,000                    | 4,600,000  | 118                | 59                                 | 90   |
| France . . . . .      | 2,900,000                    | 6,300,000  | 117                | 47                                 | 85   |
| Germany . . . . .     | 3,700,000                    | 7,100,000  | 92                 | 82                                 | 96   |
| Russia . . . . .      | 460,000                      | 2,510,000  | 444                | 2                                  | 15   |
| Austria . . . . .     | 2,310,000                    | 4,900,000  | 113                | 21                                 | 55   |
| Italy . . . . .       | 550,000                      | 3,070,000  | 458                | 16                                 | 47   |
| Spain . . . . .       | 450,000                      | 1,840,000  | 309                | 14                                 | 28   |
| Portugal . . . . .    | 50,000                       | 260,000    | 420                | ...                                | ...  |
| Holland . . . . .     | 300,000                      | 760,000    | 153                | 70                                 | 86   |
| Belgium . . . . .     | 320,000                      | 810,000    | 153                | 45                                 | 80   |
| Scandinavia . . . . . | 550,000                      | 1,260,000  | 130                | 80                                 | 97   |
| Switzerland . . . . . | 400,000                      | 630,000    | 60                 | 80                                 | 95   |
| Greece, &c. . . . .   | 90,000                       | 350,000    | 290                | ...                                | ...  |
| Europe . . . . .      | 14,180,000                   | 34,390,000 | 145                | ...                                | ...  |
| U. States . . . . .   | 1,260,000                    | 7,850,000  | 520                | 80                                 | 92   |
| India . . . . .       | 150,000                      | 3,470,000  | 2,210              | ...                                | ...  |
| Colonies, &c. . . . . | 650,000                      | 5,100,000  | 680                | ...                                | ...  |
| Total . . . . .       | 16,240,000                   | 50,810,000 | 217                | ...                                | ...  |

The march of education in Europe has been remarkable, for whereas population has only increased 33 per cent. since 1840, the average number of children attending school has risen 145 per cent.

The percentage of conscripts who could read was as follows :—

|                       | 1868 | 1880 | 1884 |
|-----------------------|------|------|------|
| Germany . . . . .     | 96   | 98   | 99   |
| Holland . . . . .     | 82   | 88   | 90   |
| France . . . . .      | 76   | 86   | 88   |
| Belgium . . . . .     | 74   | 81   | 85   |
| Austria . . . . .     | 34   | 61   | 69   |
| Italy . . . . .       | 32   | 52   | 53   |
| Hungary . . . . .     | 22   | 49   | 55   |
| Sweden . . . . .      | ...  | ...  | 100  |
| Denmark . . . . .     | ...  | ...  | 100  |
| Switzerland . . . . . | ...  | ...  | 98   |
| Russia . . . . .      | ...  | ...  | 21   |
| Servia . . . . .      | ...  | ...  | 21   |

The following table shows the proportions of men and women able to sign the marriage register, also of conscripts able to read, at various dates :—

| Year | Able to Sign Register |        |       |              |        |       | Able to Read in 100 Conscripts |       |
|------|-----------------------|--------|-------|--------------|--------|-------|--------------------------------|-------|
|      | In 100 Men            |        |       | In 100 Women |        |       |                                |       |
|      | England               | France | Italy | England      | France | Italy | France                         | Italy |
| 1841 | 67                    | ...    | ...   | 51           | ...    | ...   | ...                            | ...   |
| 1851 | 69                    | ...    | ...   | 55           | ...    | ...   | ...                            | ...   |
| 1861 | 75                    | 71     | ...   | 65           | 55     | ...   | 70                             | ...   |
| 1871 | 81                    | 75     | 43    | 73           | 63     | 23    | 80                             | 43    |
| 1883 | 88                    | 86     | 55    | 84           | 78     | 33    | 87                             | 52    |

As respects superior education, the universities of the world stand thus :—

|                     | Universities | Professors | Students |
|---------------------|--------------|------------|----------|
| United Kingdom . .  | 11           | 344        | 13,400   |
| France . . . . .    | 1            | 180        | 10,300   |
| Germany . . . . .   | 21           | 1,920      | 26,680   |
| Russia . . . . .    | 8            | 701        | 10,400   |
| Austria . . . . .   | 10           | 1,430      | 18,600   |
| Italy . . . . .     | 21           | 600        | 9,000    |
| Spain . . . . .     | 10           | 380        | 16,200   |
| Portugal . . . . .  | 1            | 40         | 1,300    |
| Belgium . . . . .   | 4            | 120        | 5,900    |
| Holland . . . . .   | 4            | 150        | 2,300    |
| Denmark . . . . .   | 1            | 60         | 1,400    |
| Sweden . . . . .    | 2            | 173        | 2,710    |
| Norway . . . . .    | 1            | 46         | 1,700    |
| Switzerland . . . . | 4            | 90         | 2,000    |
| Greece . . . . .    | 2            | 40         | 1,800    |
| Europe . . . . .    | 101          | 6,274      | 123,690  |
| United States . . . | 360          | 4,240      | 60,100   |
| Morocco . . . . .   | 1            | 40         | 700      |
| Total . . . . .     | 462          | 10,554     | 184,490  |

There are also universities in Canada, Australia, and India, of which statistics are wanting.

The number of university students compared with population is much greater in Spain and Belgium than in other European countries.

Intermediate education embraces a great number of colleges, academies, lyceums, &c., of which details will be found in the various countries.

#### UNITED KINGDOM

In 1830 the Board of Education was established, with power to spend £30,000 on schools. The returns for Great Britain (excluding Ireland) have been as follows :—

| Year         | Sum Voted, £ | Number of Schools Inspected | Accommodation for Pupils | Average Attendance |
|--------------|--------------|-----------------------------|--------------------------|--------------------|
| 1850 . . . . | 180,000      | 2,613                       | ...                      | 225,400            |
| 1860 . . . . | 724,000      | 7,272                       | 1,400,000                | 884,000            |
| 1870 . . . . | 912,000      | 10,949                      | 2,215,000                | 1,454,000          |
| 1880 . . . . | 2,854,000    | 20,670                      | 4,843,000                | 3,155,000          |
| 1888 . . . . | 4,168,000    | 22,326                      | 6,043,000                | 4,111,000          |

The number of schools of all kinds, and the average attendance of school-children in the three kingdoms, showed thus :—

|                  | Schools |        | Scholars  |           |
|------------------|---------|--------|-----------|-----------|
|                  | 1846    | 1888   | 1846      | 1888      |
| England . . . .  | 22,200  | 19,221 | 1,500,000 | 3,615,000 |
| Scotland . . . . | 5,042   | 3,105  | 220,000   | 496,000   |
| Ireland . . . .  | 9,657   | 8,196  | 330,000   | 494,000   |
| Total . . . .    | 36,899  | 30,522 | 2,050,000 | 4,605,000 |

The proportion of adults able to write is shown by those signing the marriage register, viz. :—

|                  | Per Cent. |       |         |
|------------------|-----------|-------|---------|
|                  | Men       | Women | General |
| England . . . .  | 92        | 90    | 91      |
| Scotland . . . . | 96        | 92    | 94      |
| Ireland . . . .  | 78        | 76    | 77      |
| United Kingdom . | 91        | 89    | 90      |

If we compare the returns of the whole United Kingdom for 1888 with those of 1878 we find as follows :—

|                    | 1878      | 1888      | Ratio of Increase |
|--------------------|-----------|-----------|-------------------|
| Number of schools  | 26,734    | 30,522    | 14                |
| Accommodation      | 5,543,000 | 7,105,000 | 29                |
| Average attendance | 3,219,000 | 4,605,000 | 44                |

The returns for the three kingdoms in 1888 were as follows :—

|                  | Expenditure, £ | Number of Schools | Accommodation | Average Attendance |
|------------------|----------------|-------------------|---------------|--------------------|
| England . . . .  | 7,440,000      | 19,221            | 5,356,000     | 3,615,000          |
| Scotland . . . . | 1,160,000      | 3,105             | 687,000       | 496,000            |
| Ireland . . . .  | 1,090,000      | 8,196             | 1,062,000     | 494,000            |
| U. Kingdom       | 9,690,000      | 30,522            | 7,105,000     | 4,605,000          |

The income of the schools in 1888 was made up thus :—

|                | England     | Scotland  | Ireland   | United Kingdom |
|----------------|-------------|-----------|-----------|----------------|
| State subsidy  | £ 3,600,000 | £ 570,000 | £ 900,000 | £ 5,070,000    |
| Rates, &c. . . | 3,840,000   | 590,000   | 190,000   | 4,620,000      |
| Total          | 7,440,000   | 1,160,000 | 1,090,000 | 9,690,000      |

From 1870 to 1888 the new schools built in England and Wales were :—

| Schools         | Number | Accommodation for Pupils |
|-----------------|--------|--------------------------|
| Board . . . .   | 4,562  | 1,809,000                |
| Voluntary . . . | 6,738  | 1,668,000                |
| Total . . . .   | 11,300 | 3,477,000                |

In 1888 the schools of England and Wales had 68,683 certified teachers and 29,901 pupil teachers; the average expenditure yearly was :—

|                       |           |
|-----------------------|-----------|
| Board schools . . . . | £ s. d.   |
| Voluntary schools . . | 1 16 4 .. |

Local taxation supplied 18s. per child, fees 10s., and the subsidy from the State the rest. In London the expenditure was much higher, namely, 61s. in Board Schools, and 44s. in voluntary per child in average attendance. The working of both kinds of schools in England and Wales in 1881 is shown thus :—

|                 | Schools |        | Average Attendance |           |
|-----------------|---------|--------|--------------------|-----------|
|                 | 1881    | 1888   | 1881               | 1888      |
| Voluntary . . . | 14,370  | 14,659 | 2,008,000          | ...       |
| Board . . . .   | 3,692   | 4,562  | 856,000            | ...       |
| Total . . . .   | 18,062  | 19,221 | 2,864,000          | 3,615,000 |

In 1880 the religion of the school-children of the United Kingdom was as follows :—

|                       | School Children | Percentage |
|-----------------------|-----------------|------------|
| Church of England . . | 1,539,700       | 42.8       |
| Presbyterian . . . .  | 527,400         | 14.6       |
| Roman Catholic . . .  | 526,600         | 14.6       |
| Various . . . . .     | 1,030,300       | 28.0       |
| Total . . . . .       | 3,624,000       | 100.0      |

The average attendance of children compared with population thus :—

|                | Numbers   |           | Per 1000 Inhabitants |      |
|----------------|-----------|-----------|----------------------|------|
|                | 1881      | 1888      | 1881                 | 1888 |
| England . . .  | 2,864,000 | 3,615,000 | 110                  | 127  |
| Scotland . . . | 410,000   | 496,000   | 108                  | 123  |
| Ireland . . .  | 454,000   | 494,000   | 88                   | 104  |
| United Kingdom | 3,728,000 | 4,605,000 | 106                  | 123  |

The increase of schools has been accompanied by a decrease of crime. The returns for England, Wales, and Scotland show :—

| Period  | Children Attending School | Annual Con-<br>victions | School-<br>Children<br>per 1000<br>Population | Criminals<br>per 100,000<br>Population |
|---------|---------------------------|-------------------------|-----------------------------------------------|----------------------------------------|
| 1841-50 | 220,000                   | 24,300                  | 11                                            | 122                                    |
| 1851-60 | 560,000                   | 21,200                  | 26                                            | 96                                     |
| 1861-70 | 1,170,000                 | 17,010                  | 47                                            | 68                                     |
| 1871-80 | 2,300,000                 | 13,900                  | 82                                            | 50                                     |
| 1887    | 4,019,000                 | 12,150                  | 125                                           | 38                                     |

In 1838 Judge Coleridge pointed attention in this direction, and soon afterwards the Committee Report of the House of Commons contained the following testimony :—"We find that the neglect of education causes much crime that might be avoided."

The growth of crime has been materially checked in late years by industrial schools and reformatories, which were begun in 1857, the first for vagrant or destitute children, the second for youthful criminals, the Police Report showing that in 1856 there were 100,000 children and youths under 17 living as vagabonds or thieves in England only. The returns published in 1888 for these institutions show :—

|                      | Reformato-<br>ries | Industrial<br>Schools | Total   |
|----------------------|--------------------|-----------------------|---------|
| England . . .        | 4,225              | 14,585                | 18,810  |
| Ireland . . .        | 923                | 7,991                 | 8,914   |
| Total . . .          | 5,148              | 22,576                | 27,724  |
| Expenditure, £ . . . | 96,000             | 433,000               | 529,000 |

The average expenditure is £19 per head in the above institutions. The entries in England in 1887 were as follows :—

|             | Reformato-<br>ries | Industrial<br>Schools | Total |
|-------------|--------------------|-----------------------|-------|
| Boys . . .  | 1,048              | 4,952                 | 6,000 |
| Girls . . . | 184                | 1,113                 | 1,297 |
| Total . . . | 1,232              | 6,065                 | 7,297 |

The summary of eleven years' working of reformatories, down to 1880, showed as follows :—

|                                   |        |
|-----------------------------------|--------|
| Admitted . . .                    | 36,232 |
| Put to trades . . .               | 23,550 |
| Died or removed . . .             | 5,547  |
| Remaining under instruction . . . | 7,135  |

The good effect of reformatories, since their introduction in 1869, is shown thus :—

|                               | 1869   | 1881  |
|-------------------------------|--------|-------|
| Juvenile offenders . . .      | 10,314 | 5,579 |
| Per million inhabitants . . . | 458    | 215   |

This gives a decline of 53 per cent. in juvenile crime. The Universities of the United Kingdom in 1876 showed as follows :—

|                    | Students | Annual<br>Expenditure | Per Student |
|--------------------|----------|-----------------------|-------------|
| Oxford . . .       | 1,860    | £414,000              | £220        |
| Cambridge . . .    | 1,920    | 340,000               | 177         |
| Dublin . . .       | 810      | 62,000                | 78          |
| Edinburgh . . .    | 2,320    | 200,000               | 87          |
| Glasgow . . .      | 1,340    | 90,000                | 68          |
| Aberdeen . . .     | 650      | 30,000                | 45          |
| St. Andrew's . . . | 300      | 17,000                | 56          |

Besides the above, there are the Universities of London, Durham, Manchester, and the new Royal University of Ireland.

The salaries of the first three are as follows :—

|                       | Fellows and<br>Professors | Salaries, £ | Average, £ |
|-----------------------|---------------------------|-------------|------------|
| Oxford . . .          | 424                       | 159,000     | 373        |
| Cambridge . . .       | 483                       | 132,000     | 274        |
| Trinity, Dublin . . . | 59                        | 31,000      | 530        |

The incomes were derived thus :—

|                 | Endowments,<br>£ | Fees, &c.,<br>£ | Total, £ |
|-----------------|------------------|-----------------|----------|
| Oxford . . .    | 280,000          | 134,000         | 414,000  |
| Cambridge . . . | 235,000          | 115,000         | 340,000  |
| Dublin . . .    | 49,000           | 13,000          | 62,000   |

The register of Cambridge shows that the number of B.A. graduates admitted yearly averaged thus :—

|                    |     |
|--------------------|-----|
| 16th century . . . | 70  |
| 17th " . . .       | 235 |
| 19th " . . .       | 326 |

The ratios of winners at Indian competition examinations in 1880 were :—

|                           | Per Cent. |
|---------------------------|-----------|
| Oxford students . . .     | 28        |
| Cambridge students . . .  | 24        |
| Dublin students . . .     | 17        |
| Scotch Universities . . . | 14        |
| London, Cork, &c. . .     | 17        |
|                           | 100       |

#### IRELAND

In his *Progress of the Nation* (1843) Mr. Porter says :—"The Commissioners for National Education in Ireland have met with a most determined hostility on the part of the Protestant clergy." In order to prevent Catholics from receiving instruction, it was felony for a Catholic (in the last century) to keep a school; and so late as 1801 the Protestant Bishop of Cork prosecuted a man for this offence, but the Lord Chancellor quashed the suit as contrary to the spirit of the age.

The first system of public schools was started in 1817 by the Kildare Street Society, but one of the statutes was to read a chapter daily from King James's version of the Bible. The National Schools were begun by Parliament in 1830. The register shows the children on the rolls, and, as the average attendance in Ireland has always

been under 46 per cent. of the number on the rolls, we can estimate the latter for those early years :—

| Year | Schools | Scholars Enrolled | Average Attendance | Average Attendance per 1000 Inhabitants |
|------|---------|-------------------|--------------------|-----------------------------------------|
| 1820 | 241     | 16,800            | 7,600              | 1                                       |
| 1825 | 1,395   | 102,400           | 46,000             | 6                                       |
| 1835 | 1,106   | 145,500           | 65,000             | 8                                       |
| 1840 | 1,978   | 232,600           | 104,000            | 13                                      |
| 1861 | ...     | 803,400           | 262,800            | 45                                      |
| 1871 | ...     | 1,021,700         | 363,800            | 67                                      |
| 1881 | 7,590   | 1,066,000         | 453,600            | 88                                      |
| 1888 | 8,196   | 1,060,900         | 493,900            | 104                                     |

The annual expenditure is £1,090,000, of which £900,000 is a State subsidy, the rest made up of rates, fees, &c.

As in England, the increase of schools in Ireland has brought a decrease of crime, viz. :—

|         | Children Attending School | Annual Convictions | School Children per 1000 Pop. | Criminals per 100,000 Pop. |
|---------|---------------------------|--------------------|-------------------------------|----------------------------|
| 1851-60 | 220,000                   | 7,705              | 35                            | 124                        |
| 1861-70 | 310,000                   | 2,918              | 56                            | 53                         |
| 1871-80 | 405,000                   | 2,492              | 77                            | 47                         |
| 1887    | 513,000                   | 1,412              | 106                           | 29                         |

## FRANCE

The best measure of educational progress is the ratio of male and female adults able to sign the marriage register, and of conscripts able to write when enrolled for service, viz. :—

| Year | Conscripts Able to Write | Adults of Both Sexes |
|------|--------------------------|----------------------|
| 1830 | 45 per cent.             | 42                   |
| 1855 | 66                       | 60                   |
| 1865 | 76                       | 66                   |
| 1876 | 84                       | 75                   |
| 1881 | 86                       | 82                   |

In December 1887 the primary and secondary schools stood thus :—

|                 | Number | Pupils    | Primary Schools    |          |
|-----------------|--------|-----------|--------------------|----------|
|                 |        |           | Number             | Teachers |
| Primary         | 85,087 | 6,208,000 | Lay . . . . .      | 67,133   |
| Lycées, &c.     | 346    | 89,400    | Clerical . . . . . | 17,954   |
| Girls' colleges | 112    | 10,400    |                    |          |
| Total           | 85,545 | 6,307,800 | Total              | 85,087   |
|                 |        |           |                    | 136,800  |

The above is exclusive of schools for adults, which were attended by 156,000 men and 28,000 women.

Although France has but one University, that of Paris, it has 16 University Colleges. The numbers who graduated in 1885 were :—

|          | Examined | Graduated |             | Examined | Graduated |
|----------|----------|-----------|-------------|----------|-----------|
| Paris    | 3,540    | 1,500     | Montpellier | 644      | 266       |
| Toulouse | 1,218    | 443       | Aix         | 519      | 207       |
| Rennes   | 1,116    | 571       | Clermont    | 540      | 173       |
| Lyons    | 983      | 423       | Dijon       | 430      | 155       |
| Douai    | 848      | 305       | Nancy       | 343      | 150       |
| Poitiers | 823      | 314       | Grenoble    | 341      | 121       |
| Bordeaux | 782      | 278       | Besançon    | 192      | 93        |
| Caen     | 675      | 293       | Algiers     | 118      | 48        |

Official returns of the Educational Department show as follows :—

| Year | Schools | Average Attendance | Average Attendance per 1000 Inhabitants |
|------|---------|--------------------|-----------------------------------------|
| 1840 | 55,930  | 2,882,000          | 85                                      |
| 1864 | 64,978  | 3,414,000          | 90                                      |
| 1887 | 85,545  | 6,308,000          | 170                                     |

Public expenditure on education of all kinds and that on primary schools only are shown as follows :—

| Education |           | Primary Schools |           |
|-----------|-----------|-----------------|-----------|
| Year      | Amount, £ | Year            | Amount, £ |
| 1840      | 400,000   | 1830            | 12,000    |
| 1863      | 1,300,000 | 1855            | 240,000   |
| 1872      | 2,250,000 | 1870            | 350,000   |
| 1881      | 3,600,000 | 1888            | 5,800,000 |

In 1886 the primary schools showed as follows :—

|          | Lay       | Clerical  | Total     |
|----------|-----------|-----------|-----------|
| Schools  | 60,865    | 18,890    | 79,955    |
| Teachers | 88,668    | 46,548    | 135,216   |
| Pupils   | 3,780,000 | 1,737,000 | 5,517,000 |
|          | Male      | Female    | Total     |
| Teachers | 62,796    | 72,420    | 135,216   |
| Pupils   | 2,786,000 | 2,731,000 | 5,517,000 |

Of the total number of pupils, 58 per cent. were free, and 42 per cent. paid for their education.

In the boys' schools there is one teacher for 45 children; in the girls' schools one for 38. Clerical schools average 93 pupils, lay 63.

Making a total of 13,112 candidates, of whom 5330 graduated. There are altogether 10,300 students, who are thus distributed :—

|          |       |            |       |
|----------|-------|------------|-------|
| Law      | 2,500 | Literature | 3,500 |
| Medicine | 2,800 | Science    | 1,500 |

In the rank and file of the French army 15 per 1000 are university graduates.

## ALGERIA

The system of education in 1888 was as follows :—

|                 | No.   | Pupils  |
|-----------------|-------|---------|
| Colleges        | 9     | 3,100   |
| Primary schools | 921   | 70,500  |
| Arab schools    | 76    | 9,000   |
| Infant schools  | 208   | 27,000  |
| Total           | 1,214 | 109,600 |

Only 14 per cent. of children of school-age attend school; there are 535,000 Moslem children not at school.

## GERMANY

In 1876 it was officially stated that the Empire counted 60,000 primary schools, the annual outlay by the State in maintaining them amounting to £3,400,000 sterling. In 1871 the report showed as follows:—

|                | Schools | Teachers | Pupils    | Pupils to Population, per Cent. |
|----------------|---------|----------|-----------|---------------------------------|
| Prussia . . .  | 34,988  | 57,936   | 4,008,000 | 16                              |
| Bavaria . . .  | 7,184   | 11,921   | 841,000   | 17                              |
| Saxony . . .   | 2,134   | 7,219    | 451,000   | 16                              |
| Baden . . .    | 1,957   | 3,603    | 245,000   | 16                              |
| Other States . | 6,540   | 11,320   | 784,000   | 15½                             |
| Total . . .    | 52,803  | 91,999   | 6,329,000 | 16                              |

In 1881 there were 57,000 schools, with 120,000 teachers and 7,100,000 pupils.

Superior education shows the following statistics:—

|                | Gymnasias | Grammar-Schools | Total |
|----------------|-----------|-----------------|-------|
| Prussia . . .  | 231       | 223             | 454   |
| Other States . | 105       | 172             | 277   |
| Total . . .    | 336       | 395             | 731   |

The gymnasias are maintained at a cost of £220,000 a year, of which one-half is defrayed by municipal rates. They have 6670 teachers and are as follows:—

|                   | Gymnasias | Pupils  |
|-------------------|-----------|---------|
| Protestants . . . | 173       | 192,500 |
| Catholics . . .   | 53        | 35,500  |
| Mixed . . .       | 110       | 28,000  |
| Total . . .       | 336       | 256,000 |

Official statistics for Prussia in 1843 compare with those in 1871 as follows:—

|                | 1843      | 1871      | Ratio of Increase |
|----------------|-----------|-----------|-------------------|
| Schools . . .  | 23,100    | 34,988    | 52 per cent.      |
| Teachers . . . | 27,600    | 57,936    | 110 "             |
| Pupils . . .   | 2,271,000 | 4,008,000 | 75 "              |

Germany has 21 Universities, with 1920 professors and 26,700 students. The following table shows the percentage of students according to religious belief, as compared with the percentage of population according to creed:—

|                   | General Population | University Students |
|-------------------|--------------------|---------------------|
| Protestants . . . | 64                 | 70                  |
| Roman Catholics . | 34                 | 20                  |
| Jews . . .        | 12                 | 10                  |
| Total . . .       | 100                | 100                 |

The Universities stand in this order:—

|                | Students |                | Students |
|----------------|----------|----------------|----------|
| Berlin . . .   | 5,700    | Bonn . . .     | 1,200    |
| Leipzig . . .  | 3,100    | Göttingen . .  | 1,100    |
| Münich . . .   | 2,300    | Würzburg . .   | 1,100    |
| Breslau . . .  | 1,600    | Heidelberg . . | 1,020    |
| Halle . . .    | 1,600    | Königsberg . . | 910      |
| Tübingen . . . | 1,400    | Ten others . . | 7,100    |

Of the total number of students 89 per cent. are Germans and 11 per cent. of other nations, Americans being 1 per cent. The oldest University is that of Heidelberg, which dates from 1386.

## RUSSIA

The *Rousski Kalendar* and other semi-official documents give the following statistics:—

| Year           | Schools | Pupils    | Pupils per 1000 Population |
|----------------|---------|-----------|----------------------------|
| 1804 . . . . . | 627     | 109,000   | 3                          |
| 1824 . . . . . | 2,118   | 263,000   | 6                          |
| 1838 . . . . . | 3,956   | 461,000   | 9                          |
| 1875 . . . . . | 32,100  | 1,213,000 | 15                         |
| 1889 . . . . . | 43,100  | 2,270,000 | 25                         |

The returns for 1875 and 1888 compare as follows:—

|                 | School-Children |           | Increase per Cent. |
|-----------------|-----------------|-----------|--------------------|
|                 | 1875            | 1888      |                    |
| Boys . . . . .  | 985,000         | 1,726,000 | 73                 |
| Girls . . . . . | 228,000         | 544,000   | 138                |
| Total . . . . . | 1,213,000       | 2,270,000 | 89                 |

The ratios of children at school were approximately:—

|                 | 1875  |       |       | 1888  |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
|                 | Boys  | Girls | Total | Boys  | Girls | Total |
| At school . . . | 11.5  | 2.6   | 6.9   | 16.7  | 5.4   | 11.0  |
| Not at school . | 88.5  | 97.4  | 93.1  | 83.3  | 94.6  | 89.0  |
| Total . . . . . | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

In 1802 the Czar Alexander I. founded the Universities of St. Petersburg and Moscow. It was not, however, until after the emancipation of the serfs, in 1861, that great efforts were made to educate the masses, 20,000 new schools being opened in the ensuing ten years. Besides the above primary schools there are gymnasias and middle-schools, as follows:—

|                   | No. | Pupils  |
|-------------------|-----|---------|
| For boys . . . .  | 622 | 168,000 |
| For girls . . . . | 324 | 62,300  |
| Total . . . . .   | 946 | 230,300 |

These schools had 7100 teachers, and half their cost is defrayed by the State. The Russian Government expended £3,800,000 on schools in 1889.

There were eight Universities in 1884, viz.:—

|                    | Professors | Students | State Subsidy, £ |
|--------------------|------------|----------|------------------|
| Moscow . . . . .   | 103        | 2,430    | 53,000           |
| St. Petersburg . . | 99         | 2,050    | 43,000           |
| Kiev . . . . .     | 105        | 1,470    | 46,000           |
| Dorpat . . . . .   | 65         | 1,430    | 26,000           |
| Warsaw . . . . .   | 79         | 1,000    | 29,000           |
| Kharkov . . . . .  | 89         | 820      | 37,000           |
| Kazan . . . . .    | 109        | 780      | 38,000           |
| Odessa . . . . .   | 52         | 380      | 25,000           |
| Total . . . . .    | 701        | 10,360   | 297,000          |

In 1888 the number of University students reached 12,900.

The annual subsidy for primary schools is £900,000, equal to 8s. per pupil.

## AUSTRIA-HUNGARY

Official returns for the whole Empire were as follows :—

| Year         | Schools | School-Children | Per 1000 Population |
|--------------|---------|-----------------|---------------------|
| 1837 . . . . | 16,754  | 2,313,000       | 83                  |
| 1870 . . . . | 31,100  | 3,189,000       | 90                  |
| 1878 . . . . | 31,740  | 3,663,000       | 99                  |
| 1889 . . . . | 35,720  | 4,903,000       | 130                 |

The amount spent yearly by Government on the above primary schools is £1,500,000, equal to 8s. per pupil. The returns for 1878 were as follows :—

|                           | Austria   | Hungary   | Total     |
|---------------------------|-----------|-----------|-----------|
| Number of schools . . . . | 15,166    | 16,574    | 31,740    |
| Teachers . . . . .        | 31,200    | 22,300    | 53,500    |
| Pupils, boys . . . . .    | 1,093,000 | 833,000   | 1,926,000 |
| Pupils, girls . . . . .   | 1,042,000 | 695,000   | 1,737,000 |
| Total pupils . . . . .    | 2,135,000 | 1,528,000 | 3,663,000 |

The whole educational system of Austria proper in 1889 is shown thus :—

|                           | Number | Professors | Scholars  |
|---------------------------|--------|------------|-----------|
| Universities . . . .      | 7      | 1,092      | 13,680    |
| High schools . . . .      | 61     | 691        | 4,720     |
| Middle schools . . . .    | 318    | 5,850      | 79,450    |
| Technical schools . . . . | 1,570  | 7,890      | 111,200   |
| Free schools . . . . .    | 16,945 | 57,236     | 2,748,300 |
| Total . . . . .           | 18,902 | 72,759     | 2,957,350 |

The statistics of seven Austrian Universities show as follows :—

|                      | Professors | Students |       |          |            | Total  | State Grant, £ |
|----------------------|------------|----------|-------|----------|------------|--------|----------------|
|                      |            | Theology | Law   | Medicine | Philosophy |        |                |
| Vienna . . . . .     | 361        | 217      | 1,998 | 2,598    | 643        | 5,456  | 83,000         |
| Grätz . . . . .      | 139        | 102      | 549   | 490      | 167        | 1,308  | 23,000         |
| Innsbruck . . . . .  | 86         | 251      | 261   | 202      | 104        | 818    | 21,000         |
| Prague . . . . .     | 285        | 269      | 1,580 | 1,404    | 421        | 3,674  | 63,000         |
| Lemberg . . . . .    | 69         | 361      | 598   | ...      | 125        | 1,084  | 15,000         |
| Cracow . . . . .     | 110        | 89       | 484   | 392      | 129        | 1,094  | 29,000         |
| Czernowitz . . . . . | 42         | 59       | 138   | ...      | 52         | 249    | 8,000          |
| Total . . . . .      | 1,092      | 1,348    | 5,608 | 5,086    | 1,641      | 13,683 | 242,000        |

The religion of the students showed these ratios :—

|                      | Percentage of Religion of Students |       |           |        |         |        |            |
|----------------------|------------------------------------|-------|-----------|--------|---------|--------|------------|
|                      | Vienna                             | Grätz | Innsbruck | Prague | Lemberg | Cracow | Czernowitz |
| Catholic . . . . .   | 54.9                               | 86.5  | 99.1      | 86.2   | 87.0    | 89.8   | 29.3       |
| Protestant . . . . . | 7.0                                | 5.4   | 0.5       | 1.9    | 0.3     | 4.3    | 4.4        |
| Jew . . . . .        | 33.2                               | 3.8   | 0.3       | 11.6   | 12.7    | 11.9   | 21.7       |
| Greek . . . . .      | 3.9                                | 4.3   | 0.1       | 0.3    | ...     | ...    | 44.6       |
|                      | 100.0                              | 100.0 | 100.0     | 100.0  | 100.0   | 100.0  | 100.0      |

In 1886 the ratios of children of school-age at school\* were :—

|                          | Austria | Hungary |
|--------------------------|---------|---------|
| Attending school . . . . | 85.0    | 80.4    |
| Not at school . . . . .  | 15.0    | 19.6    |
| Total . . . . .          | 100.0   | 100.0   |

Hungary has three Universities, viz. :—

|                       | Professors | Students |
|-----------------------|------------|----------|
| Buda-Pesth . . . . .  | 211        | 3,660    |
| Klausenburg . . . . . | 81         | 525      |
| Agram . . . . .       | 48         | 415      |
| Total . . . . .       | 340        | 4,600    |

The whole system of education in Hungary in 1886 stood thus :—

|                          | Number | Teachers | Pupils    | Males     | Females |
|--------------------------|--------|----------|-----------|-----------|---------|
| Universities . . . . .   | 3      | 340      | 4,600     | 4,600     | ...     |
| Middle schools . . . . . | 405    | 3,140    | 73,700    | 69,200    | 4,500   |
| Primary . . . . .        | 16,410 | 23,980   | 1,868,000 | 993,000   | 875,000 |
| Total . . . . .          | 16,818 | 27,460   | 1,946,300 | 1,066,800 | 879,500 |

The sum paid yearly in salaries to teachers of primary schools is £880,000 sterling, or £36 each.

The following table shows the advance of education in Hungary in eight years :—

| Year           | Primary Schools |           | All Schools |           |
|----------------|-----------------|-----------|-------------|-----------|
|                | Teachers        | Pupils    | Teachers    | Pupils    |
| 1880 . . . . . | 21,700          | 1,620,000 | 24,900      | 1,670,000 |
| 1884 . . . . . | 23,100          | 1,790,000 | 27,100      | 1,850,000 |
| 1888 . . . . . | 24,400          | 1,950,000 | 28,900      | 2,015,000 |

The languages taught in the primary schools are :—

| Austria           | Schools | Hungary           | Schools |
|-------------------|---------|-------------------|---------|
| German . . . . .  | 7,001   | Magyar . . . . .  | 7,938   |
| Czech . . . . .   | 4,246   | Various . . . . . | 8,472   |
| Various . . . . . | 5,698   | Total . . . . .   | 16,410  |
| Total . . . . .   | 16,945  |                   |         |

The advance of public instruction among the masses between the years 1868 and 1880 is shown by the ratio of conscripts able to read, viz. :—

|                     | 1868         | 1880         |
|---------------------|--------------|--------------|
| Austrian . . . . .  | 34 per cent. | 61 per cent. |
| Hungarian . . . . . | 22           | 49           |

In 1874 the ratios of conscripts able to read and write were :—

|                    | Per Cent. |                   | Per Cent. |
|--------------------|-----------|-------------------|-----------|
| Galitzia . . . . . | 15.5      | Moravia . . . . . | 71.4      |
| Croatia . . . . .  | 42.3      | Styria . . . . .  | 73.7      |
| Tyrol . . . . .    | 53.4      | Bohemia . . . . . | 84.7      |
| Hungary . . . . .  | 60.0      | Austria . . . . . | 90.0      |

In 1880 the ratio of adults able to sign the marriage register were as follows :—

|                   | Per Cent. |         |            |
|-------------------|-----------|---------|------------|
|                   | Males     | Females | Both Sexes |
| Austria . . . . . | 61        | 53      | 57         |
| Hungary . . . . . | 49        | 30      | 39         |

\* This shows the ratio of children on the school-rolls; the average attendance was only 65 per cent. of children of school-age.

The ratios of children of school-age attending school were:—

|                  | Per Cent. |                 | Per Cent. |
|------------------|-----------|-----------------|-----------|
| Galitzia . . . . | 27        | Styria . . . .  | 80        |
| Illyria . . . .  | 47        | Moravia . . . . | 90        |
| Hungary . . . .  | 76        | Austria . . . . | 90        |

The general average for the whole Empire was 70 per cent.

## ITALY

Official returns show that the number of children at primary schools has doubled since 1862, viz.:—

| Year | Boys      | Girls     | Total     | Per 1000 Population |
|------|-----------|-----------|-----------|---------------------|
| 1862 | 627,000   | 483,000   | 1,110,000 | 50                  |
| 1870 | 890,000   | 683,000   | 1,573,000 | 61                  |
| 1877 | ...       | ...       | 2,082,000 | 75                  |
| 1887 | 1,194,000 | 1,059,000 | 2,253,000 | 75                  |

The returns for 1887 compare with 1877 thus:—

|              | 1877    |           | 1887    |           |
|--------------|---------|-----------|---------|-----------|
|              | Schools | Pupils    | Schools | Pupils    |
| Primary . .  | 44,050  | 2,082,000 | 53,630  | 2,253,000 |
| Superior . . | 13,910  | 555,000   | 16,877  | 818,000   |
| Total        | 57,960  | 2,637,000 | 70,507  | 3,071,000 |

The returns for 1887 showed as follows:—

| Primary Schools |           | All Schools, Teachers |        |
|-----------------|-----------|-----------------------|--------|
| Boys . . . .    | 1,194,000 | Primary . . . .       | 55,300 |
| Girls . . . .   | 1,059,000 | Superior . . . .      | 31,100 |
| Total . . . .   | 2,253,000 | Total . . . .         | 86,400 |

The progress of instruction is shown in the following table:—

| Year         | Conscripts Able to Read | Percentage Signing Marriage Register |       |
|--------------|-------------------------|--------------------------------------|-------|
|              | Per Cent.               | Men                                  | Women |
| 1866 . . . . | 36.0                    | 40.0                                 | 21.0  |
| 1871 . . . . | 43.3                    | 42.3                                 | 23.3  |
| 1881 . . . . | 52.3                    | 51.8                                 | 30.1  |
| 1887 . . . . | 55.0                    | 57.2                                 | 37.2  |

The percentage of persons in Italy, at various ages, who could read was as follows:—

| Age, Years    | Towns Only |      | All Italy |      |         |      |
|---------------|------------|------|-----------|------|---------|------|
|               |            |      | Males     |      | Females |      |
|               | 1871       | 1881 | 1871      | 1881 | 1871    | 1881 |
| 6-18 . . . .  | 52         | 59   | 45        | 56   | 34      | 43   |
| 18-25 . . . . | 60         | 68   | 51        | 59   | 43      | 53   |
| 25-40 . . . . | 59         | 66   | 48        | 53   | 40      | 46   |
| 40-60 . . . . | 55         | 58   | 43        | 37   | 40      | 17   |

In 1871 the percentage of persons over seven years who could read, in the various provinces, stood thus:—

|                  | Males | Females | Total Population |
|------------------|-------|---------|------------------|
| Sicily . . . .   | 35    | 24      | 30               |
| Naples . . . .   | 34    | 22      | 28               |
| Tuscany . . . .  | 49    | 38      | 44               |
| Romagna . . . .  | 49    | 39      | 44               |
| Venetia . . . .  | 55    | 37      | 46               |
| Lombardy . . . . | 67    | 59      | 63               |
| Piedmont . . . . | 73    | 59      | 66               |

The ratio was 35 at Messina, 76 at Florence and Genoa, and 83 per cent. at Turin.

There are twenty-one Universities, with 600 professors and 9000 students; the principal Universities are:—

|                | Students |               | Students |
|----------------|----------|---------------|----------|
| Naples . . . . | 1,450    | Padua . . . . | 970      |
| Turin . . . .  | 1,230    | Rome . . . .  | 560      |

The annual Government expenditure for education is £3,100,000 sterling.

## SPAIN

The number of schools and scholars was as follows:—

| Year | Public | Private | Total  | Pupils    | Per 1000 Population |
|------|--------|---------|--------|-----------|---------------------|
| 1850 | 13,334 | 4,100   | 17,434 | 664,000   | 51                  |
| 1870 | 22,711 | 5,406   | 28,117 | 1,426,000 | 94                  |
| 1885 | 24,529 | 7,350   | 31,879 | 1,843,000 | 106                 |

The sexes of pupils are said to be sixty males to forty females.

The percentage of persons able to read and write was as follows:—

|                    | 1860 |       |       | 1877 |       |       |
|--------------------|------|-------|-------|------|-------|-------|
|                    | Men  | Women | Total | Men  | Women | Total |
| Read and write . . | 31   | 9     | 20    | 34   | 15    | 25    |
| Read only . .      | 4    | 5     | 5     | 3    | 4     | 3     |
| Ignorant . .       | 65   | 86    | 75    | 63   | 81    | 72    |
| Total . .          | 100  | 100   | 100   | 100  | 100   | 100   |

The progress made in middle-class or superior schools has been:—

| Year         | Pupils |
|--------------|--------|
| 1858 . . . . | 15,000 |
| 1868 . . . . | 25,300 |
| 1878 . . . . | 33,500 |

The total expenditure for schools in 1879 was one million sterling,\* besides £100,000 for Universities. There are 10 universities, with 380 professors and 16,200 students; the number in 1865 was only 9700. The oldest University is Salamanca, founded in 1240; it has 40 professors and 1300 students. In Spain 35 per cent. of adults can sign the marriage register, against 18 per cent. in 1848. The Census of 1860 showed as follows:—

|                 | Able to Read | Ratio to Population over 7 Years Old |
|-----------------|--------------|--------------------------------------|
| Males . . . .   | 2,731,000    | 40 per cent.                         |
| Females . . . . | 1,105,000    | 16 „                                 |
| Total . . . .   | 3,836,000    | 28 „                                 |

## PORTUGAL

The educational system is as follows:—

|                         | Number | Pupils  |
|-------------------------|--------|---------|
| University . . . .      | 1      | 1,300   |
| Colleges . . . .        | 70     | 14,200  |
| Private schools . . . . | 1,935  | 65,100  |
| Public schools . . . .  | 3,657  | 176,000 |
| Total . . . .           | 5,663  | 256,600 |

\* Of this sum the Government provides only £80,000, the rest being supplied by municipal rates. Teachers earn about £20 a year.

The increase of primary instruction is remarkable :—

| Year           | Schools | Scholars | Per 1000 Population |
|----------------|---------|----------|---------------------|
| 1854 . . . . . | 1,350   | 55,000   | 14                  |
| 1870 . . . . . | 3,000   | 130,000  | 32                  |
| 1878 . . . . . | 4,520   | 198,000  | 46                  |
| 1886 . . . . . | 5,384   | 237,000  | 54                  |

The annual outlay for education is £220,000 sterling.

#### HOLLAND

The scheme of instruction in 1888 was :—

|                           | Number | Teachers | Pupils  |
|---------------------------|--------|----------|---------|
| Universities . . . . .    | 4      | 180      | 2,600   |
| Colleges . . . . .        | 212    | 2,120    | 18,700  |
| Private schools . . . . . | 1,204  | 4,767    | 177,100 |
| Public schools . . . . .  | 2,940  | 12,823   | 449,400 |
| Infant schools . . . . .  | 1,088  | ...      | 110,000 |
| Total . . . . .           | 5,448  | 19,890   | 757,800 |

The returns of primary schools showed thus :—

| Year           | Schools | Scholars | Per 1000 Population |
|----------------|---------|----------|---------------------|
| 1835 . . . . . | 2,830   | 304,000  | 102                 |
| 1870 . . . . . | 3,614   | 456,000  | 120                 |
| 1877 . . . . . | 3,821   | 523,000  | 132                 |
| 1888 . . . . . | 4,144   | 627,000  | 145                 |

The public primary schools of Belgium were as follows :—

| Year           | Number of Schools | Pupils  |         |         | Free    | Paying  |
|----------------|-------------------|---------|---------|---------|---------|---------|
|                |                   | Male    | Female  | Total   |         |         |
| 1845 . . . . . | 3,431             | 182,900 | 143,700 | 326,600 | 174,400 | 152,200 |
| 1857 . . . . . | 3,787             | 219,100 | 180,500 | 399,600 | 250,200 | 149,400 |
| 1869 . . . . . | 4,260             | 267,400 | 226,000 | 493,400 | 339,200 | 154,200 |
| 1878 . . . . . | 4,839             | 318,500 | 279,700 | 598,200 | 452,300 | 145,900 |
| 1887 . . . . . | 5,491             | 331,400 | 272,600 | 604,000 | 516,700 | 87,400  |

The income and expenditure of the above schools were as follows :—

|                        | 1843    | 1860    | 1870    | 1880      | 1886      |
|------------------------|---------|---------|---------|-----------|-----------|
| Fees . . . . .         | £28,000 | £34,000 | £46,000 | £44,000   | £72,000   |
| Local grants . . . . . | 34,000  | 74,000  | 132,000 | 266,000   | 375,000   |
| State grants . . . . . | 8,000   | 54,000  | 140,000 | 376,000   | 290,000   |
| Sundries . . . . .     | 34,000  | 108,000 | 289,000 | 714,000   | 343,000   |
| Expenditure . . . . .  | 104,000 | 270,000 | 607,000 | 1,400,000 | 1,080,000 |

There are four Universities, the returns of which show the number of students thus :—

|                    | 1840  | 1870  | 1888  |                          | 1840  | 1870  | 1888  |
|--------------------|-------|-------|-------|--------------------------|-------|-------|-------|
| Ghent . . . . .    | 396   | 459   | 838   | Philosophy . . . . .     | 344   | 257   | 657   |
| Liege . . . . .    | 331   | 653   | 1,470 | Science . . . . .        | 293   | 350   | 1,351 |
| Brussels . . . . . | 279   | 496   | 1,795 | Law . . . . .            | 359   | 605   | 1,392 |
| Louvain . . . . .  | 490   | 907   | 1,757 | Medicine . . . . .       | 272   | 562   | 1,484 |
|                    |       |       |       | Engineering, &c. . . . . | 228   | 741   | 976   |
| Total . . . . .    | 1,496 | 2,515 | 5,860 | Total . . . . .          | 1,496 | 2,515 | 5,860 |

In 1887 the expenditure was :—

|                           |            |                          |           |
|---------------------------|------------|--------------------------|-----------|
| Primary schools . . . . . | £1,000,000 | State grant . . . . .    | £580,000  |
| Colleges . . . . .        | 240,000    | Communal grant . . . . . | 720,000   |
| Total . . . . .           | 1,300,000  | Total . . . . .          | 1,300,000 |

The ratio of conscripts able to read and write was as follows :—

| Year           | Able to Read | To Read and Write |
|----------------|--------------|-------------------|
| 1850 . . . . . | 77.2         | 74.9              |
| 1860 . . . . . | 80.2         | 78.0              |
| 1876 . . . . . | 88.0         | 87.0              |

The sexes of children attending school were boys 54, girls 46.

#### BELGIUM

The whole educational system may be summed up as follows :—

|                           | Number | Pupils  |
|---------------------------|--------|---------|
| Universities . . . . .    | 4      | 5,900   |
| Colleges . . . . .        | 171    | 33,100  |
| Adult schools . . . . .   | 1,644  | 65,300  |
| Primary schools . . . . . | 5,491  | 604,100 |
| Infant schools . . . . .  | 947    | 99,300  |
| Total . . . . .           | 8,257  | 807,700 |



The number of persons able to read and write was as follows :—

|                   | 1866      | 1888      |
|-------------------|-----------|-----------|
| Males . . . . .   | 1,209,000 | 1,661,000 |
| Females . . . . . | 1,070,000 | 1,527,000 |
| Total . . . . .   | 2,279,000 | 3,188,000 |

The ratio of conscripts able to read and write was as follows :—

|                          | 1843  | 1860  | 1870  | 1889  |
|--------------------------|-------|-------|-------|-------|
| Illiterate . . . . .     | 43.6  | 31.8  | 24.0  | 13.1  |
| Read only . . . . .      | 7.2   | 7.6   | 5.2   | 2.9   |
| Read and write . . . . . | 49.2  | 60.6  | 70.8  | 84.0  |
|                          | 100.0 | 100.0 | 100.0 | 100.0 |

## SWEDEN

Latest returns are to this effect :—

|                           | Number | Pupils  |
|---------------------------|--------|---------|
| Universities . . . . .    | 2      | 2,700   |
| Colleges . . . . .        | 146    | 16,700  |
| Primary schools . . . . . | 10,338 | 708,000 |
| Total . . . . .           | 10,486 | 727,400 |

In 1859 the primary schools had 2950 teachers, and the ratio of children of school-age attending school was 71 per cent. In 1888 there were 12,880 teachers, and the ratio of children at school was 98 per cent. Only three recruits in 1000 cannot read and write. The outlay for schools is £600,000 a year, one-fourth from the Treasury, the rest municipal. The University of Upsal has 1800 students, that of Lund 900.

## NORWAY

The scheme of instruction in 1886 was as follows :—

|                           | Number | Pupils  |
|---------------------------|--------|---------|
| University . . . . .      | 1      | 1,700   |
| Academies . . . . .       | 128    | 12,500  |
| Primary schools . . . . . | 6,340  | 288,700 |
| Total . . . . .           | 6,469  | 302,900 |

The annual outlay is £260,000, mostly raised by municipal rates. The State gives £25,000 a year to the University of Christiania.

## DENMARK

The returns for 1888 show as follows :—

|                           | Number | Pupils  |
|---------------------------|--------|---------|
| University . . . . .      | 1      | 1,300   |
| Colleges . . . . .        | 40     | ...     |
| Primary schools . . . . . | 2,940  | 232,000 |
| Total . . . . .           | 2,981  | 233,300 |

The University of Copenhagen, founded in 1479, has sixty professors.

## SWITZERLAND

The number of Swiss students (exclusive of 630 foreigners) was as follows at the four Universities :—

| Geneva . . . . . | 217   | Medicine . . . . . | 558   |
|------------------|-------|--------------------|-------|
| Berne . . . . .  | 430   | Law . . . . .      | 219   |
| Zurich . . . . . | 335   | Divinity . . . . . | 200   |
| Basel . . . . .  | 293   | Science . . . . .  | 298   |
| Total . . . . .  | 1,275 | Total . . . . .    | 1,275 |

In 1886 the returns showed as follows :—

|                            | Number | Teachers | Pupils  |
|----------------------------|--------|----------|---------|
| Universities . . . . .     | 4      | 351      | 1,900   |
| Academies . . . . .        | 882    | ...      | 41,000  |
| Girls' academies . . . . . | 1,600  | 3,543    | 136,500 |
| Primary schools . . . . .  | 4,308  | 8,826    | 461,600 |
| Other schools . . . . .    | ...    | ...      | 260,500 |
| Total . . . . .            | ...    | ...      | 901,500 |

In 1830 only 78 per cent. were able to sign the marriage register; in 1871 the ratio was 88 per cent. The above school total includes 245,000 adults attending night-schools.

## ROUMANIA

In 1883 the official returns were :—

|                           | Number | Pupils  |
|---------------------------|--------|---------|
| Universities . . . . .    | 2      | 700     |
| Academies . . . . .       | 62     | 8,800   |
| Primary schools . . . . . | 2,743  | 124,100 |
| Total . . . . .           | 2,807  | 133,600 |

The Universities of Bucharest and Jassy had ninety-seven professors.

## SERVIA

The educational system in 1888 was as follows :—

|                           | Number | Teachers | Pupils |
|---------------------------|--------|----------|--------|
| University . . . . .      | 1      | 31       | 300    |
| Academies . . . . .       | 33     | 423      | 7,300  |
| Primary schools . . . . . | 668    | 1,194    | 52,400 |
| Total . . . . .           | 702    | 1,648    | 59,900 |

The annual expenditure by the State is £100,000, besides municipal subsidies. In 1884 only 10 per cent. of the population could read and write, that is, about 15 per cent., excluding infants.

## GREECE

The educational system in 1884 showed thus :—

|                           | Number | Teachers | Pupils  |
|---------------------------|--------|----------|---------|
| University . . . . .      | 1      | 98       | 2,400   |
| Academies . . . . .       | 418    | 776      | 22,300  |
| Primary schools . . . . . | 2,281  | 2,500    | 118,000 |
| Total . . . . .           | 2,700  | 3,374    | 142,700 |

The annual expenditure is £240,000 sterling.

## UNITED STATES

The first educational census was taken in 1840, and the official returns since then show thus :—

| Year | Schools | Revenue, £ Sterling | Teachers | Scholars   | Scholars per 1000 Pop. |
|------|---------|---------------------|----------|------------|------------------------|
| 1840 | 50,700  | ...                 | ...      | 2,025,000  | 119                    |
| 1850 | 87,300  | 3,400,000           | ...      | 3,642,000  | 160                    |
| 1860 | 113,000 | 7,100,006           | 148,700  | 5,693,000  | 180                    |
| 1870 | 141,600 | 19,400,000          | 221,040  | 6,596,000  | 171                    |
| 1880 | 171,200 | 29,100,000          | 272,700  | 9,705,000  | 194                    |
| 1888 | ...     | ...                 | 347,300  | 11,950,000 | 196                    |

The number of scholars is that on the rolls, but the average attendance is about 63 per cent. of same.

| Year       | On the Rolls | Average Attendance | Ratio        |
|------------|--------------|--------------------|--------------|
| 1880 . . . | 9,705,000    | 6,049,000          | 62 per cent. |
| 1885 . . . | 11,170,000   | 7,020,000          | 63 "         |
| 1888 . . . | 11,950,000   | 7,852,000          | 65 "         |

As the population in 1888 was 60 millions, the average attendance was equal to 131 per thousand of population, against 123 in the United Kingdom. Considering the vast extent and scattered population of the United States, this result is admirable.

School revenue seems largely to exceed expenditure, the latter in 1888 being stated at £25,510,000, whereas the school revenue of 1880 was said to reach £29,100,000 sterling.

The school-children in the various States were as follows :—

|                      | 1840      | 1860      | 1885       | Average Attendance, 1885 | Average Attendance per 1000 Population, 1880 |
|----------------------|-----------|-----------|------------|--------------------------|----------------------------------------------|
| Alabama . . .        | 21,000    | 98,000    | 234,000    | 145,000                  | 116                                          |
| Arkansas . . .       | 3,000     | 43,000    | 153,000    | 93,000 *                 | 116                                          |
| California . . .     | ...       | 26,000    | 184,000    | 116,000                  | 136                                          |
| Colorado . . .       | ...       | ...       | 34,000     | 25,000                   | 130                                          |
| Connecticut . . .    | 72,000    | 90,000    | 126,000    | 83,000                   | 133                                          |
| Delaware . . .       | 8,000     | 19,000    | 31,000     | 21,000                   | 140                                          |
| Florida . . .        | 2,000     | 9,000     | 62,000     | 46,000                   | 170                                          |
| Georgia . . .        | 24,000    | 95,000    | 292,000    | 195,000                  | 130                                          |
| Illinois . . .       | 37,000    | 338,000   | 739,000    | 491,000                  | 160                                          |
| Indiana . . .        | 51,000    | 336,000   | 501,000    | 325,000                  | 162                                          |
| Iowa . . .           | 2,000     | 185,000   | 473,000    | 284,000                  | 175                                          |
| Kansas . . .         | ...       | ...       | 336,000    | 194,000                  | 194                                          |
| Kentucky . . .       | 31,000    | 183,000   | 283,000    | 179,000                  | 109                                          |
| Louisiana . . .      | 7,000     | 48,000    | 100,000    | 70,000                   | 74                                           |
| Maine . . .          | 173,000   | 189,000   | 145,000    | 99,000                   | 151                                          |
| Maryland . . .       | 22,000    | 80,000    | 176,000    | 93,000                   | 100                                          |
| Massachusetts . . .  | 178,000   | 249,000   | 340,000    | 254,000                  | 140                                          |
| Michigan . . .       | 31,000    | 205,000   | 412,000    | 253,000                  | 152                                          |
| Minnesota . . .      | ...       | ...       | 233,000    | 119,000                  | 151                                          |
| Mississippi . . .    | 11,000    | 67,000    | 279,000    | 184,000                  | 162                                          |
| Missouri . . .       | 19,000    | 203,000   | 544,000    | 372,000                  | 170                                          |
| Nebraska . . .       | ...       | ...       | 162,000    | 81,000                   | 178                                          |
| Nevada . . .         | ...       | ...       | 8,000      | 5,000                    | 166                                          |
| New Hampshire . . .  | 90,000    | 83,000    | 64,000     | 45,000                   | 133                                          |
| New Jersey . . .     | 59,000    | 119,000   | 217,000    | 123,000                  | 110                                          |
| New York . . .       | 537,000   | 806,000   | 1,025,000  | 611,000                  | 120                                          |
| North Carolina . . . | 19,000    | 117,000   | 298,000    | 186,000                  | 133                                          |
| Ohio . . .           | 225,000   | 606,000   | 775,000    | 518,000                  | 160                                          |
| Oregon . . .         | ...       | ...       | 46,000     | 31,000                   | 170                                          |
| Pennsylvania . . .   | 198,000   | 670,000   | 982,000    | 657,000                  | 153                                          |
| Rhode Island . . .   | 21,000    | 31,000    | 53,000     | 34,000                   | 122                                          |
| South Carolina . . . | 17,000    | 47,000    | 178,000    | 122,000                  | 122                                          |
| Tennessee . . .      | 31,000    | 163,000   | 374,000    | 192,000                  | 128                                          |
| Texas . . .          | ...       | 63,000    | 245,000    | 154,000                  | 97                                           |
| Vermont . . .        | 87,000    | 80,000    | 72,000     | 49,000                   | 150                                          |
| Virginia . . .       | 47,000    | 155,000   | 475,000    | 286,000                  | 134                                          |
| Wisconsin . . .      | 2,000     | 189,000   | 322,000    | 175,000                  | 134                                          |
| Territories . . .    | ...       | 101,000   | 195,000    | 110,000                  | 140                                          |
| Total . . .          | 2,025,000 | 5,693,000 | 11,170,000 | 7,020,000                | 140                                          |

In the preceding table the ratio of school children to population in 1885 is not correct, as the only basis for comparison is the Census of 1880, which figures are on an average 15 per cent. too low.

The two Virginias, be it noted, are put together as one State.

Taking the four great divisions of the Union, we find :—

| States            | Average Attendance |           | Ratio of Increase | Per 1000 Population in 1885 |
|-------------------|--------------------|-----------|-------------------|-----------------------------|
|                   | 1880               | 1885      |                   |                             |
| New England . . . | 541,000            | 564,000   | 4 per cent.       | 140                         |
| Middle . . .      | 1,417,000          | 1,505,000 | 6 "               | 120                         |
| South . . .       | 1,509,000          | 1,852,000 | 22 "              | 120                         |
| West . . .        | 2,582,000          | 3,099,000 | 19 "              | 164                         |
| Total . . .       | 6,049,000          | 7,020,000 | 17 per cent.      | 140                         |

The expenditure on primary schools in 1880 was :—

| States            | Amount      | Ratio per Inhabitant | Per Pupil, Average Attending |
|-------------------|-------------|----------------------|------------------------------|
| New England . . . | £ 1,908,000 | £ s. d. 0 9 6        | £ s. d. 3 12 0               |
| Middle . . .      | 4,563,000   | 0 6 9                | 3 5 6                        |
| South . . .       | 1,479,000   | 0 2 0                | 0 19 6                       |
| West . . .        | 7,952,000   | 0 9 6                | 3 5 8                        |
| Pacific . . .     | 683,000     | 0 10 9               | 5 3 0                        |
| The Union . . .   | 16,585,000  | 0 6 6                | 2 15 0                       |

\* Arkansas, Michigan, and Texas give no returns of "average attendance." For the sake of comparison, I assume the general ratio of the Union, that is, 63 per cent. of the children on the rolls.

The number of white population over twenty years of age who could not read was as follows :—

| Year           | Number    | Percentage of Population |
|----------------|-----------|--------------------------|
| 1840 . . . . . | 550,000   | 7.8                      |
| 1850 . . . . . | 1,053,000 | 11.2                     |
| 1860 . . . . . | 1,218,000 | 9.2                      |

The Census subsequently extended the inquiry to all persons, white or coloured, over ten years of age, with the result :—

| Year           | Unable to Read over Ten Years | Percentage of Population |
|----------------|-------------------------------|--------------------------|
| 1870 . . . . . | 4,528,000                     | 16.0                     |
| 1880 . . . . . | 3,019,000                     | 8.1                      |

This shows what progress education has made since 1870, the proportion of illiterate persons over ten years old having been reduced by one-half in a single decade. The greatest relative advancement is in the South, where (as shown above) the average attendance of school children rose 22 per cent. between 1880 and 1885. The number of children on the school rolls in 1860 and 1885 compared thus :—

| States                | Children on Rolls |            | Increase     |
|-----------------------|-------------------|------------|--------------|
|                       | 1860              | 1885       |              |
| New England . . . . . | 722,000           | 801,000    | 11 per cent. |
| Middle . . . . .      | 1,694,000         | 2,431,000  | 44 "         |
| South . . . . .       | 1,088,000         | 2,973,000  | 173 "        |
| West . . . . .        | 2,189,000         | 4,965,000  | 127 "        |
| Total . . . . .       | 5,693,000         | 11,170,000 | 96 per cent. |

The intermediate and superior instruction in 1880 showed thus :—

|                               | Number | Teachers | Students |
|-------------------------------|--------|----------|----------|
| University colleges . . . . . | 364    | 4,240    | 60,000   |
| Academies . . . . .           | 1,860  | 5,960    | 183,000  |
| Total . . . . .               | 2,224  | 10,200   | 243,000  |

The most celebrated University is Harvard, near Boston, founded in 1638. The number of universities and colleges in 1775 was ten, rising to 21 in 1791.

The University students in 1880 were :—

|                    |       |                    |        |
|--------------------|-------|--------------------|--------|
| Law . . . . .      | 3,100 | Medicine . . . . . | 12,000 |
| Theology . . . . . | 5,800 | Arts . . . . .     | 30,200 |
| Science . . . . .  | 8,900 |                    |        |
|                    |       | Total . . . . .    | 60,000 |

The records of Indian education for 1888 sum up thus :—

| Schools           | No.     | Pupils    | Schools           | No.     | Pupils    | Schools             | No.     | Pupils    |
|-------------------|---------|-----------|-------------------|---------|-----------|---------------------|---------|-----------|
| State . . . . .   | 78,304  | 2,959,000 | Males . . . . .   | 126,298 | 3,193,700 | Primary . . . . .   | 89,400  | 2,557,000 |
| Private . . . . . | 55,048  | 515,000   | Females . . . . . | 7,054   | 280,300   | Secondary . . . . . | 43,952  | 917,000   |
| Total . . . . .   | 133,352 | 3,474,000 | Total . . . . .   | 133,352 | 3,474,000 | Total . . . . .     | 133,352 | 3,474,000 |

The above is the number of children on the rolls, the average attendance being 78 per cent., say 2,710,000 children.

The Government subsidy is £600,000, fees and local rates £1,500,000. The Universities of Calcutta, Madras and Bombay have 6000 students.

In the preceding tables no account is taken of orphanages, &c., which in 1880 instructed 774,000 children, viz. :—

|                         | Number | Children |
|-------------------------|--------|----------|
| Orphanages . . . . .    | 411    | 751,000  |
| Blind, &c. . . . .      | 83     | 8,600    |
| Reformatories . . . . . | 67     | 14,200   |
| Total . . . . .         | 561    | 773,800  |

The grand total of 1888 therefore reaches 13,126,000 persons receiving instruction, or 22 per cent. of the population.

#### CANADA

In 1850 there were but 1700 schools, and in 1887 the number exceeded 15,600. The returns for 1887 compare with 1879 as follows :—

|                    | 1879    | 1887    |
|--------------------|---------|---------|
| Schools . . . . .  | 12,786  | 15,607  |
| Teachers . . . . . | 16,297  | 18,942  |
| Pupils . . . . .   | 866,000 | 984,000 |

The returns for 1887 were as follows :—

| Province                | Teachers | Pupils on Roll | Average Attendance | Expenditure, £ |
|-------------------------|----------|----------------|--------------------|----------------|
| Ontario . . . . .       | 7,775    | 504,000        | 248,000            | 700,000        |
| Quebec . . . . .        | 6,121    | 253,000        | 130,000            | 70,000         |
| Nova Scotia . . . . .   | 2,119    | 105,000        | 51,000             | 130,000        |
| New Brunswick . . . . . | 1,644    | 69,000         | 34,000             | 80,000         |
| P. Edward I. . . . .    | 518      | 22,000         | 12,000             | 30,000         |
| Manitoba, &c. . . . .   | 765      | 26,000         | 12,000             | 90,000         |
| Total . . . . .         | 18,942   | 979,000        | 487,000            | 1,100,000      |

The Universities of Quebec, Montreal, and Toronto are ably conducted and largely attended.

#### MOROCCO

There is a Mahometan university at Fez, attended by 700 students, but the studies are mostly limited to the Koran.

#### INDIA

Public instruction may be said to date from 1858, when the East India Company possessions were annexed to the British Crown. The records show as follows :—

| Year           | Schools | Scholars  | Expenditure |
|----------------|---------|-----------|-------------|
| 1857 . . . . . | ...     | 200,000   | 200,000     |
| 1874 . . . . . | 43,188  | 977,000   | 760,000     |
| 1878 . . . . . | 82,561  | 2,196,000 | 1,660,000   |
| 1888 . . . . . | 133,352 | 3,474,000 | 2,100,000   |

## AUSTRALIA

The returns for 1880 showed thus :—

|                | Schools | Teachers | Pupils    |                    | Expenditure, £ |
|----------------|---------|----------|-----------|--------------------|----------------|
|                |         |          | En-rolled | Average Attendance |                |
| N. S. Wales .  | 1,910   | 3,393    | 169,000   | 72,000             | 475,000        |
| Victoria . .   | 2,430   | 4,950    | 269,000   | 120,000            | 553,000        |
| New Zealand .  | 836     | 2,681    | 84,000    | 63,000             | 384,000        |
| S. Australia . | 370     | 837      | 36,000    | 20,000             | 87,000         |
| Queensland .   | 338     | 924      | 43,000    | 24,000             | 124,000        |
| Tasmania . .   | 171     | 323      | 12,000    | 8,000              | 24,000         |
| W. Australia . | 102     | 108      | 5,000     | 3,000              | 10,000         |
| Total . . .    | 6,157   | 13,216   | 618,000   | 311,000            | 1,657,000      |

The progress of instruction in late years has been very rapid, as these figures show :—

| Year       | Schools | Pupils  |         |         | Expenditure, £ |
|------------|---------|---------|---------|---------|----------------|
|            |         | Boys    | Girls   | Total   |                |
| 1861 . . . | ...     | 69,000  | 61,000  | 130,000 | ...            |
| 1871 . . . | ...     | 165,000 | 147,000 | 312,000 | ...            |
| 1881 . . . | 6,157   | 344,000 | 327,000 | 671,000 | 1,657,000      |
| 1888 . . . | 9,104   | 401,000 | 382,000 | 783,000 | 1,930,000      |

The returns for 1888 were as follows :—

|                   | Pupils  | Schools | Average |
|-------------------|---------|---------|---------|
| Public schools .  | 618,000 | 6,816   | 90      |
| Private schools . | 165,000 | 2,288   | 72      |
| Total . . .       | 783,000 | 9,104   | 86      |

|                             | Schools |         |       | Pupils on Roll | Average at Public Schools | Expenditure, £ |
|-----------------------------|---------|---------|-------|----------------|---------------------------|----------------|
|                             | Public  | Private | Total |                |                           |                |
| New South Wales . . . . .   | 2,291   | 659     | 2,950 | 227,000        | 112,000                   | 600,000        |
| Victoria . . . . .          | 1,930   | 752     | 2,682 | 280,000        | 129,000                   | 620,000        |
| New Zealand . . . . .       | 1,208   | 300     | 1,508 | 130,000        | 96,000                    | 380,000        |
| South Australia . . . . .   | 530     | 293     | 823   | 60,000         | 28,000                    | 100,000        |
| Queensland . . . . .        | 544     | 134     | 678   | 59,000         | 39,000                    | 180,000        |
| Tasmania . . . . .          | 220     | 150     | 370   | 22,000         | 9,000                     | 40,000         |
| Western Australia . . . . . | 93      | ...     | 93    | 5,000          | 4,000                     | 10,000         |
| Total . . . . .             | 6,816   | 2,288   | 9,104 | 783,000        | 417,000                   | 1,930,000      |

The number of persons who could read and write in the several colonies, according to Census returns, was as follows :—

|                             | Census of 1861 |           |             |                |           |             |
|-----------------------------|----------------|-----------|-------------|----------------|-----------|-------------|
|                             | Number         |           |             | Percentage     |           |             |
|                             | Read and Write | Read Only | Cannot Read | Read and Write | Read Only | Cannot Read |
| New South Wales . . . . .   | 189,000        | 46,000    | 116,000     | 54             | 13        | 33          |
| Victoria . . . . .          | 328,000        | 57,000    | 156,000     | 60             | 11        | 29          |
| Queensland . . . . .        | 17,000         | 4,000     | 9,000       | 57             | 12        | 31          |
| South Australia . . . . .   | 72,000         | 19,000    | 36,000      | 57             | 14        | 29          |
| New Zealand . . . . .       | 68,000         | 9,000     | 22,000      | 68             | 9         | 23          |
| Tasmania . . . . .          | 48,000         | 13,000    | 29,000      | 53             | 15        | 32          |
| Western Australia . . . . . | 8,000          | 2,000     | 6,000       | 56             | 10        | 34          |
| Total . . . . .             | 730,000        | 150,000   | 374,000     | 58             | 12        | 30          |

|                             | Census of 1881 |           |             |                |           |             |
|-----------------------------|----------------|-----------|-------------|----------------|-----------|-------------|
|                             | Number         |           |             | Percentage     |           |             |
|                             | Read and Write | Read Only | Cannot Read | Read and Write | Read Only | Cannot Read |
| New South Wales . . . . .   | 507,000        | 49,000    | 195,000     | 68             | 7         | 25          |
| Victoria . . . . .          | 652,000        | 50,000    | 161,000     | 76             | 6         | 18          |
| Queensland . . . . .        | 137,000        | 14,000    | 63,000      | 65             | 6         | 29          |
| South Australia . . . . .   | 200,000        | 15,000    | 65,000      | 72             | 5         | 23          |
| New Zealand . . . . .       | 346,000        | 27,000    | 116,000     | 71             | 6         | 23          |
| Tasmania . . . . .          | 75,000         | 10,000    | 31,000      | 65             | 8         | 27          |
| Western Australia . . . . . | 20,000         | 2,000     | 8,000       | 67             | 7         | 26          |
| Total . . . . .             | 1,937,000      | 167,000   | 639,000     | 70             | 7         | 23          |

From the preceding table it appears that in 1881 popular instruction was most general in Victoria, and that, on the other hand, Tasmania and Queensland stood lowest.

The percentage of persons able to sign the marriage register in Australasia was as follows :—

| Year           | Men | Women | Total |
|----------------|-----|-------|-------|
| 1861 . . . . . | 81  | 69    | 75    |
| 1871 . . . . . | 89  | 84    | 87    |
| 1881 . . . . . | 96  | 93    | 95    |
| 1888 . . . . . | 97  | 97    | 97    |

## SOUTH AFRICA

The colonies of the Cape and Natal in 1888 showed :—

|                 | Schools | Pupils | Average Attendance | Outlay, £ |
|-----------------|---------|--------|--------------------|-----------|
| Cape . . . . .  | 1,407   | 88,000 | 47,000             | 220,000   |
| Natal . . . . . | 124     | 11,000 | 9,000              | 30,000    |
| Total . . . . . | 1,531   | 99,000 | 56,000             | 250,000   |

There is a University at Cape Town with 250 students.

## CEYLON

The returns for 1872 and 1888 compare thus :—

|             | Schools |       | Pupils |         |
|-------------|---------|-------|--------|---------|
|             | 1872    | 1888  | 1872   | 1888    |
| Public . .  | 602     | 1,357 | 36,000 | 102,000 |
| Private . . | 365     | 2,292 | 9,000  | 29,000  |
| Total . .   | 967     | 3,649 | 45,000 | 131,000 |

The Government subsidy is £40,000 yearly. About 5 per cent. of the whole population attend school.

## CYPRUS

In 1888 the returns were as follows :—

|                   | Schools | Pupils |
|-------------------|---------|--------|
| Christian . . . . | 219     | 10,400 |
| Mahometan . . . . | 86      | 3,100  |
| Total . . . .     | 305     | 13,500 |

Annual expenditure, £9000, one-third being a State grant.

## MINOR COLONIES

The latest returns show as follows :—

|               | Schools |         |       | Pupils |         |        |
|---------------|---------|---------|-------|--------|---------|--------|
|               | Public  | Private | Total | Public | Private | Total  |
| Hong-Kong     | 97      | 107     | 204   | 6,000  | 2,000   | 8,000  |
| Singapore . . | 150     | 32      | 182   | 7,000  | 3,000   | 10,000 |
| Mauritius . . | 144     | ...     | 144   | 16,000 | ...     | 16,000 |
| Jamaica . . . | 771     | ...     | 771   | 72,000 | ...     | 72,000 |

There are many private schools at Jamaica, but no returns.

## JAPAN

Education has lost ground of late years, viz. :—

|                  | 1882      | 1888      |
|------------------|-----------|-----------|
| Schools . . . .  | 30,660    | 27,550    |
| Teachers . . . . | 89,600    | 62,600    |
| Pupils . . . .   | 3,091,000 | 2,830,000 |

There are sixteen free libraries. The number of new works published was 9550 in the year 1888. There were 470 newspapers and magazines.

## SOUTH AMERICA

The Argentine Republic has taken the foremost place in the South American continent. The official returns for 1876 and 1888 were :—

|                  | 1876    | 1888    | Increase     |
|------------------|---------|---------|--------------|
| Schools . . . .  | 1,946   | 3,227   | 65 per cent. |
| Teachers . . . . | 5,893   | 7,332   | 23 "         |
| Pupils . . . .   | 116,200 | 254,600 | 119 "        |

The returns for 1888 show as follows :—

|                 | Schools | Teachers | Scholars |
|-----------------|---------|----------|----------|
| State . . . .   | 2,263   | 4,744    | 175,200  |
| Private . . . . | 964     | 2,588    | 79,400   |
| Total . . . .   | 3,227   | 7,332    | 254,600  |

The ratio of school-children was 70 per 1000 of the population. The above includes 2 universities and 34 colleges, with 13,000 students.

Brazil in 1880 had 4 universities, 26 colleges, and 5890 schools, the whole numbering 191,000 pupils, or 16 per 1000 of population.

Chile in 1880 had 1650 schools, attended by 98,000 children, equal to 50 per 1000 of population, and a university at Santiago.

## ELECTORS

The numbers of electors and voters in various countries are :—

|                        | Electors  | Voters     | Percentage who Vote | Per 1000 of Population |        |      |
|------------------------|-----------|------------|---------------------|------------------------|--------|------|
|                        |           |            |                     | Electors               | Voters | Year |
| United Kingdom . . . . | 5,837,000 | 4,550,000  | 78                  | 155                    | 121    | 1889 |
| United States . . . .  | ...       | 10,868,000 | ...                 | ...                    | 176    | 1888 |
| France . . . .         | 9,948,000 | 8,012,000  | 81                  | 266                    | 220    | 1880 |
| Germany . . . .        | 9,124,000 | 5,832,000  | 64                  | 205                    | 130    | 1880 |
| Spain . . . .          | 942,000   | 610,000    | 63                  | 57                     | 36     | 1880 |
| Austria . . . .        | 1,291,000 | 462,000    | 36                  | 60                     | 22     | 1880 |
| Switzerland . . . .    | 639,000   | 256,000    | 40                  | 230                    | 92     | 1880 |
| Portugal . . . .       | 217,000   | 145,000    | 67                  | 54                     | 36     | ...  |
| Belgium . . . .        | 118,000   | 86,000     | 72                  | 21                     | 15     | 1880 |
| Italy . . . .          | 627,000   | 370,000    | 59                  | 21                     | 13     | 1880 |
| Sweden . . . .         | 43,000    | 17,000     | 40                  | 10                     | 4      | 1880 |

The returns for the United Kingdom show the electors for 1889, and the ratio of voters is assumed to be as at the election of 1885, that is, 78 per cent.

## UNITED KINGDOM

|                        | Percentage of Electors |       |       |       | Ratio to 100 Inhabitants |      |      |      |
|------------------------|------------------------|-------|-------|-------|--------------------------|------|------|------|
|                        | 1835                   | 1871  | 1881  | 1889  | 1835                     | 1871 | 1881 | 1889 |
| England . . . .        | 79.5                   | 80.8  | 82.4  | 77.2  | 4.6                      | 9.0  | 9.7  | 15.8 |
| Ireland . . . .        | 11.7                   | 9.0   | 7.5   | 13.0  | 1.2                      | 4.2  | 4.4  | 16.0 |
| Scotland . . . .       | 8.8                    | 10.2  | 10.1  | 9.8   | 3.0                      | 7.6  | 8.4  | 14.2 |
| United Kingdom . . . . | 100.0                  | 100.0 | 100.0 | 100.0 | 3.3                      | 8.1  | 8.9  | 15.5 |

Until 1885 Ireland had less than half her fair share of electors for population. The proportion of county and borough electors in the United Kingdom has been as follows :—

|                   | Electors  |           |           | Ratio |       |       |
|-------------------|-----------|-----------|-----------|-------|-------|-------|
|                   | 1846      | 1881      | 1885      | 1846  | 1881  | 1885  |
| County . . . . .  | 622,000   | 1,198,000 | 3,497,000 | 58.5  | 39.0  | 61.0  |
| Borough . . . . . | 445,000   | 1,879,000 | 2,219,000 | 41.5  | 61.0  | 39.0  |
| Total . . . . .   | 1,067,000 | 3,077,000 | 5,716,000 | 100.0 | 100.0 | 100.0 |

The franchise has been extended at intervals, and now counts seven times as many electors as in 1835, viz. :—

| Year | England   | Scotland | Ireland | U. Kingdom |
|------|-----------|----------|---------|------------|
| 1835 | 668,000   | 73,000   | 98,000  | 839,000    |
| 1846 | 845,000   | 93,000   | 129,000 | 1,067,000  |
| 1871 | 2,066,000 | 260,000  | 227,000 | 2,553,000  |
| 1881 | 2,538,000 | 310,000  | 220,000 | 3,077,000  |
| 1889 | 4,502,000 | 572,000  | 763,000 | 5,837,000  |

The franchise of 1885 exactly reversed the ratios of 1881. The proportion of members of Parliament to electors in the three kingdoms is as follows :—

|                          |           |
|--------------------------|-----------|
| England . . . . .        | 1 to 9000 |
| Scotland . . . . .       | 1 „ 8000  |
| Ireland . . . . .        | 1 „ 7400  |
| United Kingdom . . . . . | 1 „ 8700  |

Of 100 electors, 80 vote in England, 79 in Scotland, 67 in Ireland, the ratio for the whole United Kingdom being 78—say 4,500,000 voters.

## UNITED STATES

The presidential elections since 1824 have been as follows :—

| Year           | Electoral Votes |                  |       | Popular Votes |           |            | Votes per 100 of Population |
|----------------|-----------------|------------------|-------|---------------|-----------|------------|-----------------------------|
|                | Winner          | Other Candidates | Total | Winner        | Others    | Total      |                             |
| 1824 . . . . . | 99              | 162              | 261   | 156,000       | 196,000   | 352,000    | 3                           |
| 1828 . . . . . | 178             | 83               | 261   | 647,000       | 509,000   | 1,156,000  | 10                          |
| 1832 . . . . . | 219             | 67               | 286   | 688,000       | 562,000   | 1,250,000  | 10                          |
| 1836 . . . . . | 170             | 124              | 294   | 762,000       | 737,000   | 1,499,000  | 10                          |
| 1840 . . . . . | 234             | 60               | 294   | 1,275,000     | 1,136,000 | 2,411,000  | 14                          |
| 1844 . . . . . | 170             | 105              | 275   | 1,337,000     | 1,361,000 | 2,698,000  | 14                          |
| 1848 . . . . . | 163             | 127              | 290   | 1,360,000     | 1,511,000 | 2,871,000  | 13                          |
| 1852 . . . . . | 254             | 42               | 296   | 1,601,000     | 1,542,000 | 3,143,000  | 13                          |
| 1856 . . . . . | 174             | 122              | 296   | 1,838,000     | 2,217,000 | 4,055,000  | 15                          |
| 1860 . . . . . | 180             | 123              | 303   | 1,866,000     | 2,811,000 | 4,677,000  | 15                          |
| 1864 . . . . . | 212             | 102              | 314   | 2,216,000     | 1,809,000 | 4,025,000  | 12                          |
| 1868 . . . . . | 214             | 103              | 317   | 3,015,000     | 2,710,000 | 5,725,000  | 16                          |
| 1872 . . . . . | 286             | 80               | 366   | 3,597,000     | 2,870,000 | 6,467,000  | 16                          |
| 1876 . . . . . | 185             | 184              | 369   | 4,034,000     | 4,375,000 | 8,409,000  | 19                          |
| 1880 . . . . . | 214             | 155              | 369   | 4,449,000     | 4,761,000 | 9,210,000  | 18                          |
| 1884 . . . . . | 219             | 182              | 401   | 4,911,000     | 5,145,000 | 10,056,000 | 19                          |
| 1888 . . . . . | ...             | ...              | ...   | 5,186,000     | 5,682,000 | 10,868,000 | 18                          |

## FRANCE

The most important elections, known as plebiscites, were as follows :—

| Year | For       | Against   | Total     | Per 100 Inhabitants |
|------|-----------|-----------|-----------|---------------------|
| 1793 | 1,801,000 | 12,000    | 1,813,000 | 7                   |
| 1803 | 3,568,000 | 9,000     | 3,577,000 | 12                  |
| 1815 | 1,302,000 | 4,000     | 1,306,000 | 4                   |
| 1852 | 7,828,000 | 253,000   | 8,081,000 | 23                  |
| 1870 | 7,336,060 | 1,561,000 | 8,897,000 | 25                  |

The general election of 1881 showed as follows :—

| Class                  | Per Cent. |
|------------------------|-----------|
| Republicans . . . . .  | 45.7      |
| Orleanists . . . . .   | 11.1      |
| Bonapartists . . . . . | 5.4       |
| Not voted . . . . .    | 37.8      |
| Total . . . . .        | 100.0     |

## ITALY

The following elections resulted thus :—

| Year | Electors on Roll | Voted   | Voted, Per Cent. | Voters per 100 Inhabitants |
|------|------------------|---------|------------------|----------------------------|
| 1861 | 421,000          | 240,000 | 57               | 1.1                        |
| 1865 | 504,000          | 272,000 | 54               | 1.1                        |
| 1870 | 535,000          | 241,000 | 45               | 0.9                        |
| 1876 | 607,000          | 358,000 | 59               | 1.3                        |
| 1880 | 627,000          | 370,000 | 59               | 1.3                        |

## GERMANY

The members from the various States composing the Imperial Council are as follows :—

|                      |                        |                           |
|----------------------|------------------------|---------------------------|
| Prussia . . . . . 17 | Wurtemberg . . . . . 4 | Mecklenburg . . . . . 2   |
| Bavaria . . . . . 6  | Baden . . . . . 3      | Brunswick . . . . . 2     |
| Saxony . . . . . 4   | Hesse . . . . . 3      | Small States . . . . . 17 |

Making a total of 58 members of the Bundesrath.

The voters and electors of the Empire were as follows:—

| Year | Electors  | Voters    | Percentage Voting | Electors per 1000 Inhab. |
|------|-----------|-----------|-------------------|--------------------------|
| 1874 | 8,523,000 | 5,292,000 | 62                | 200                      |
| 1880 | 9,124,000 | 5,832,000 | 64                | 205                      |

#### BELGIUM

The following table shows the registered electors and the numbers that voted:—

| Year           | Electors | Voted   |
|----------------|----------|---------|
| 1841 . . . . . | 24,900   | 19,100  |
| 1859 . . . . . | 61,900   | 45,100  |
| 1878 . . . . . | 125,100  | 64,200  |
| 1884 . . . . . | 195,700  | 146,800 |

#### ELECTRICITY

**Lights.**—The following are some of the largest lights in use:—

|                                | Candle-Power |                        | Candle-Power |
|--------------------------------|--------------|------------------------|--------------|
| Kensington Museum . . . . .    | 2,000        | Marseilles, lighthouse | 40,000       |
| Crystal Palace . . . . .       | 3,000        | Palais d'Industrie, }  |              |
| British Museum . . . . .       | 5,000        | Paris . . . . .        | 150,000      |
| Liverpool Docks . . . . .      | 6,000        | Sydney, lighthouse .   | 180,000      |
| San José, California . . . . . | 24,000       |                        |              |

The cost varies from 10d. an hour at Kensington, to 27d. at Marseilles, both Brush system.

The arc light at Liverpool costs 15d., the Siemens at the British Museum 24d. The San José electric moon stands on a tower 200 feet high, is worked by a 9-horse engine, and shows light for two miles around. The Sydney light is visible 50 miles, being the most powerful yet made. The Marseilles gives six times more light than the old system, at a saving of 9d. per hour. The Kensington Museum saves £235 a year by the change. The smallest lights are Swan and Edison's arc lights of 8 candle-power for domestic use. A contract with the Nottingham Municipality in May 1883 was for works and plant for supplying 60,000 Swan lamps of 20 candle-power. The cost of instalment was £220,000, and after allowing for all expenses and interest on capital, the electric light would cost 40 per cent. less than gas, and give 40 per cent. more light. In the United States, in 1890, there were 3,230,000 electric lights in use, 90 per cent. of the incandescent kind. Turin is lit with 73,000 candle-power (equal to 6000 gas lamps), at a cost of £5200 per annum. The gas only cost £3200.

In 1885 the *Journal of Arts* said:—"As regards the electric light, at the present time upwards of 600 dynamos and 20,000 lamps are in use, and the cost of their instalment may be estimated at about one million sterling."

The Lane-Fox system may be described as follows:—

| Horse-Power | Lights | Candle-Power | Aggregate Candle-Power |
|-------------|--------|--------------|------------------------|
| 3           | 36     | 10           | 360                    |
| 5           | 30     | 20           | 600                    |
| 8           | 40     | 25           | 1,000                  |
| 20          | 60     | 40           | 2,400                  |

The Brush system, with an engine 40 horse-power, serves as follows:—

| Number of Lights | Candle-Power | Aggregate Candle-Power |
|------------------|--------------|------------------------|
| 1 . . . . .      | 150,000      | 150,000                |
| 12 . . . . .     | 8,000        | 96,000                 |
| 40 . . . . .     | 2,000        | 80,000                 |
| 400 . . . . .    | 150          | 60,000                 |

One engine of the above power feeds 400 lamps on a line of 30 miles, consuming 150 lbs. coal per hour, as compared with one ton per hour for gaslight over same length.

The Yablochkoff system is said to supply 100 candle-

power at a cost of 1d. per hour, having reduced the cost from 6d. an hour in 1877.

The number of Edison lights, underground wires, in use in Europe on the 1st January 1889 was as follows:—

|                     |        |                     |       |                       |       |
|---------------------|--------|---------------------|-------|-----------------------|-------|
| Berlin . . . . .    | 73,400 | Hamburg . . . . .   | 5,000 | Schwerin . . . . .    | 3,000 |
| Hanover . . . . .   | 20,000 | Dresden . . . . .   | 4,000 | Rotterdam . . . . .   | 2,500 |
| Milan . . . . .     | 20,000 | Lübeck . . . . .    | 3,000 | Munich . . . . .      | 2,500 |
| London . . . . .    | 6,000  | Turin . . . . .     | 3,000 | St. Etienne . . . . . | 4,000 |
| Liverpool . . . . . | 2,000  | Elberfeld . . . . . | 3,000 | Strasbourg . . . . .  | 2,500 |

besides Brunswick, Stuttgart, Halle, Crefeld, and Darmstadt, making a total of 170,000.

According to the *Magasin du Louvre* the relative cost of lighting is—gas 100, Edison 75, Yablochkoff 55 (in 1884).

#### MOTOR

1873. At the Vienna Exhibition a pump was worked at a distance of 1400 yards by means of an electric wire.

1879. At Sermaize, La Marne, a field of six acres was ploughed in six hours with a wire attached to a 12-horse engine a mile distant.

1881. At Oisiel a farmer named Meiner ploughed a large field by connecting an electric wire with a waterfall.

1882. Project to tap the force of Niagara by constructing turbines, the power of water being estimated at ten million cubic feet per second, or eight million horse-power, and to transmit this force through the United States. Estimated value, £300,000 a day, or 108 millions sterling per annum. A copper wire, half-inch diameter and 300 miles long, would suffice to convey 30,000 horse-power from Niagara to New York.

1883. Four electric locomotives constructed by the New York Railway Company to do the work of 160 ordinary locomotives. Tramcar at Kew, near London, running by electricity at six miles an hour, one accumulator of 80 lbs. sufficing for seven hours' work; cost 6s. per day, against 26s. worked by horses. Electric railway from Portrush to Giant's Causeway, Ireland. Electric screw-boat on the Thames at Greenwich, 9 miles an hour.

1889. City of Buffalo contracts with Niagara Power Company for 10,000 horse-power at £30,000 per annum, to light the city and drive factories; cable, 20 miles long.

1890. There are at present 645 miles of street railways operated by electricity in the United States and Canada. At present 45 electric roads are in course of construction, aggregating 512 miles of way, for which 167 cars are being built. In a short time the total number of electric roads will be 854, running 1927 motor and trailing cars, with a mileage of 1158. See *Telegraph, Telephones*.

#### EMIGRATION

Since the battle of Waterloo, no fewer than 27 millions of people in Europe have left their homes, broken up family ties, and sought their futures in new lands:—

|                             | 1816-50   | 1851-85    | Total      |
|-----------------------------|-----------|------------|------------|
| United Kingdom              | 2,369,000 | 7,491,000  | 9,860,000  |
| France . . . . .            | 320,000   | 1,220,000  | 1,540,000  |
| Germany . . . . .           | 1,130,000 | 4,540,000  | 5,670,000  |
| Russia . . . . .            | 50,000    | 350,000    | 400,000    |
| Austria . . . . .           | 130,000   | 1,160,000  | 1,290,000  |
| Italy . . . . .             | 320,000   | 3,260,000  | 3,580,000  |
| Switzerland . . . . .       | 150,000   | 610,000    | 760,000    |
| Spain . . . . .             | 160,000   | 580,000    | 740,000    |
| Portugal . . . . .          | 90,000    | 450,000    | 540,000    |
| Sweden and Norway . . . . . | 100,000   | 970,000    | 1,070,000  |
| Denmark . . . . .           | 40,000    | 180,000    | 220,000    |
| Holland . . . . .           | 25,000    | 320,000    | 345,000    |
| Belgium . . . . .           | 90,000    | 880,000    | 970,000    |
| Other countries . . . . .   | 20,000    | 200,000    | 220,000    |
| Europe . . . . .            | 4,994,000 | 22,211,000 | 27,205,000 |

\* Besides the exodus of Europeans there has been an efflux of Coolies.

The emigration from India averages 22,000 yearly, the number registered abroad in 1880 being 335,000, viz. :—

|                 |         |                  |        |
|-----------------|---------|------------------|--------|
| Mauritius . . . | 141,000 | Trinidad . . .   | 26,000 |
| Demerara . . .  | 54,000  | Natal . . .      | 18,000 |
| Bourbon . . .   | 43,000  | Jamaica, &c. . . | 53,000 |

Numbers of Chinese Coolies emigrate to Cuba and Peru, where they are ill-treated. Cuba imported 116,000 in the years 1866-73, and refused to let them return to China on the expiration of their contracts; 67,000 died. The number imported into Peru in the year 1871 was 38,650, of whom many were put to death. In 1880 in one province 2000 were massacred.

The destinations of European emigrants were :—

|                     | Down to 1850     | 1851-83           | Total             |
|---------------------|------------------|-------------------|-------------------|
| United States . . . | 2,633,000        | 12,330,000        | 14,963,000        |
| Australia . . .     | 140,000          | 1,710,000         | 1,850,000         |
| Canada . . .        | 790,000          | 977,000           | 1,767,000         |
| Argentina . . .     | 80,000           | 1,450,000         | 1,530,000         |
| Brazil . . .        | 90,000           | 790,000           | 880,000           |
| Uruguay . . .       | 40,000           | 170,000           | 210,000           |
| Algeria . . .       | 140,000          | 420,000           | 560,000           |
| Cape Colony . . .   | 30,000           | 130,000           | 160,000           |
| Various countries   | 1,051,000        | 4,234,000         | 5,285,000         |
| <b>Total . . .</b>  | <b>4,994,000</b> | <b>22,211,000</b> | <b>27,205,000</b> |

The exact proportions of sex and age cannot be given; the following table is not of uniform importance, some of the countries being classed from observations of ten years, others for a single year.

|                        | Emigrants from |            |            |            |            |            |                   |
|------------------------|----------------|------------|------------|------------|------------|------------|-------------------|
|                        | United Kingdom | Germany    | Holland    | Austria    | Sweden     | Denmark    | Italy Switzerland |
| Men . . . . .          | 46             | 50         | 52         | 32         | 45         | 51         | 70                |
| Women . . . . .        | 32             | 25         | 23         | 28         | 35         | 26         | 18                |
| Children . . . . .     | 22             | 25         | 25         | 40         | 20         | 23         | 12                |
| <b>Total . . . . .</b> | <b>100</b>     | <b>100</b> | <b>100</b> | <b>100</b> | <b>100</b> | <b>100</b> | <b>100</b>        |

If the proportions for the unascertained countries be taken on the basis of the first six countries in the above table, the whole emigration from Europe over the seas for 74 years may be put down thus :—

|                        |                   |
|------------------------|-------------------|
| Men . . . . .          | 11,550,000        |
| Women . . . . .        | 6,730,000         |
| Children . . . . .     | 5,120,000         |
| <b>Total . . . . .</b> | <b>23,400,000</b> |

The numbers of those who died on sea can never be arrived at even approximately. Kapp says that 20,000 Irish perished of ship-fever in 1846-47. Many vessels lost 20 per cent. If we were to adopt the death-rate on Government emigrant-ships to Australia and Cape Colony, namely, 5 per 1000 for men, 6 for women, and 52 for children, the number of the foregoing who died at sea would be as follows :—

|                        |                |
|------------------------|----------------|
| Men . . . . .          | 58,000         |
| Women . . . . .        | 40,000         |
| Children . . . . .     | 266,000        |
| <b>Total . . . . .</b> | <b>364,000</b> |

Births partly compensate for deaths, being about 1 in 200 women carried.

The professions of emigrants have not been uniformly classed; the following conveys a general idea :—

|                        | Emigrants from |            |            |            |
|------------------------|----------------|------------|------------|------------|
|                        | United Kingdom | Germany    | Italy      | Sweden     |
| Educated . . .         | 7              | 17         | 6          | 35         |
| Artisans, &c. .        | 55             | 47         | 43         |            |
| Farm labourers         | 18             | 24         | 39         |            |
| Servants . . .         | 20             | 12         | 12         | 33         |
| <b>Total . . . . .</b> | <b>100</b>     | <b>100</b> | <b>100</b> | <b>100</b> |

The amount of money which the emigrants took to their new homes was found to average as follows :—

|                                   | Per Head           |
|-----------------------------------|--------------------|
| Germans, 1848-52 . . . . .        | £ s. d.<br>29 10 0 |
| 1853-54 . . . . .                 | 35 0 0             |
| British in Canada, 1834 . . . . . | 33 5 0             |
| New York arrivals, 1856 . . . . . | 14 0 0             |

A moderate estimate of £10 per able-bodied man would result as follows :—

|                             | To                 |
|-----------------------------|--------------------|
| United States . . . . .     | £ 75,000,000       |
| Australia . . . . .         | 9,200,000          |
| Canada . . . . .            | 8,800,000          |
| River Plate . . . . .       | 8,700,000          |
| Brazil . . . . .            | 4,400,000          |
| Various countries . . . . . | 9,400,000          |
| <b>Total . . . . .</b>      | <b>115,500,000</b> |

The great value of the emigrants, meantime, has been in their capacity for work. Dr. Farr valued a man of 20 at £234 sterling, Engel at £200, and other writers at £260.

In Australia it is found that each immigrant, big and little, increases the revenue by £4 yearly. In the Argentine Republic the influx of 800,000 immigrants in twenty years ending 1883 was accompanied by a rise of £4,800,000 in the revenue, say £6 per head. But it is in the United States where the value of immigration is most apparent; for example, a group of 200 persons settled in 1858 on the territory now known as the State of Colorado, and in 1880 there were 1220 miles of railway, 14 daily papers, 190,000 inhabitants, real and personal estate valued at 9 millions sterling, agricultural products worth £700,000 a year; in 1886 the value of property in Colorado had risen to 27 millions sterling.

In the Republic of Uruguay in 1884 an official report showed 166,000 European settlers, holding property worth 52 millions. In the city of Buenos Ayres 40,000 Europeans in 1883 held bank-deposits and real property worth £47,600,000, besides Irish and Scotch sheep-farms valued at 21 millions sterling. The Census report of the United States in 1880 showed an increase of wealth since 1850 of 7593 millions sterling, and as immigrants were 12½ per cent. of the population, it follows that they stand for 949 millions of the increase.

In Canada the agricultural capital rose from 140 millions in 1861 to 343 millions in 1887, and as immigrants formed 30 per cent. of the population, they are entitled to take credit for that share of the increase, say 61 millions. Agricultural constituting only 50 per cent. of the wealth of Canada, the total accumulation due to the immigrants will be 122 millions sterling.

There has been, moreover, a notable increase of wealth in the Brazilian provinces of Rio Grande do Sul, San Paulo, &c., where numerous German colonies have converted forests into productive lands. The following table is exclusive of Brazil and Cape Colony.



| Country                      | Wealth Accumulated by Immigrants |           |                          |                   |                         |
|------------------------------|----------------------------------|-----------|--------------------------|-------------------|-------------------------|
|                              | Period                           | Arrivals  | Mean European Population | Wealth, Million £ | Yearly Average per Head |
| United States . . . . .      | 1850-80                          | 8,002,000 | 4,600,000                | 949               | £ s. d.<br>6 17 6       |
| Australia . . . . .          | 1850-88                          | 1,710,000 | 1,200,000                | 714               | 15 12 0                 |
| Argentine Republic . . . . . | 1850-84                          | 880,000   | 300,000                  | 80                | 7 14 0                  |
| Uruguay . . . . .            | 1850-84                          | 305,000   | 166,000                  | 52                | 8 18 6                  |
| Canada . . . . .             | 1861-87                          | 799,000   | 700,000                  | 122               | 6 14 0                  |

Except in Australia, the annual accumulations have been pretty much on a level, about £7 to £8 per annum, this ratio applying equally to men, women, and children. From the foregoing figures we can construct a table of the accumulations of emigrants between 1850 and 1888 as follows:—

| Emigrants                 | Mean Number Abroad | Accumulation, Million £ | Per Head, £ |
|---------------------------|--------------------|-------------------------|-------------|
| English . . . . .         | 1,200,000          | 410                     | 342         |
| Scotch . . . . .          | 250,000            | 95                      | 380         |
| Irish . . . . .           | 1,520,000          | 411                     | 270         |
| Germans . . . . .         | 1,700,000          | 452                     | 266         |
| Various nations . . . . . | 2,296,000          | 460                     | 200         |
| Total . . . . .           | 6,966,000          | 1,828                   | 261         |

It is a coincidence that each emigrant accumulated in the last 38 years about £260, and that this is the precise value set by some writers on each able-bodied adult. The strongest impulse to immigration was given by the Homestead Law of the United States and similar measures, giving lands to colonists at nominal or low prices. Down to 1886 the United States Government had thus disposed of 255 million acres, the Australian colonies 101 million acres. (See *Lands*.)

The total number of persons living out of their own country is approximately as follows (exclusive of Coolies):—

|                              |            | Per 1000 Inhab. |
|------------------------------|------------|-----------------|
| In Europe* . . . . .         | 2,537,000  | 10              |
| .. United States . . . . .   | 8,510,000  | 137             |
| .. Australia . . . . .       | 1,200,000  | 300             |
| .. River Plate . . . . .     | 1,086,000  | 240             |
| .. Canada . . . . .          | 800,000    | 160             |
| .. Brazil . . . . .          | 460,000    | 40              |
| .. Algeria . . . . .         | 190,000    | 50              |
| .. Egypt . . . . .           | 91,000     | 14              |
| .. South Africa . . . . .    | 50,000     | 33              |
| .. Chile . . . . .           | 40,000     | 15              |
| .. China and Japan . . . . . | 6,000      | ...             |
| .. Other countries . . . . . | 200,000    | ...             |
| Total . . . . .              | 15,170,000 | ...             |

Foreign residents in the various countries of Europe are as follows:—

|                      | Number    |                             | Number  |
|----------------------|-----------|-----------------------------|---------|
| U. Kingdom . . . . . | 155,000   | Sweden and Norway . . . . . | 26,000  |
| France . . . . .     | 1,115,000 | Denmark . . . . .           | 61,000  |
| Germany . . . . .    | 276,000   | Holland . . . . .           | 69,000  |
| Russia . . . . .     | 148,000   | Belgium . . . . .           | 143,000 |
| Austria . . . . .    | 127,000   | Switzerland . . . . .       | 211,000 |
| Italy . . . . .      | 60,000    | Roumania . . . . .          | 89,000  |
| Spain . . . . .      | 37,000    | Greece . . . . .            | 20,000  |

\* The number of foreigners in the various European States being 2,537,000, as shown above, it is made up approximately as follows:—

|                     |         |                     |         |
|---------------------|---------|---------------------|---------|
| Germans . . . . .   | 540,000 | Spaniards . . . . . | 120,000 |
| Belgians . . . . .  | 460,000 | Dutch . . . . .     | 72,000  |
| Austrians . . . . . | 360,000 | British . . . . .   | 70,000  |
| Italians . . . . .  | 330,000 | Russians . . . . .  | 70,000  |
| French . . . . .    | 180,000 | Swedes . . . . .    | 60,000  |
| Swiss . . . . .     | 140,000 | Various . . . . .   | 135,000 |

Comparing the above figures with the emigration statistics the result is approximately as follows:—

| Period             | Emigrated  | Now Living Abroad |
|--------------------|------------|-------------------|
| 1815-50 . . . . .  | 4,994,000  | 430,000           |
| 1851-80 . . . . .  | 15,868,000 | 8,640,000         |
| 1881-88 . . . . .  | 6,343,000  | 6,100,000         |
| 74 years . . . . . | 27,205,000 | 15,170,000        |

from which it appears that 12,035,000 either died abroad or returned to their own countries.

The following table shows European emigration in 1888, as compared with population:—

| From                     | Number  | Per Cent. of Population |
|--------------------------|---------|-------------------------|
| England . . . . .        | 171,000 | 0.60                    |
| Scotland . . . . .       | 36,000  | 0.90                    |
| Ireland . . . . .        | 73,000  | 1.60                    |
| United Kingdom . . . . . | 280,000 | 0.74                    |
| France . . . . .         | 23,000  | 0.06                    |
| Germany . . . . .        | 104,000 | 0.23                    |
| Austria . . . . .        | 46,000  | 0.12                    |
| Italy . . . . .          | 297,000 | 1.00                    |
| Spain . . . . .          | 71,000  | 0.40                    |
| Portugal . . . . .       | 13,000  | 0.30                    |
| Holland . . . . .        | 18,000  | 0.40                    |
| Belgium . . . . .        | 23,000  | 0.40                    |
| Scandinavia . . . . .    | 77,000  | 0.90                    |
| Switzerland . . . . .    | 8,000   | 0.27                    |

Making a total of 960,000 souls. Their destination was approximately as follows:—

|                            |         |
|----------------------------|---------|
| United States . . . . .    | 570,000 |
| South America . . . . .    | 280,000 |
| British colonies . . . . . | 105,000 |
| Various parts . . . . .    | 5,000   |
| Total . . . . .            | 960,000 |

Emigrants from Northern Europe still go mostly to the United States; those from the Mediterranean to South America. The current of emigration to Canada and Australia is chiefly British.

#### UNITED KINGDOM

Official returns may be summed up as follows:—

|                    |            | Per Annum |
|--------------------|------------|-----------|
| 1815-29 . . . . .  | 314,000    | 21,000    |
| 1830-49 . . . . .  | 2,164,000  | 108,000   |
| 1850-69 . . . . .  | 4,278,000  | 214,000   |
| 1870-79 . . . . .  | 2,153,000  | 215,000   |
| 1880-88 . . . . .  | 3,228,000  | 359,000   |
| 74 years . . . . . | 12,137,000 | 164,000   |

The above, however, includes foreign emigrants, who formed about 22 per cent. of the total. The number of British subjects was a little under ten millions, the following classification of natives of the three kingdoms being

as close as can be ascertained, the figures before 1840, as Porter shows, being defective :—

| Period   | English   | Scotch  | Irish     | Total     | Per Annum |
|----------|-----------|---------|-----------|-----------|-----------|
| 1815-34  | 110,000   | 30,000  | 420,000   | 560,000   | 28,000    |
| 1835-50  | 320,000   | 80,000  | 1,409,000 | 1,809,000 | 113,000   |
| 1851-60  | 640,000   | 183,000 | 1,231,000 | 2,054,000 | 205,000   |
| 1861-70  | 650,000   | 158,000 | 867,000   | 1,675,000 | 168,000   |
| 1871-80  | 970,000   | 166,000 | 542,000   | 1,678,000 | 168,000   |
| 1881-88  | 1,245,000 | 228,000 | 612,000   | 2,085,000 | 261,000   |
| 74 years | 3,935,000 | 845,000 | 5,081,000 | 9,861,000 | 133,000   |

The returns for the years 1888-89 were as follows :—

|                          | Emigrants |         |
|--------------------------|-----------|---------|
|                          | 1888      | 1889    |
| English . . . . .        | 170,000   | 164,000 |
| Scotch . . . . .         | 37,000    | 25,000  |
| Irish . . . . .          | 73,000    | 65,000  |
| United Kingdom . . . . . | 280,000   | 254,000 |

At all periods the United States attracted the bulk of the emigration.

|          | United States | British Colonies, &c. | Total     | U. States Ratios |
|----------|---------------|-----------------------|-----------|------------------|
| 1815-50  | 1,308,000     | 1,061,000             | 2,369,000 | 55.2             |
| 1851-60  | 1,257,000     | 797,000               | 2,054,000 | 61.3             |
| 1861-70  | 1,185,000     | 490,000               | 1,675,000 | 70.7             |
| 1871-80  | 1,088,000     | 590,000               | 1,678,000 | 65.0             |
| 1881-88  | 1,394,000     | 691,000               | 2,085,000 | 66.9             |
| 74 years | 6,232,000     | 3,629,000             | 9,861,000 | 63.2             |

The respective destinations of the people of the three kingdoms were approximately as follows :—

|                   | United States | Canada    | Australia | Cape, &c. | Total     |
|-------------------|---------------|-----------|-----------|-----------|-----------|
| English . . . . . | 1,893,000     | 872,000   | 820,000   | 350,000   | 3,935,000 |
| Scotch . . . . .  | 265,000       | 225,000   | 247,000   | 108,000   | 845,000   |
| Irish . . . . .   | 4,074,000     | 480,000   | 440,000   | 87,000    | 5,081,000 |
| Total . . . . .   | 6,232,000     | 1,577,000 | 1,507,000 | 545,000   | 9,861,000 |

The number of colonists who survive and are still abroad, and the number of their children (estimated according to result of United States Census in 1880) may be set down approximately as follows :—

| Settlers in             | Now Living | Children  | Population |
|-------------------------|------------|-----------|------------|
| United States . . . . . | 3,180,000  | 4,310,000 | 7,490,000  |
| Canada . . . . .        | 720,000    | 940,000   | 1,660,000  |
| Australia . . . . .     | 1,080,000  | 1,400,000 | 2,480,000  |
| Cape, &c. . . . .       | 360,000    | 470,000   | 830,000    |
| Total . . . . .         | 5,340,000  | 7,120,000 | 12,460,000 |

In recent years there has been a steady influx of returned emigrants, averaging 78,000 for the years 1881-88, or about 30 per cent. of the number of emigrants in that period. The remittances by Irish settlers in the United States to their friends at home, from 1851 to 1887, amounted to £32,200,000. The accumulations of wealth by British and Irish emigrants since 1850, as already shown, amounted to 916 millions sterling.

The destinations were as follows :—

| To                      | 1815-75   | 1876-88   | Total     |
|-------------------------|-----------|-----------|-----------|
| United States . . . . . | 4,425,000 | 1,807,000 | 6,232,000 |
| Canada . . . . .        | 1,260,000 | 317,000   | 1,577,000 |
| Australia . . . . .     | 1,022,000 | 485,000   | 1,507,000 |
| Cape, &c. . . . .       | 317,000   | 228,000   | 545,000   |
| Total . . . . .         | 7,024,000 | 2,837,000 | 9,861,000 |

The United States took 140,000 a year in the 13 years ending 1888, Canada 25,000, and Australia 37,000 settlers.

|                         | Destination |         |
|-------------------------|-------------|---------|
|                         | 1888        | 1889    |
| United States . . . . . | 196,000     | 169,000 |
| Canada . . . . .        | 35,000      | 28,000  |
| Australia . . . . .     | 31,000      | 28,000  |
| Various . . . . .       | 18,000      | 29,000  |
| Total . . . . .         | 280,000     | 254,000 |

The number of foreigners residing in the United Kingdom has been as follows :—

| Year           | Number  | Per 1000 Inhab. |
|----------------|---------|-----------------|
| 1841 . . . . . | 36,000  | 1.3             |
| 1851 . . . . . | 62,000  | 2.3             |
| 1861 . . . . . | 102,000 | 3.5             |
| 1871 . . . . . | 161,000 | 5.2             |
| 1881 . . . . . | 155,000 | 4.4             |

# FRANCE

In ten years ending 1887 the number of emigrants that left French ports was 460,000, but of these only 55,000 were French, say 5500 per annum.

In five years ending 1872 the number of French emigrants from Havre averaged 5100 yearly. The above figures do not include settlers going to Algeria (for which see *Colonies*, p. 126).

Approximately the emigration from France has been as follows :—

|                         | 1840-88   | Per Annum |
|-------------------------|-----------|-----------|
| United States . . . . . | 320,000   | 6,600     |
| Algeria . . . . .       | 300,000   | 6,300     |
| Argentina . . . . .     | 190,000   | 4,000     |
| Uruguay . . . . .       | 50,000    | 1,000     |
| Egypt . . . . .         | 30,000    | 600       |
| Europe . . . . .        | 450,000   | 9,500     |
| Total . . . . .         | 1,340,000 | 28,000    |

The number of French living abroad in 1860 and 1885 compared as follows :—

| In                       | 1860    | 1885    |
|--------------------------|---------|---------|
| Belgium . . . . .        | 35,000  | 51,000  |
| Switzerland . . . . .    | 45,000  | 59,000  |
| United Kingdom . . . . . | 16,000  | 20,000  |
| Spain . . . . .          | 11,000  | 20,000  |
| Italy . . . . .          | 5,000   | 11,000  |
| Egypt . . . . .          | 14,000  | 16,000  |
| Algeria . . . . .        | 72,000  | 262,000 |
| United States . . . . .  | 110,000 | 107,000 |
| South America . . . . .  | 59,000  | 107,000 |
| Total . . . . .          | 367,000 | 713,000 |

The chief currents of French emigration were :—

|                        | Number  | Period  | Number now Living |
|------------------------|---------|---------|-------------------|
| United States . . . .  | 314,000 | 1820-80 | 100,000           |
| Argentine Republic . . | 156,000 | 1860-88 | 120,000           |
| Algeria . . . . .      | 300,000 | 1840-88 | 160,000           |
| Uruguay . . . . .      | 44,000  | 1860-88 | 30,000            |

The influx of foreigners is, meantime, greater than the outflow of emigration. According to Census returns we find :—

| Year           | Foreigners in France | Ratio to Pop. per 1000 |
|----------------|----------------------|------------------------|
| 1851 . . . . . | 379,000              | 11                     |
| 1861 . . . . . | 497,000              | 13                     |
| 1872 . . . . . | 731,000              | 20                     |
| 1886 . . . . . | 1,115,000            | 29                     |

Molinari says that in fifteen years France received (1872-87) able-bodied emigrants equal to an accession of 140 millions sterling to the national wealth. The foreigners living in France at various dates were as follows :—

|                     | 1851    | 1872    | 1881      |
|---------------------|---------|---------|-----------|
| Belgians . . . . .  | 128,000 | 348,000 | 432,000   |
| Italians . . . . .  | 63,000  | 113,000 | 241,000   |
| Germans . . . . .   | 57,000  | 39,000  | 82,000    |
| Swiss . . . . .     | 26,000  | 43,000  | 66,000    |
| Spaniards . . . . . | 30,000  | 53,000  | 74,000    |
| English . . . . .   | 20,000  | 26,000  | 37,000    |
| Various . . . . .   | 55,000  | 109,000 | 69,000    |
| Total . . . . .     | 379,000 | 731,000 | 1,001,000 |

Paris has 213,000 foreign residents, being 9 per cent. of the population.

In 1888 the Government expelled the following foreigners from France :—

|                     | Men   | Women | Total |
|---------------------|-------|-------|-------|
| Spaniards . . . . . | 1,575 | 37    | 1,612 |
| Belgians . . . . .  | 1,296 | 120   | 1,416 |
| Germans . . . . .   | 504   | 69    | 573   |
| Various . . . . .   | 590   | 58    | 648   |
| Total . . . . .     | 3,965 | 284   | 4,249 |

#### GERMANY

The Archivio figures are as follows :—

| Period             | Emigrated | Per Annum |
|--------------------|-----------|-----------|
| 1820-49 . . . . .  | 168,000   | 5,600     |
| 1850-59 . . . . .  | 660,000   | 66,000    |
| 1860-69 . . . . .  | 750,000   | 75,000    |
| 1870-79 . . . . .  | 790,000   | 79,000    |
| 1880-86 . . . . .  | 1,342,000 | 192,000   |
| 66 years . . . . . | 4,710,000 | 72,000    |

The *Almanach de Gotha* says that 4,900,000 Germans emigrated between 1820 and December 1887, of which 3,700,000 to the United States. Duval, however, makes the efflux down to 1859 much greater, as follows :—

|                    |           |
|--------------------|-----------|
| 1820-29 . . . . .  | 49,600    |
| 1830-39 . . . . .  | 220,900   |
| 1840-49 . . . . .  | 661,200   |
| 1850-59 . . . . .  | 1,017,100 |
| 40 years . . . . . | 1,948,800 |

Gaebler is of the same opinion, making the number 1,800,000 from 1819 to 1855. It must be observed, meantime, that the Archivio gives only the departures by sea, whereas Gaebler includes the total outflow by sea and land. Official returns give much lower

figures. For example, the Prussian Blue-book makes the total for thirty years down to 1871 as 642,000, and the Board of Trade Abstract for eighteen years ending 1888 only 1,771,000, a total of 2,413,000, which is less than half the reality. If we consult the statistics of Germans in United States, Russia, Brazil, River Plate, and various countries in Europe, we may form an approximate table as follows :—

| Period   | Actual Emigration |           | Official Figures |           |
|----------|-------------------|-----------|------------------|-----------|
|          | Number            | Per Annum | Number           | Per Annum |
| 1821-40  | 270,000           | 13,500    | ...              | ...       |
| 1841-70  | 2,880,000         | 96,000    | 642,000          | 21,400    |
| 1871-80  | 1,050,000         | 105,000   | 626,000          | 62,600    |
| 1881-88  | 1,470,000         | 184,000   | 1,365,000        | 170,000   |
| 68 years | 5,670,000         | 84,000    | 2,633,000        | 39,000    |

|                       | Actual Emigration | Official  |
|-----------------------|-------------------|-----------|
|                       | 1821-88           | 1871-87   |
| United States . . . . | 4,316,000         | 1,880,000 |
| Brazil . . . . .      | 84,000            | 31,000    |
| Spanish America . . . | 70,000            | 19,000    |
| Australia . . . . .   | 60,000            | 17,000    |
| Other parts . . . . . | 1,140,000         | 44,000    |
| Total . . . . .       | 5,670,000         | 1,991,000 |

In official returns only persons going out of Europe are considered emigrants.

Immigration into Germany is small, the number of resident foreigners being less than one-tenth of that of Germans abroad. The Census of 1880 showed a total of 276,000 resident foreigners, thus :—

|                   |                   |                  |
|-------------------|-------------------|------------------|
| Austrians 118,000 | Dutch . . 18,000  | English . 11,000 |
| Swiss . . 28,000  | French . . 17,000 | Swedes . 10,000  |
| Danes . . 24,000  | Russians . 15,000 | Various . 35,000 |

The total makes up less than 6 in 1000 of population.

#### RUSSIA

The United States Census of 1880 showed 49,000 Poles and 36,000 Russians, but since that year there has been a great influx. In 1888 no fewer than 37,300 Russian settlers arrived. In 1874-78 the severity of military service drove 40,000 Mennonites from the Empire, who made settlements at Manitoba, San Paulo, and Buenos Ayres, where they have prospered. Jews have also in late years been expelled in large numbers.

In a period of 36 years down to 1886, according to police reports, there were 1,733,000 foreigners who settled in Russia, viz. :—

|                     |           |
|---------------------|-----------|
| Germans . . . . .   | 952,000   |
| Austrians . . . . . | 677,000   |
| Various . . . . .   | 104,000   |
| Total . . . . .     | 1,733,000 |

These figures are a mere fiction of the Russian police; the actual number of foreigners in Russia at the Census of 1880 was only 148,000.

#### AUSTRIA-HUNGARY

In 1880 there were 135,000 Austrians and Hungarians in the United States. The official returns for ten years' emigration ending 1886 show as follows :—

|                       |         |
|-----------------------|---------|
| United States . . . . | 227,000 |
| Argentina . . . . .   | 10,000  |
| Various . . . . .     | 37,000  |
| Total . . . . .       | 274,000 |

The number of Austrian immigrants who arrived in the United States in 1888 was 42,000. Before 1880 the annual emigration averaged only 7000 yearly. The total for ten years ending 1880 was 71,000, of whom 46,000 were Bohemians.

## ITALY

Official returns of the Argentine Republic show that in 28 years ending 1888 there were landed at Buenos Ayres and Rosario 550,000 Italians. In the same period 80,000 landed at Montevideo. There were 73,000 who emigrated to the United States in sixty years, of whom 44,000 were living in 1880. Official returns, much below the reality, give the following for nine years down to December 1887:—

|                         |                |
|-------------------------|----------------|
| River Plate . . . . .   | 261,000        |
| United States . . . . . | 153,000        |
| Brazil . . . . .        | 98,000         |
| North Africa . . . . .  | 37,000         |
| Various . . . . .       | 68,000         |
| <b>Total . . . . .</b>  | <b>617,000</b> |

Carpi shows that the official returns are much less than the real number, because they fail to include Italians who go to the other parts of Europe. An official report published in 1883 showed the number of Italians living abroad as follows:—

|                           | 1873           | 1883             |
|---------------------------|----------------|------------------|
| Argentina . . . . .       | 88,000         | 254,000          |
| Brazil and Peru . . . . . | 28,000         | 115,000          |
| Uruguay . . . . .         | 32,000         | 49,000           |
| France . . . . .          | 118,000        | 241,000          |
| Austria . . . . .         | 27,000         | 44,000           |
| Switzerland . . . . .     | 18,000         | 42,000           |
| United States . . . . .   | 70,000         | 170,000          |
| Levant, &c. . . . .       | 95,000         | 127,000          |
| <b>Total . . . . .</b>    | <b>476,000</b> | <b>1,033,000</b> |

The following table shows approximately the currents of emigration:—

|                           | United States  | South America    | Other Countries  | Total            | Annual Average |
|---------------------------|----------------|------------------|------------------|------------------|----------------|
| 1821-40 . . . . .         | 3,000          | 10,000           | 150,000          | 163,000          | 8,100          |
| 1841-60 . . . . .         | 11,000         | 30,000           | 400,000          | 441,000          | 22,000         |
| 1861-70 . . . . .         | 13,000         | 180,000          | 460,000          | 653,000          | 65,300         |
| 1871-80 . . . . .         | 46,000         | 430,000          | 700,000          | 1,176,000        | 117,600        |
| 1881-87 . . . . .         | 153,000        | 365,000          | 629,000          | 1,147,000        | 164,000        |
| <b>67 years . . . . .</b> | <b>226,000</b> | <b>1,015,000</b> | <b>2,329,000</b> | <b>3,580,000</b> | <b>54,000</b>  |

According to the Archivio the emigration in the years 1882-86 summed up 803,000, whereas the official figures for the same years do not exceed 363,000. In the preceding decade Professor Carpi made the average about 110,000 yearly, and estimated the number of returned emigrants at 60 per cent. of those who leave in any year. This is about double the proportion of the stream of emigration from Buenos Ayres to Italy, compared with the number of Italians arriving there. It may be therefore assumed that 33 per cent. of the above emigrants returned to Italy. The account may be put down thus:—

|                                  |                  |
|----------------------------------|------------------|
| Settled in River Plate . . . . . | 560,000          |
| " Brazil . . . . .               | 70,000           |
| " United States . . . . .        | 170,000          |
| " other countries . . . . .      | 1,050,000        |
| Died . . . . .                   | 540,000          |
| Returned to Italy . . . . .      | 1,190,000        |
| <b>Total emigrated . . . . .</b> | <b>3,580,000</b> |

The number of foreign residents in Italy is only 60,000, including 16,000 Austrians, 12,000 Swiss, 11,000 French, 7000 English, and 5000 Germans, the whole being as 2 per 1000 of the population.

## SWITZERLAND

The returns for ten years ending 1887 are as follows:—

|                         |               |
|-------------------------|---------------|
| United States . . . . . | 70,000        |
| South America . . . . . | 11,000        |
| <b>Total . . . . .</b>  | <b>81,000</b> |

By the Census of 1880 it appears there were 89,000 Swiss in the United States. There are 15,000 in the Argentine Republic. A large number of foreigners reside in Switzerland, and the number steadily increases:—

|                        | 1870           | 1880           |
|------------------------|----------------|----------------|
| French . . . . .       | 62,000         | 54,000         |
| Germans . . . . .      | 57,000         | 95,000         |
| Italians . . . . .     | 18,000         | 42,000         |
| Various . . . . .      | 14,000         | 20,000         |
| <b>Total . . . . .</b> | <b>151,000</b> | <b>211,000</b> |

This is more than 7 per cent. of the population. The principal centre of foreign residents is Geneva, viz.:—

|                        | Number of Inhab. |               | Percentage |            |
|------------------------|------------------|---------------|------------|------------|
|                        | 1860             | 1870          | 1860       | 1870       |
| Swiss . . . . .        | 18,400           | 17,600        | 58         | 38         |
| Foreign . . . . .      | 13,300           | 28,800        | 42         | 62         |
| <b>Total . . . . .</b> | <b>31,700</b>    | <b>46,400</b> | <b>100</b> | <b>100</b> |

## SPAIN

Official returns at Buenos Ayres show that in 32 years down to 1888 there were landed in the Argentine Republic 172,000 Spaniards. In the same interval those landed at Montevideo were about 80,000. The United States report shows only 29,000 in 60 years down to 1880, the actual number of Spanish settlers in the said year being 5100, but in the ensuing years there was a notable increase, 9000 having arrived between 1880 and 1888. Spain also sends out numbers to Cuba and her other colonies. The currents of emigration have been approximately:—

| Period                    | River Plate    | Other Countries | Total          | Per Annum     |
|---------------------------|----------------|-----------------|----------------|---------------|
| 1861-80 . . . . .         | 160,000        | 180,000         | 340,000        | 17,000        |
| 1881-88 . . . . .         | 92,000         | 50,000          | 142,000        | 18,000        |
| <b>28 years . . . . .</b> | <b>252,000</b> | <b>230,000</b>  | <b>482,000</b> | <b>17,200</b> |

The annual outflow at present is little over 1 per 1000 of the population. About 5 per cent. of those who emigrate return to Spain.

In 1888 there were Spaniards residing abroad as follows:—Algeria, 114,000; River Plate, 99,000; France, 74,000; and others in various countries, the total reaching 346,500.

The number of foreigners residing in Spain is only 37,000, including 18,000 French, 8000 Portuguese, and 5000 English, the total being barely as 2 per 1000 of the population in 1877.

PORTUGAL

Brazil is the principal destination of Portuguese emigrants, of whom more than 300,000 landed at Brazilian ports since 1855, viz. :—

|                   |         |
|-------------------|---------|
| 1855-65 . . . . . | 81,000  |
| 1866-75 . . . . . | 62,000  |
| 1876-88 . . . . . | 172,000 |

34 years . . . . . 315,000

The Census of 1880 in the United States showed only 8000 Portuguese. A small number go to the Portuguese colonies in Africa, the average for the last ten years being under 400. The total yearly emigration is about 13,000, or 3 per 1000 of the population.

SWEDEN

Official returns for 1851 show as follows :—

| Period             | To United States | Other Countries | Total   | Per Annum |
|--------------------|------------------|-----------------|---------|-----------|
| 1851-60 . . . . .  | 15,000           | 2,000           | 17,000  | 1,700     |
| 1861-70 . . . . .  | 88,000           | 34,000          | 122,000 | 12,200    |
| 1871-80 . . . . .  | 98,000           | 51,000          | 149,000 | 14,900    |
| 1881-86 . . . . .  | 174,000          | 34,000          | 208,000 | 34,700    |
| 36 years . . . . . | 375,000          | 121,000         | 496,000 | 13,700    |

It seems that in thirty years down to 1880 there were 201,000 Swedes who emigrated to the United States, and the American Census for that year showed 194,000 Swedish settlers then living. The number at present in the United States is doubtless near 300,000. There is also a current of emigration to Denmark, where the Census of 1880 showed 24,000 Swedish settlers. The number of foreigners residing in Sweden is only 18,000, of whom 5000 are Danes, 4000 Norwegians, and 3000 Germans. The total is equal to 4 per 1000 of the population.

NORWAY

Emigration has been almost exclusively to the United States. We have no returns before 1856.

|                   | Emigrants | Per Annum |
|-------------------|-----------|-----------|
| 1856-65 . . . . . | 54,000    | 5,400     |
| 1870-74 . . . . . | 56,000    | 11,200    |
| 1876-87 . . . . . | 182,000   | 15,200    |

The United States Census showed 182,000 Norwegian settlers, and since that year 142,000 have gone thither (to December 1887), so that the present number cannot fall short of 240,000. There are also 3000 Norwegians settled in Denmark. The number of foreigners residing in Norway is 8000, being 4 per 1000 of the population.

DENMARK

Official returns are to the following effect :—

| Period             | To United States | Other Countries | Total   | Per Annum |
|--------------------|------------------|-----------------|---------|-----------|
| 1868-70 . . . . .  | 7,300            | 1,400           | 8,700   | 2,900     |
| 1871-80 . . . . .  | 32,800           | 5,800           | 38,600  | 3,900     |
| 1881-87 . . . . .  | 51,600           | 2,100           | 53,700  | 7,700     |
| 20 years . . . . . | 91,700           | 9,300           | 101,000 | 5,000     |

The United States Census of 1880 showed 64,000 Danish residents, and, with the influx of later years, the number must now reach 90,000. Since 1870 more than 3500 Danes have gone to Australia. The current of emigration at present averages 4 per 1000 of population.

Denmark has 61,000 foreign residents, including 33,000 Germans and 24,000 Swedes, the total being equal to 3 per cent. of population.

HOLLAND

Official returns show as follows :—

| Period             | To United States | Other Countries | Total   | Per Annum |
|--------------------|------------------|-----------------|---------|-----------|
| 1875-80 . . . . .  | 84,200           | 1,100           | 85,300  | 14,200    |
| 1881-86 . . . . .  | 113,000          | 1,200           | 114,200 | 19,000    |
| 12 years . . . . . | 197,200          | 2,300           | 199,500 | 16,600    |

The United States Census of 1880 showed 71,000 Dutch settlers; the present number cannot fall short of 170,000. The numerous Dutch colonies seem to have no attraction for emigrants. The present rate of emigration is equal to 5 per 1000 of the population.

There are in Holland 69,000 foreigners, including 42,000 Germans, 19,000 Belgians, and 2000 English; in all equal to 15 per 1000 of the population.

BELGIUM

The currents of immigration and emigration would appear to be about equal, according to official records from 1841 to 1886. Those of the year 1846 are lost, but allowing the average in that decade, we find as follows :—

| Period             | Immigrants | Emigrants |
|--------------------|------------|-----------|
| 1841-50 . . . . .  | 37,000     | 51,000    |
| 1851-60 . . . . .  | 60,000     | 89,000    |
| 1861-70 . . . . .  | 94,000     | 110,000   |
| 1871-80 . . . . .  | 150,000    | 119,000   |
| 1881-86 . . . . .  | 108,000    | 90,000    |
| 46 years . . . . . | 449,000    | 459,000   |

These figures represent only the arrivals and departures at ports. The actual number of emigrants in 1841-86 must have reached a million, the Census of 1885 showing the following number of Belgians abroad :—

|                          |         |
|--------------------------|---------|
| France . . . . .         | 482,300 |
| Holland . . . . .        | 18,800  |
| United States . . . . .  | 15,500  |
| Germany . . . . .        | 9,200   |
| United Kingdom . . . . . | 2,600   |
| Various . . . . .        | 1,300   |

making in all 530,000 souls. In 57 years ending 1887 there were 2553 foreigners naturalised as Belgians, viz. :—

|                   |     |                   |     |
|-------------------|-----|-------------------|-----|
| Germans . . . . . | 933 | French . . . . .  | 622 |
| Dutch . . . . .   | 640 | Various . . . . . | 358 |

Notwithstanding the great influx of foreigners, the number of foreign residents at the last Census was only 143,000, including 49,000 Dutch, 51,000 French, 34,000 Germans, and 4000 English, in all 24 per thousand of the population.

UNITED STATES

The emigration to the United States before 1830\* can only be approximately estimated; since that year minute returns have been kept.

| Period              | Immigrants | Per Annum |
|---------------------|------------|-----------|
| 1654-1701 . . . . . | 134,000    | 2,800     |
| 1702-1750 . . . . . | 182,000    | 3,700     |
| 1751-1800 . . . . . | 310,000    | 6,200     |
| 1801-20 . . . . .   | 178,000    | 8,900     |
| 1821-30 . . . . .   | 264,000    | 26,400    |
| 1831-40 . . . . .   | 599,000    | 59,900    |
| 1841-50 . . . . .   | 1,713,000  | 171,300   |
| 1851-60 . . . . .   | 2,590,000  | 259,000   |
| 1861-70 . . . . .   | 2,455,000  | 245,500   |
| 1871-80 . . . . .   | 3,042,000  | 304,200   |
| 1881-89 . . . . .   | 4,792,000  | 532,000   |
| 236 years . . . . . | 16,259,000 | ...       |

\* The official returns for 1820-30 are admittedly defective and valueless.

The official returns are as follows :—

|                          | 1821-40 | 1841-50   | 1851-60   | 1861-70   | 1871-80   | 1881-89   | 69 Years   |
|--------------------------|---------|-----------|-----------|-----------|-----------|-----------|------------|
| English . . . . .        | 95,000  | 263,000   | 388,000   | 615,000   | 449,000   | 602,000   | 2,412,000  |
| Scotch . . . . .         | 6,000   | 4,000     | 38,000    | 45,000    | 88,000    | 137,000   | 318,000    |
| Irish . . . . .          | 258,000 | 781,000   | 908,000   | 445,000   | 440,000   | 602,000   | 3,434,000  |
| United Kingdom . . . . . | 359,000 | 1,048,000 | 1,334,000 | 1,105,000 | 977,000   | 1,341,000 | 6,164,000  |
| French . . . . .         | 54,000  | 77,000    | 74,000    | 38,000    | 73,000    | 44,000    | 360,000    |
| Germans . . . . .        | 159,000 | 435,000   | 947,000   | 817,000   | 755,000   | 1,362,000 | 4,475,000  |
| Scandinavians . . . . .  | 2,000   | 14,000    | 22,000    | 136,000   | 255,000   | 362,000   | 791,000    |
| Various . . . . .        | 168,000 | 139,000   | 213,000   | 359,000   | 982,000   | 1,683,000 | 3,544,000  |
| Total . . . . .          | 742,000 | 1,713,000 | 2,590,000 | 2,455,000 | 3,042,000 | 4,792,000 | 15,334,000 |

In the above returns the number of English is made to appear 459,000 in excess of, and that of Irish fully 600,000 less than the reality, as shown on p. 248, which is accounted for by the fact that many of the Irish were in earlier years classified as English or British. Moreover, the Census of 1880 showed that Irish settlers were more than double the number of English and Scotch collectively (1,855,000 to 917,000), whereas the above classification down to 1880 would make the ratio as 140 to 100. The total immigration of 69 years may be correctly summed up as follows :—

|                          | Number     | Ratio |
|--------------------------|------------|-------|
| English . . . . .        | 1,963,000  | 12.8  |
| Scotch . . . . .         | 318,000    | 2.8   |
| Irish . . . . .          | 4,140,000  | 27.0  |
| United Kingdom . . . . . | 6,421,000  | 41.8  |
| Germans . . . . .        | 4,475,000  | 29.2  |
| Scandinavians . . . . .  | 791,000    | 5.2   |
| French . . . . .         | 360,000    | 2.4   |
| Various . . . . .        | 3,287,000  | 21.4  |
| Total . . . . .          | 15,334,000 | 100.0 |

During 31 years the record of ages was kept; and if we suppose the ratios to apply to the whole 69 years, the ages of immigrants showed as follows :—

|                    | Number     | Ratio |
|--------------------|------------|-------|
| Under 10 . . . . . | 2,300,000  | 15.0  |
| 10-20 . . . . .    | 3,220,000  | 21.0  |
| 20-30 . . . . .    | 5,670,000  | 37.0  |
| 30-40 . . . . .    | 2,450,000  | 16.0  |
| Over 40 . . . . .  | 1,694,000  | 11.0  |
| Total . . . . .    | 15,334,000 | 100.0 |

The returns of the Census of 1880, and the estimates resulting from the immigration since then as to the actual number of foreigners, are :—

|                                  | Census, 1880 | Arrivals, 1881-88 | Estimated Residents, 1888 |
|----------------------------------|--------------|-------------------|---------------------------|
| Germans . . . . .                | 1,967,000    | 1,104,000         | 2,450,000                 |
| Irish . . . . .                  | 1,855,000    | 536,000           | 1,920,000                 |
| British . . . . .                | 917,000      | 658,000           | 1,260,000                 |
| Scandinavians . . . . .          | 376,000      | 412,000           | 630,000                   |
| Italians . . . . .               | 44,000       | 201,000           | 190,000                   |
| French . . . . .                 | 107,000      | 20,000            | 100,000                   |
| Dutch . . . . .                  | 58,000       | 151,000           | 170,000                   |
| Swiss . . . . .                  | 89,000       | 68,000            | 130,000                   |
| Austrians & Hungarians . . . . . | 135,000      | 266,000           | 320,000                   |
| Russians and Poles . . . . .     | 85,000       | 160,000           | 190,000                   |
| Various . . . . .                | 693,000      | 744,000           | 1,150,000                 |
| Total . . . . .                  | 6,326,000    | 4,320,000         | 8,510,000                 |

In the last fifty years the United States received nearly 15,000,000 settlers, and the Census of 1880 showed that every 100 settlers had the following number of children living :—German, 148; Irish, 144; British, 122; general average, 124. The foreign population in December 1888 stood approximately thus :—

|                         | Immigrants | Children   | Total      |
|-------------------------|------------|------------|------------|
| German . . . . .        | 2,450,000  | 3,650,000  | 6,100,000  |
| Irish . . . . .         | 1,920,000  | 2,760,000  | 4,680,000  |
| British . . . . .       | 1,260,000  | 1,550,000  | 2,810,000  |
| Various . . . . .       | 2,880,000  | 2,670,000  | 5,550,000  |
| Total foreign . . . . . | 8,510,000  | 10,630,000 | 19,140,000 |

The numbers and proportion of resident foreigners in the whole population have been as follows :—

| Year           | Population | Foreign Residents | Percentage |
|----------------|------------|-------------------|------------|
| 1820 . . . . . | 9,634,000  | 177,000           | 1.8        |
| 1840 . . . . . | 17,069,000 | 859,000           | 5.0        |
| 1850 . . . . . | 23,192,000 | 2,241,000         | 9.7        |
| 1860 . . . . . | 31,443,000 | 4,136,000         | 13.1       |
| 1870 . . . . . | 38,558,000 | 5,566,000         | 14.5       |
| 1880 . . . . . | 50,410,000 | 6,326,000         | 12.5       |
| 1888 . . . . . | 60,000,000 | 8,510,000         | 14.2       |

In the above table "foreign residents" of course include naturalised American citizens. Foreigners and their children, as shown in a previous table, constitute almost one-third of the population.

#### CANADA

The net increase of population by settlers may be estimated on comparing the several Census returns; and allowing for natural increase, the figures result approximately thus :—

| Year               | Population | Natural Increase of Decade | Net Immigration of Decade | Net Immigration per Annum |
|--------------------|------------|----------------------------|---------------------------|---------------------------|
| 1831 . . . . .     | 1,158,000  | ...                        | ...                       | ...                       |
| 1841 . . . . .     | 1,690,000  | 230,000                    | 302,000                   | 30,200                    |
| 1851 . . . . .     | 2,482,000  | 305,000                    | 487,000                   | 48,700                    |
| 1861 . . . . .     | 3,030,000  | 370,000                    | 178,000                   | 17,800                    |
| 1871 . . . . .     | 3,833,000  | 420,000                    | 383,000                   | 38,300                    |
| 1881 . . . . .     | 4,504,000  | 460,000                    | 211,000                   | 21,100                    |
| 1887 . . . . .     | 5,019,000  | 310,000                    | 205,000                   | 34,200                    |
| 56 years . . . . . | ...        | 2,095,000                  | 1,766,000                 | 31,500                    |

The number of British and Irish emigrants who went to Canada from 1815 to 1888 amounted (see p. 248) to 1,577,000, or 90 per cent. of the above total.

Only a portion of the European emigrants who landed in the colony settled there, the rest proceeding to the

United States. An official statement published in 1877 showed as follows:—

| Period   | Arrived   | Proceeded to United States | Remained |
|----------|-----------|----------------------------|----------|
| 1851-71  | 1,051,000 | 595,000                    | 456,000  |
| 1872-76  | 351,000   | 179,000                    | 172,000  |
| 26 years | 1,402,000 | 774,000                    | 628,000  |

#### AUSTRALIA

The current of emigration since 1820 has been approximately thus:—

| Period   | Number    | Per Annum |
|----------|-----------|-----------|
| 1821-40  | 40,000    | 2,000     |
| 1841-50  | 90,000    | 9,000     |
| 1851-60  | 710,000   | 71,000    |
| 1861-70  | 320,000   | 32,000    |
| 1871-80  | 340,000   | 34,000    |
| 1881-88  | 350,000   | 44,000    |
| 68 years | 1,850,000 | 27,000    |

We have already seen (page 248) that 1,505,000 British subjects emigrated to Australia, or 81 per cent. of the above total. In 1871 there were 34,000 German residents.

The Australian colonies have expended 8½ millions in promoting immigration, viz:—

|                      | Expended    | Immigrants | Per Head |
|----------------------|-------------|------------|----------|
| New Zealand          | £ 1,950,000 | 101,000    | £ 19     |
| Victoria             | 2,880,000   | 167,000    | 17       |
| Queensland, &c., &c. | 3,600,000   | 202,000    | 18       |
| Total                | 8,430,000   | 470,000    | 18       |

Assisted passages are still provided by some of the colonies.

#### CAPE COLONY

The white population in 27 years, ending 1875, rose from 87,000 to 237,000, and as the natural increase was 24 per cent. per decade, we find that the total immigration must have been 70,000, say 2600 per annum. This includes 15,000 Government immigrants introduced from 1847 to 1872. The discovery of diamonds in 1867, and construction of railways, have stimulated European immigration, which now may be estimated at 5000 yearly. There are also more than 10,000 settlers at Natal.

#### BRAZIL

The number of European settlers has been as follows:—

|         |         | Per Annum |
|---------|---------|-----------|
| 1855-64 | 120,000 | 12,000    |
| 1866-74 | 116,000 | 11,600    |
| 1875-84 | 228,000 | 22,800    |
| 1885-88 | 266,000 | 66,000    |
| Total   | 730,000 | 21,500    |

In the year 1825 the Emperor Pedro I. founded the first German colony, 909 souls, at San Leopoldo, Rio Grande do Sul. In 1854 the little settlement counted 11,172 Germans, including 3680 born in the country. Each family had received on arrival a free land-grant of 130 acres. In 1866 the colonists numbered 25,000, including children, and in 1871 the product of the farms was valued officially at one million sterling; or nearly £200 per family. Meantime the influx of more Germans, and the increasing number of the San Leopoldo com-

munity, led to the establishment of 42 other German settlements in Rio Grande, for the most part between the years 1849 and 1860: the whole in 1871 counted 70,000 Germans, one half born in the country, their farms being valued at six millions sterling. German colonies were introduced into the neighbouring province of Santa Catharina in 1849, and about the same time into San Paulo; in later years into Minas Geraes, Paraná, and other provinces. In 1871 there were the following colonies:—

|                   |    |
|-------------------|----|
| Rio Grande do Sul | 43 |
| San Paulo         | 12 |
| Other provinces   | 21 |
| Total             | 76 |

The agricultural settlements had about 90,000 Europeans, more than half being Germans, the rest Swiss, Italians, &c. Since 1880 a great influx of Italians has taken place in San Paulo, and these settlers have begun planting vines on a large scale: in 1888 no fewer than 92,000 immigrants settled in that province, the total immigration that year reaching 131,000. The Government devotes £550,000 per annum to free passages. In 1872 the number of Europeans in Brazil was 243,000, at present it is probably about 460,000.

#### ARGENTINA

The official returns are as follows:—

|          |           | Per Annum |
|----------|-----------|-----------|
| 1861-70  | 185,000   | 18,500    |
| 1871-80  | 453,000   | 45,300    |
| 1881-88  | 766,000   | 96,000    |
| 28 years | 1,404,000 | 50,000    |

The number of immigrants in 1888 was 181,000, which shows that this country comes next after the United States as a field for European emigration. The returns from 1871 to 1888 show nationalities thus:—

|           |         |         |         |               |         |
|-----------|---------|---------|---------|---------------|---------|
| Italians  | 550,000 | French  | 100,000 | Germans       | 15,000  |
| Spaniards | 122,000 | British | 20,000  | Unascertained | 412,000 |

The bulk of those unascertained were Italians, who formed 65 per cent. of the whole number. Before the year 1860 the average immigration was 5000 yearly, one third being Italians.

Agricultural colonies were begun in Santa Fè in 1856, and in 1884 there were 78 of these settlements, counting in all 66,000 inhabitants, who cultivated 940,000 acres, and possessed properties to the value of £8,400,000. The first settlers were Swiss, but at present Italians, Swiss, Germans, and French are almost equal in numbers. The growth of the Santa Fè colonies is shown thus:—

| Year | Acres   | Population |
|------|---------|------------|
| 1871 | 140,000 | 13,600     |
| 1879 | 404,000 | 40,700     |
| 1884 | 940,000 | 66,000     |

In 1884 there were also ten colonies in Entre Rios; in 1856 they had 9900 inhabitants, mostly Italians and Germans, who cultivated 170,000 acres. Two colonies in Cordoba had 3000 settlers. The Welsh settlement in Patagonia had 1300 souls, whose farms were valued at £122,000, having 17,000 acres under wheat, the crop averaging 200,000 bushels. It was founded in 1865.

The total area under crops in 1887 held by agricultural colonies was estimated at 2,200,000 acres, cultivated by 140,000 settlers, and producing 20 million bushels of grain. These colonies account for only 10 per cent. of the immigration since 1860, most of the Italians having preferred to settle about Buenos Ayres in every variety of calling. The official returns of money in bank and

real estate, in the city of Buenos Ayres, in 1883, were as follows:—

|                    | Number of Depositors | Deposits, in £ Sterling | Real Estate, £ Sterling |
|--------------------|----------------------|-------------------------|-------------------------|
| Italians . . . .   | 10,090               | 2,800,000               | 6,600,000               |
| Argentines . . . . | 7,056                | 2,860,000               | 22,100,000              |
| Spaniards . . . .  | 3,008                | 1,100,000               | 1,800,000               |
| French . . . . .   | 2,022                | 620,000                 | 2,200,000               |
| English . . . . .  | 801                  | 450,000                 | 1,200,000               |
| Germans . . . . .  | 451                  | 250,000                 | 600,000                 |
| Various . . . . .  | 1,291                | 1,200,000               | 3,800,000               |
| Total . . . . .    | 24,719               | 9,280,000               | 38,300,000              |

The above returns are only for the city, and have no reference to the thriving Irish and Scotch communities in the province of Buenos Ayres.

The Scotch made their first settlement at Monte Grande in 1826, the Irish at various places in 1840. Their numbers and possessions in 1884 stood thus:—

|                  | Population | Area of Lands, Square Miles | Number of Sheep | Value of Property, £ Sterling |
|------------------|------------|-----------------------------|-----------------|-------------------------------|
| Irish . . . . .  | 22,000     | 4,900                       | 9,200,000       | 15,200,000                    |
| Scotch . . . . . | 3,600      | 2,500                       | 3,000,000       | 6,100,000                     |
| Total . . . . .  | 25,600     | 7,400                       | 12,200,000      | 21,300,000                    |

According to the census of 1869 there were 212,000 European residents, since which year 1,260,000 emigrants have arrived, of whom 29 per cent. returned. Allowing for deaths the number of foreign population would be as follows:—

|                             | Number in 1869 | Arrivals, 1870-88 | Present Number | Population Including Children |
|-----------------------------|----------------|-------------------|----------------|-------------------------------|
| Italians . . . . .          | 71,000         | 820,000           | 530,000        | 1,320,000                     |
| Spaniards . . . . .         | 34,000         | 180,000           | 140,000        | 310,000                       |
| French . . . . .            | 32,000         | 150,000           | 120,000        | 250,000                       |
| British and Irish . . . . . | 11,000         | 30,000            | 30,000         | 70,000                        |
| German and Swiss . . . . .  | 11,000         | 30,000            | 30,000         | 70,000                        |
| Various . . . . .           | 53,000         | 50,000            | 70,000         | 150,000                       |
| Total . . . . .             | 212,000        | 1,260,000         | 920,000        | 2,170,000                     |

The population of the Republic in January 1888 was estimated at 3,930,000, from which it appears that foreigners form 23 per cent., and with their children 55 per cent. of the total. Buenos Ayres is the chief centre of European settlers, 72 per cent. of the children born in that city being of foreign parents.

#### URUGUAY

Official returns as to immigrants landed at Monte Video are:—

| Period             | Number  | Per Annum |
|--------------------|---------|-----------|
| 1835-52 . . . . .  | 36,600  | 2,000     |
| 1853-62 . . . . .  | 28,000  | 2,800     |
| 1863-72 . . . . .  | 143,000 | 14,300    |
| 1873-87 . . . . .  | 156,000 | 10,400    |
| 53 years . . . . . | 363,600 | 6,800     |

It is, however, beyond doubt that one-half proceeded to Buenos Ayres, the number of settlers remaining in the country averaging about 6000 yearly in the last twenty-five years. Taking the ratio of nationality as entered in

the records, the actual immigrants since 1863 may be set down as follows:—

|                     |         |
|---------------------|---------|
| Italians . . . . .  | 81,000  |
| Spaniards . . . . . | 33,000  |
| French . . . . .    | 8,000   |
| British . . . . .   | 5,000   |
| Various . . . . .   | 23,000  |
| Total . . . . .     | 150,000 |

In 1884 there were eight agricultural colonies, Swiss and Italian, with 6200 settlers, who cultivated 110,000 acres, and raised 900,000 bushels of grain, valued at £140,000 sterling. The farms of these settlers were assessed at £780,000 sterling. An official report in 1884 showed the number of European settlers in the Republic, and the amount of property paying tax held by those of each nation.

|                            | Number  | Wealth, £ Sterling | £ per Head |
|----------------------------|---------|--------------------|------------|
| Spaniards . . . . .        | 44,000  | 12,500,000         | 280        |
| Italians . . . . .         | 39,000  | 11,200,000         | 286        |
| Brazilians . . . . .       | 22,000  | 14,700,000         | 660        |
| French . . . . .           | 16,000  | 5,700,000          | 350        |
| British . . . . .          | 3,000   | 3,100,000          | 1,030      |
| Various . . . . .          | 42,000  | 4,800,000          | 115        |
| Foreign settlers . . . . . | 166,000 | 52,000,000         | 315        |

Foreigners were 27 per cent. of the population, and held 58 per cent. of the assessed wealth of the Republic.

#### ALGERIA

Complete statistics of immigration from 1883 to 1886 will be found under the title *Colonies*, page 126.

#### ENGINEERING

Some of the most remarkable works carried out in ancient or modern times, as well as those projected, will be found in the following list:—

**Aqueducts.**—Those of Rome under the Cæsars supplied 320 million gallons water daily, and were 249 miles long in the aggregate. The Incas of Peru had one 360 miles long.

**Blasting.**—At Dover, in 1873, the South Eastern Railway Company removed at one blast 800,000 tons of the granite cliff, using eight tons of powder in three charges. At Loch Fyne, near Glasgow, 13th December 1888, Mr. Gardiner's electric battery displaced at a single blast 75,000 tons of granite.

**Boring.**—The greatest depth yet reached is 5200 feet, at Schladerbach, near Halle. The cost of boring with diamond-drill in the Barrow ironstone district, England, varies from 32 to 44 pence per foot.

**Bridges.**—That of Forth, Scotland, finished in 1889, employed 48,000 tons of steel, and 125,000 cubic yards of masonry, has three spans of 1700 feet each, total length 5330 feet. It rests on four cylindrical pillars of masonry, 70 feet diameter, built on rocks 90 feet under water: it can support safely a weight of 84,000 tons; the cost was £2,000,000. In 1867 De Gamond proposed a metal tubular bridge, 30 by 24 feet, from Calais to Dover, to cost £7,200,000, and be completed in seven years.

This scheme was revived in 1889, at a proposed cost of 34½ millions sterling, the bridge to be 200 feet above water, and consist of 74 spans of 550 yards each, resting on masonry pillars, averaging 200 feet down into the sea, the superstructure to employ one million tons of steel, the whole to be completed in ten years; masonry, £15,200,000; superstructure, £19,200,000. See *Bridges*.



**Canal.**—That of China, 2100 miles long, was completed in 1350, after 600 years of labour. That of Suez, opened in 1869 after thirteen years' work, is 92 miles long, and cost 17 millions sterling.

#### Earthworks

|                      | Cost,<br>Cubic Yd. |                        | Cost,<br>Cubic Yd. |
|----------------------|--------------------|------------------------|--------------------|
| England . . . . .    | 21 pence           | Panama Canal . . . . . | 15 pence           |
| Suez Canal . . . . . | 12 "               | Cyprus . . . . .       | 6 "                |

The work of the Thames Embankment, completed after eight years, in 1869, at a cost of £1,710,000, consisted as follows:—

|                     | Cubic<br>Yards |                     | Cubic<br>Yards |
|---------------------|----------------|---------------------|----------------|
| Brickwork . . . . . | 80,000         | Granite . . . . .   | 650,000        |
| Concrete . . . . .  | 140,000        | Earthwork . . . . . | 970,000        |

The Hercules Ditcher, Michigan, removes 700 tons of clay per hour.

**Harbours.**—That of Cherbourg, completed by Napoleon III. in 1857, was 74 years in construction, and cost £3,500,000. That of Holyhead, finished in 1880, has a pier consisting of seven million tons of granite, length 7860 feet, width varying from 250 to 400 feet. Plymouth breakwater, begun in 1812, finished in 1841, has 3,800,000 tons of stone, length 5300 feet, cost £1,550,000.

**Pumps.**—Those employed at Zegedin, Hungary, in 1879, pumped out 500,000 tons or 110,000,000 gallons water daily. Those of the Severn Tunnel in 1880 pumped out each 150,000 gallons an hour. The Haarlem Pumps lifted 109 tons of water 10 feet at each stroke; they drained Lake Haarlem, pumping out 1100 million tons water in eleven years, say 400,000 tons daily.

**Pyramid.**—That of Cheops, near Cairo, contains four million tons of stone, and cost 40 millions sterling. It would now cost only 4 millions.

**Removal.**—The Pelham Hotel, Boston, stone-built, 96 feet high, weight 10,000 tons, was moved by engineers, to widen the street, a distance of 14 feet in 70 hours.

**Tower.**—That of Babel, according to Herodotus, was 610 feet high. The Eiffel Tower, at Paris, built in six months, 1889, is 990 feet high, of iron.

**Tunnel.**—The longest yet made is the St. Gothard, 16,400 yards, begun in 1873, completed in 1881, at a cost of £152 per yard.

**Wall.**—That of China contains 6350 million cubic feet of material, or 160 times as much as the Great Pyramid of Egypt.

## EXHIBITIONS

| Date | Place                  | Area,<br>Acres | Visitors   | Days<br>Open | Receipts  | Exhibitors |
|------|------------------------|----------------|------------|--------------|-----------|------------|
| 1851 | London . . . . .       | 21             | 6,200,000  | 141          | 424,000   | 17,000     |
| 1855 | Paris . . . . .        | 24             | 4,500,000  | 200          | 128,000   | 24,000     |
| 1862 | London . . . . .       | 23             | 6,200,000  | 171          | 408,000   | 29,000     |
| 1867 | Paris . . . . .        | 37             | 9,300,000  | 217          | 420,000   | 50,000     |
| 1873 | Vienna . . . . .       | 48             | 7,300,000  | 186          | 206,000   | 43,000     |
| 1876 | Philadelphia . . . . . | 55             | 10,200,000 | ...          | 800,000   | ...        |
| 1878 | Paris . . . . .        | 60             | 16,100,000 | 194          | 974,000   | 60,000     |
| 1889 | Paris . . . . .        | ...            | 25,000,000 | 180          | 1,980,000 | 55,000     |

The exhibitors and winners of prizes at the London Exhibition of 1851 were as follows:—

|                         | Exhibitors | Prizes |
|-------------------------|------------|--------|
| British . . . . .       | 9,970      | 2,089  |
| French . . . . .        | 1,750      | 1,050  |
| German . . . . .        | 1,450      | 482    |
| Austrian . . . . .      | 750        | 236    |
| United States . . . . . | 600        | 152    |
| Various . . . . .       | 2,880      | 1,177  |
| Total . . . . .         | 17,400     | 5,186  |

At the Paris Exhibition of 1889 the following prizes were given:—

|                         |        |
|-------------------------|--------|
| Grand prizes . . . . .  | 890    |
| Gold medals . . . . .   | 5,599  |
| Silver medals . . . . . | 11,104 |
| Bronze medals . . . . . | 10,980 |

Total . . . . . 28,573

The London Exhibition of 1851 left a net profit of £104,000; that of Paris in 1878, a loss of £1,270,000; and that of Paris in 1889, a net profit of £320,000.

At the last-mentioned the police estimated 5 million French and 1,500,000 foreign visitors, the latter including 380,000 English, 225,000 Belgians, 160,000 Germans, 56,000 Spaniards, 52,000 Swiss, 38,000 Italians, 32,000 Austrians, 7000 Russians, 90,000 North Americans, and 25,000 South Americans.

The balance-sheet of the Exhibition of 1889 showed thus:—

|                         |           |
|-------------------------|-----------|
| Tickets . . . . .       | 980,000   |
| Paris subsidy . . . . . | 320,000   |
| State subsidy . . . . . | 680,000   |
| Receipts . . . . .      | 1,980,000 |
| Expenses . . . . .      | 1,660,000 |
| Surplus . . . . .       | 320,000   |

The largest number of visitors in one day was 400,000.

## F.

## FACTORIES

Some countries have precise statistics only touching textile factories, others include every industrial establishment in which more than a dozen hands are employed. The following table shows approximately the number of factory operatives of various nations:—

|                          |           |                         |           |
|--------------------------|-----------|-------------------------|-----------|
| United Kingdom . . . . . | 1,703,000 | Spain . . . . .         | 200,000   |
| France . . . . .         | 1,783,000 | Switzerland . . . . .   | 300,000   |
| Germany . . . . .        | 1,527,000 | Belgium . . . . .       | 400,000   |
| Russia . . . . .         | 955,000   | Sweden . . . . .        | 53,000    |
| Austria . . . . .        | 490,000   | United States . . . . . | 2,739,000 |
| Italy . . . . .          | 382,000   | Canada . . . . .        | 255,000   |

The textile factories of the United Kingdom show as follows:—

| Year | Number of<br>Factories | Spindles   | Power<br>Looms | Steam,<br>Horse-<br>Power | Operatives |
|------|------------------------|------------|----------------|---------------------------|------------|
| 1835 | 3,160                  | ...        | 117,000        | ...                       | 355,000    |
| 1840 | 4,213                  | ...        | ...            | 69,000                    | 424,000    |
| 1850 | 4,601                  | 31,000,000 | 302,000        | 108,000                   | 596,000    |
| 1860 | 6,378                  | 36,000,000 | 499,000        | 375,000                   | 776,000    |
| 1870 | 6,258                  | 42,000,000 | 606,000        | 473,000                   | 907,000    |
| 1880 | 7,105                  | 47,000,000 | 725,000        | 570,000                   | 976,000    |
| 1885 | 7,465                  | 47,800,000 | 774,000        | ...                       | 1,034,000  |

The following table shows British textile factories at three dates :—

| Factories      | Hands   |         |         | Horse-Power |         |         | Power Looms, Number |         |         |
|----------------|---------|---------|---------|-------------|---------|---------|---------------------|---------|---------|
|                | 1838    | 1856    | 1885    | 1838        | 1856    | 1885    | 1838                | 1856    | 1885    |
| Cotton . . .   | 259,000 | 379,000 | 504,000 | 60,000      | 97,000  | 356,000 | 109,000             | 299,000 | 560,000 |
| Woollen . . .  | 86,000  | 167,000 | 282,000 | 28,000      | 41,000  | 122,000 | 5,000               | 53,000  | 140,000 |
| Linen, &c. . . | 44,000  | 80,000  | 164,000 | 11,000      | 18,000  | 73,000  | 2,000               | 9,000   | 60,000  |
| Silk . . .     | 34,000  | 56,000  | 43,000  | 3,000       | 5,000   | 10,000  | ...                 | 8,000   | 12,000  |
| Total . . .    | 423,000 | 682,000 | 993,000 | 102,000     | 161,000 | 561,000 | 116,000             | 369,000 | 772,000 |

Besides the foregoing there are factories of hosiery, lace, &c.

The hands employed in textile factories of the United Kingdom were made up thus :—

|                    | 1870    |         |         | 1885    |         |           |
|--------------------|---------|---------|---------|---------|---------|-----------|
|                    | Males   | Females | Total   | Males   | Females | Total     |
| England . . . . .  | 304,000 | 414,000 | 718,000 | 338,000 | 476,000 | 814,000   |
| Scotland . . . . . | 34,000  | 93,000  | 127,000 | 45,000  | 107,000 | 152,000   |
| Ireland . . . . .  | 21,000  | 41,000  | 62,000  | 22,000  | 46,000  | 68,000    |
| Total . . . . .    | 359,000 | 548,000 | 907,000 | 405,000 | 629,000 | 1,034,000 |

Factory legislation as to the minimum age for children being employed, and their hours of labour, is shown thus :—

|                       | Minimum Age | Maximum of Hours Daily for |          |          |          |          |          |
|-----------------------|-------------|----------------------------|----------|----------|----------|----------|----------|
|                       |             | Children Under 12          | Under 12 | Under 13 | Under 14 | Under 15 | Under 16 |
| France . . . . .      | 10          | 6                          | 6        | 12       | 12       | 12       | 12       |
| Germany . . . . .     | 12          | ...                        | ...      | 6        | 6        | 10       | 10       |
| Russia . . . . .      | 10          | 6                          | 6        | 12       | 12       | 12       | 12       |
| Austria . . . . .     | 10          | 10                         | 10       | 12       | 12       | 12       | 12       |
| Italy . . . . .       | 9           | 8                          | 10       | 10       | 10       | 10       | ...      |
| Spain . . . . .       | 10          | 5                          | 5        | 5        | 8        | 8        | 8        |
| Switzerland . . . . . | 10          | 6                          | 6        | 12       | 12       | 12       | 12       |
| Denmark . . . . .     | 10          | 4                          | 4        | 4        | 4        | 12       | 12       |

The minimum in Belgium is 10 years, in Holland 12. In all cases the children are to have Sunday free.

At the Berlin Congress in 1890 it was recommended that children should not be admitted to work in any industry under 12 years of age, and then only for 6 hours per day till they were 14; that young persons from 14 to 16 years of age should not work more than 10 hours per day, and that women should in no case work more than 11 hours per day. In India, however, children of 7 years of age are employed in the cotton-mills for 9 hours a day.

The average of working hours and of wages weekly in 1840 and 1880 were as follows :—

|                     | Hours Weekly |      | Wages, Shillings Weekly |      | Pence per Hour |      |
|---------------------|--------------|------|-------------------------|------|----------------|------|
|                     | 1840         | 1880 | 1840                    | 1880 | 1840           | 1880 |
| Great Britain . . . | 69           | 52   | 12                      | 24   | 2.1            | 5.5  |
| France . . . . .    | 78           | 60   | 6                       | 19   | 0.9            | 3.8  |
| Germany . . . . .   | 83           | 60   | 4                       | 16   | 0.6            | 3.2  |
| United States . . . | 78           | 60   | 15                      | 28   | 2.3            | 5.6  |
| Belgium . . . . .   | ...          | 62   | ...                     | 20   | ...            | 3.9  |
| Italy . . . . .     | ...          | 72   | ...                     | 15   | ...            | 2.5  |

The working hours average 72 per week in Russia, 64 in Holland, 66 in Switzerland and Austria. Wages average 16s. in Spain.

The cost of erecting and equipping a factory was estimated by M'Culloch at £100 per operative. Port Dundas factory, near Glasgow, has a chimney 454 feet high, supposed to be the highest in the world.

### FAIRS

In that of Leipzig the annual average of sales is four millions sterling, comprising 20,000 tons of merchandise, of which 8000 tons are books.

The fair of Nijni-Novgorod is the greatest in the world, the returns showing :—

| Year           | Goods Offered | Goods Sold |
|----------------|---------------|------------|
| 1841 . . . . . | 8,000,000     | 7,000,000  |
| 1857 . . . . . | 13,000,000    | 12,000,000 |
| 1876 . . . . . | 30,000,000    | 28,000,000 |

This fair is attended by 150,000 dealers from all parts of the world, and the goods sold in 1876 were :—

|                               |            |
|-------------------------------|------------|
| Cottons, linens, &c. . . . .  | 8,000,000  |
| Furs, leather, &c. . . . .    | 7,000,000  |
| Ural metals . . . . .         | 7,000,000  |
| Flour, fish, brandy . . . . . | 3,000,000  |
| Tea and luxuries . . . . .    | 3,000,000  |
| Total . . . . .               | 28,000,000 |

### FAMINES

Walford mentions 160 since the eleventh century, viz. :—

|                      |                       |                       |
|----------------------|-----------------------|-----------------------|
| England . . . . . 57 | Scotland . . . . . 12 | Germany . . . . . 11  |
| Ireland . . . . . 34 | France . . . . . 10   | Italy, &c. . . . . 36 |

The worst in modern times have been :—

| In                | Date    | Victims   |
|-------------------|---------|-----------|
| France . . . . .  | 1770    | 48,000    |
| Ireland . . . . . | 1816-17 | 737,000   |
| Ireland . . . . . | 1846-47 | 1,000,000 |
| India . . . . .   | 1866    | 1,450,000 |
| India . . . . .   | 1877    | 500,000   |
| China . . . . .   | 1878    | 9,500,000 |

The number of victims in Ireland in 1816-17 was stated by Murchison and Kennedy as above.

The Commissioners' report for 1846-47 reduced the number of victims to 600,000 by supposing "that 500,000 Irish went into Great Britain, and that the ordinary death-rate of Irish population is 22 per thousand yearly." Neither supposition was correct, the Census of 1851 showing that only 314,000 Irish had removed to England and Scotland, and the Registrar-General's report for 16 years ending 1880 showing that the normal death-rate of Ireland is 17 per 1000. In 1851 the number of persons missing in Ireland was 3,157,000, accounted for in this manner:—

|                               | Official Report | Real Figures |
|-------------------------------|-----------------|--------------|
| Emigrated . . . . .           | 1,079,000       | 1,079,000    |
| Went to Great Britain . . . . | 500,000         | 314,000      |
| Natural deaths . . . . .      | 978,000         | 755,000      |
| Died of famine . . . . .      | 600,000         | 1,009,000    |
| Accounted for . . . . .       | 3,157,000       | 3,157,000    |

Deaths from hunger and destitution in the United Kingdom average more than 500 per annum, and are

most frequent in London. In 1879 the deaths recorded from this cause were:—

|                   | Number | Per 1000 Deaths |
|-------------------|--------|-----------------|
| London . . . . .  | 101    | 1.2             |
| England . . . . . | 312    | 0.6             |
| Ireland . . . . . | 3,789  | 37.6            |
| France . . . . .  | 260    | 0.3             |

In England there were 60 male to 40 female victims; in France 85 to 15. In London the real number of victims was much greater, many of the suicides resulting from hunger. In 1880 Mr. Forster said the Irish death-rate was 10 per cent. over the average of five years. In 1879-80 there were 17,200 extra deaths, apparently caused by destitution, in Ireland.

### FASTING

1684. Four men taken alive out of a mine in England, after 24 days without food.

1880. Dr. Tanner, New York, lived on water 40 days, losing 36 lbs. weight.

On December 14, 1810, a pig was buried alive by fall of a cliff at Dover, and on May 23, 1811, it was dug out alive, after 160 days.

In 1870, during the siege of Metz, a dog that was accidentally locked in a room passed 39 days without food and recovered.

### FINANCE

The revenue of the principal countries was approximately as follows:—

|                          | 1680       | 1780       | 1810        | 1850        | 1889        |
|--------------------------|------------|------------|-------------|-------------|-------------|
| United Kingdom . . . . . | 2,120,000  | 9,200,000  | 55,800,000  | 58,200,000  | 88,500,000  |
| France . . . . .         | 4,800,000  | 14,200,000 | 40,000,000  | 51,000,000  | 121,800,000 |
| Germany . . . . .        | 2,000,000  | 7,000,000  | 11,500,000  | 23,800,000  | 154,700,000 |
| Russia . . . . .         | 400,000    | 1,600,000  | 11,000,000  | 39,000,000  | 88,800,000  |
| Austria . . . . .        | ...        | 4,000,000  | 10,400,000  | 20,000,000  | 74,800,000  |
| Italy . . . . .          | ...        | 1,500,000  | 4,600,000   | 12,000,000  | 72,000,000  |
| Spain . . . . .          | 1,930,000  | 3,320,000  | 6,000,000   | 11,500,000  | 35,400,000  |
| Portugal . . . . .       | ...        | ...        | 1,200,000   | 3,200,000   | 8,400,000   |
| Sweden . . . . .         | ...        | ...        | 1,000,000   | 1,500,000   | 4,800,000   |
| Norway . . . . .         | ...        | ...        | ...         | 800,000     | 2,400,000   |
| Denmark . . . . .        | ...        | ...        | 1,100,000   | 1,500,000   | 3,000,000   |
| Holland . . . . .        | ...        | 2,200,000  | 4,800,000   | 5,800,000   | 10,100,000  |
| Belgium . . . . .        | ...        | ...        | ...         | 4,700,000   | 12,900,000  |
| Switzerland . . . . .    | ...        | ...        | ...         | 1,000,000   | 2,900,000   |
| Greece . . . . .         | ...        | ...        | ...         | 1,000,000   | 3,100,000   |
| Turkey, &c. . . . .      | ...        | ...        | 3,000,000   | 9,000,000   | 23,200,000  |
| Europe . . . . .         | 15,000,000 | 35,000,000 | 150,400,000 | 244,000,000 | 706,800,000 |
| United States . . . . .  | ...        | ...        | 1,900,000   | 9,200,000   | 80,600,000  |
| Australia . . . . .      | ...        | ...        | ...         | 900,000     | 27,600,000  |
| Canada . . . . .         | ...        | ...        | ...         | 1,100,000   | 7,800,000   |
| India . . . . .          | ...        | ...        | 15,600,000  | 27,600,000  | 69,100,000  |
| South Africa . . . . .   | ...        | ...        | ...         | 500,000     | 4,000,000   |
| Argentina . . . . .      | ...        | ...        | 200,000     | 900,000     | 5,400,000   |
| Brazil . . . . .         | ...        | ...        | 1,800,000   | 4,000,000   | 14,100,000  |
| Chile . . . . .          | ...        | ...        | ...         | 1,000,000   | 5,000,000   |
| Peru . . . . .           | ...        | ...        | ...         | 2,000,000   | 1,500,000   |
| Venezuela . . . . .      | ...        | ...        | ...         | 500,000     | 1,000,000   |
| Colombia . . . . .       | ...        | ...        | ...         | 500,000     | 1,000,000   |
| Mexico . . . . .         | ...        | ...        | ...         | 3,000,000   | 5,400,000   |
| Egypt . . . . .          | ...        | ...        | ...         | 4,000,000   | 9,700,000   |
| Persia . . . . .         | ...        | ...        | ...         | 1,500,000   | 1,700,000   |
| Japan . . . . .          | ...        | ...        | ...         | 5,000,000   | 13,100,000  |
| China . . . . .          | ...        | ...        | ...         | 18,000,000  | 26,000,000  |
| Cuba . . . . .           | ...        | ...        | ...         | 1,500,000   | 2,500,000   |
| The world . . . . .      | 18,000,000 | 40,000,000 | 180,000,000 | 325,200,000 | 982,300,000 |

The revenue of nations has trebled since 1850, multiplied 5½ times since 1810, and 55 times since 1680. The various blanks in the above table from 1680 to 1810 show that the revenue cannot be stated for those countries; approximate totals are nevertheless given, for comparison.

The revenue of the various nations since 1820 is shown approximately in million £ annual averages, as follows :—

|                           | 1821-40 | 1841-60 | 1861-80 | 1881-90 | 1891-1900 |
|---------------------------|---------|---------|---------|---------|-----------|
| U. Kingdom . .            | 64      | 61      | 68      | 71      | 77        |
| France . . . .            | 46      | 50      | 60      | 78      | 105       |
| Germany . . . .           | 10      | 21      | 34      | 40      | 73        |
| Russia . . . . .          | 22      | 33      | 38      | 46      | 60        |
| Austria . . . .           | 13      | 18      | 28      | 44      | 61        |
| Italy . . . . .           | 9       | 11      | 20      | 43      | 53        |
| Spain . . . . .           | 8       | 10      | 12      | 20      | 30        |
| Portugal . . . .          | 2       | 3       | 4       | 5       | 6         |
| Sweden and Norway . . . . | 2       | 2       | 3       | 4       | 7         |
| Denmark . . . .           | 1       | 2       | 2       | 2       | 3         |
| Holland . . . .           | 3       | 5       | 7       | 8       | 9         |
| Belgium . . . .           | 3       | 4       | 5       | 7       | 9         |
| Turkey . . . . .          | 5       | 7       | 9       | 11      | 14        |
| Other countries . .       | 1       | 2       | 3       | 5       | 8         |
| Europe . . . . .          | 189     | 229     | 293     | 384     | 515       |
| United States . .         | 5       | 6       | 12      | 37      | 62        |
| Egypt . . . . .           | 3       | 4       | 5       | 7       | 8         |
| India . . . . .           | 19      | 24      | 33      | 46      | 56        |
| British Colonies .        | 1       | 2       | 7       | 15      | 23        |
| Other countries . .       | 20      | 24      | 33      | 42      | 60        |
| The world . . . .         | 237     | 289     | 383     | 534     | 724       |

If we take the year 1840 for point of departure, we find the expenditure per inhabitant in the principal countries has risen as follows :—

|                  | 1840 | 1850 | 1860 | 1870 | 1881 | 1881-88 |
|------------------|------|------|------|------|------|---------|
| U. Kingdom . .   | 100  | 100  | 125  | 113  | 118  | 120     |
| France . . . .   | 100  | 103  | 135  | 147  | 200  | 247     |
| Germany . . . .  | 100  | 113  | 120  | 167  | 267  | 360     |
| Russia . . . . . | 100  | 130  | 150  | 190  | 200  | 180     |
| Austria . . . .  | 100  | 130  | 140  | 170  | 200  | 215     |
| Italy . . . . .  | 100  | 155  | 190  | 170  | 200  | 240     |
| Spain . . . . .  | 100  | 121  | 150  | 242  | 242  | 230     |
| United States .  | 100  | 117  | 133  | 500  | 351  | 333     |
| Australia . . .  | 100  | 90   | 375  | 360  | 424  | 570     |
| Canada . . . .   | 100  | 114  | 128  | 142  | 192  | 285     |

The average annual revenues from different sources in the decade 1871-80 were as follows :—

|                         | Customs     | Property-Tax | Various     | Total       |
|-------------------------|-------------|--------------|-------------|-------------|
| U. Kingdom              | £20,100,000 | £6,600,000   | £50,600,000 | £77,300,000 |
| France . . . .          | 10,300,000  | 8,700,000    | 85,500,000  | 104,500,000 |
| Germany . . .           | 8,600,000   | 10,500,000   | 53,500,000  | 72,600,000  |
| Russia . . . .          | 8,500,000   | 10,300,000   | 41,500,000  | 60,300,000  |
| Austria . . .           | 2,600,000   | 9,400,000    | 44,000,000  | 56,000,000  |
| Italy . . . . .         | 5,000,000   | 13,000,000   | 35,400,000  | 53,400,000  |
| Spain . . . . .         | 4,400,000   | 9,600,000    | 15,800,000  | 29,800,000  |
| Portugal . . .          | 1,800,000   | 800,000      | 3,200,000   | 5,800,000   |
| Holland . . .           | 400,000     | 1,800,000    | 6,500,000   | 8,700,000   |
| Belgium . . .           | 800,000     | 1,500,000    | 7,000,000   | 9,300,000   |
| Denmark . . .           | 1,000,000   | 500,000      | 1,200,000   | 2,700,000   |
| Sweden and Norway . . . | 2,400,000   | 500,000      | 4,000,000   | 6,900,000   |
| Europe . . . .          | 65,000,000  | 73,200,000   | 348,200,000 | 487,300,000 |
| U. States . . .         | 26,000,000  | ...          | 36,200,000  | 62,200,000  |
| Canada . . . .          | 2,700,000   | ...          | 2,200,000   | 4,900,000   |
| Australia . . .         | 4,100,000   | ...          | 10,100,000  | 14,200,000  |
| Brazil . . . .          | 6,700,000   | 400,000      | 2,200,000   | 9,300,000   |
| Egypt . . . . .         | 800,000     | 5,000,000    | 2,300,000   | 8,100,000   |
| India . . . . .         | 2,200,000   | 21,100,000   | 31,800,000  | 55,100,000  |
| The world . . .         | 108,400,000 | 99,700,000   | 430,000,000 | 641,100,000 |

The expenditure of the principal nations in 1887 appeared under the principal heads as follows :—

|                         | Government  | Debt        | Army and Navy | Total       |
|-------------------------|-------------|-------------|---------------|-------------|
| U. Kingdom              | £30,200,000 | £27,900,000 | £31,900,000   | £90,000,000 |
| France . . . .          | 41,000,000  | 52,800,000  | 31,400,000    | 125,200,000 |
| Germany . . .           | 82,300,000  | 16,700,000  | 31,000,000    | 130,000,000 |
| Russia . . . .          | 30,500,000  | 28,100,000  | 25,000,000    | 83,600,000  |
| Austria . . .           | 44,200,000  | 16,200,000  | 13,600,000    | 74,000,000  |
| Italy . . . . .         | 34,700,000  | 20,700,000  | 14,200,000    | 69,600,000  |
| Spain . . . . .         | 15,800,000  | 10,900,000  | 7,300,000     | 34,000,000  |
| Portugal . . .          | 4,000,000   | 3,600,000   | 1,400,000     | 9,000,000   |
| Sweden and Norway . . . | 5,100,000   | 700,000     | 1,400,000     | 7,200,000   |
| Denmark . . .           | 1,300,000   | 500,000     | 1,200,000     | 3,000,000   |
| Holland . . .           | 5,500,000   | 3,100,000   | 2,800,000     | 11,400,000  |
| Belgium . . .           | 7,900,000   | 3,900,000   | 2,000,000     | 13,800,000  |
| Switzerland . .         | 1,600,000   | ...         | 800,000       | 2,400,000   |
| Greece . . . .          | 1,700,000   | 1,500,000   | 600,000       | 3,800,000   |
| Roumania . . .          | 1,200,000   | 2,700,000   | 1,300,000     | 5,200,000   |
| Servia . . . .          | 700,000     | 500,000     | 600,000       | 1,800,000   |
| Europe . . . .          | 307,700,000 | 189,800,000 | 166,500,000   | 664,000,000 |
| U. States . . .         | 34,700,000  | 9,900,000   | 11,200,000    | 55,800,000  |
| Total . . . . .         | 342,400,000 | 199,700,000 | 177,700,000   | 719,800,000 |

The above does not include Turkey, whose expenditure is about 16 millions sterling.

National expenditure at various dates since 1830 was as follows :—

|                         | Millions Sterling |      |      |      |      |      |         |
|-------------------------|-------------------|------|------|------|------|------|---------|
|                         | 1830              | 1840 | 1850 | 1860 | 1870 | 1881 | 1881-88 |
| United Kingdom . .      | 55                | 52   | 55   | 73   | 70   | 83   | 88      |
| France . . . . .        | 41                | 57   | 60   | 83   | 90   | 121  | 160     |
| Germany . . . .         | 16                | 22   | 28   | 32   | 51   | 90   | 127     |
| Russia . . . . .        | 23                | 30   | 42   | 56   | 69   | 80   | 95      |
| Austria . . . .         | 18                | 28   | 39   | 45   | 59   | 75   | 82      |
| Italy . . . . .         | 12                | 19   | 31   | 37   | 41   | 56   | 72      |
| Spain . . . . .         | 9                 | 11   | 14   | 21   | 33   | 33   | 36      |
| Portugal . . . .        | 2                 | 3    | 4    | 4    | 5    | 8    | 9       |
| Holland . . . .         | 3                 | 5    | 7    | 7    | 8    | 10   | 11      |
| Belgium . . . .         | 3                 | 5    | 6    | 6    | 7    | 11   | 14      |
| Denmark . . . .         | 2                 | 2    | 2    | 2    | 3    | 2    | 3       |
| Sweden and Norway . .   | 2                 | 2    | 2    | 3    | 5    | 7    | 8       |
| Greece . . . . .        | 1                 | 1    | 1    | 1    | 2    | 4    | 3       |
| Roumania . . . .        | ...               | ...  | ...  | ...  | ...  | 5    | 5       |
| Turkey . . . . .        | 4                 | 6    | 8    | 13   | 21   | 13   | 16      |
| Europe . . . . .        | 191               | 243  | 299  | 383  | 464  | 598  | 729     |
| United States . . .     | 3                 | 5    | 7    | 12   | 58   | 54   | 55      |
| Mexico . . . . .        | 3                 | 3    | 4    | 6    | 5    | 4    | 5       |
| S. American Republics . | 2                 | 2    | 3    | 4    | 8    | 11   | 15      |
| Brazil . . . . .        | 2                 | 3    | 5    | 6    | 8    | 11   | 15      |
| Canada . . . . .        | 1                 | 1    | 2    | 3    | 4    | 6    | 10      |
| Australia . . . .       | 1                 | 1    | 1    | 8    | 12   | 20   | 33      |
| Cape Colony . . .       | 1                 | 1    | 1    | 1    | 1    | 2    | 6       |
| Egypt . . . . .         | 2                 | 2    | 3    | 5    | 14   | 8    | 9       |
| India . . . . .         | 22                | 25   | 28   | 52   | 55   | 76   | 77      |
| Java . . . . .          | 2                 | 4    | 5    | 6    | 8    | 11   | 11      |
| Japan . . . . .         | ...               | ...  | ...  | ...  | ...  | 11   | 11      |
| The world . . . .       | 230               | 290  | 358  | 486  | 638  | 815  | 976     |

In the above table the expenditure for Germany includes the budgets of Prussia, Bavaria, Saxony, and the minor States. It does not include State expenditure in the United States, nor local taxes in any country.

The following table shows approximately the chief sources of revenue in 1890 (or latest year), how much is raised by taxation, how much for public services :—

|                          | Amount, £    |             |             |                 |             | Shillings per Inhabitant |
|--------------------------|--------------|-------------|-------------|-----------------|-------------|--------------------------|
|                          | Direct Taxes | Customs     | Other Taxes | Public Services | Total       |                          |
| United Kingdom . . . . . | 15,300,000   | 20,000,000  | 38,200,000  | 15,000,000      | 88,500,000  | 46                       |
| France . . . . .         | 17,900,000   | 15,000,000  | 69,100,000  | 19,800,000      | 121,800,000 | 64                       |
| Germany . . . . .        | 12,500,000   | 13,500,000  | 38,900,000  | 89,800,000      | 154,700,000 | 65                       |
| Russia . . . . .         | 8,200,000    | 12,100,000  | 40,900,000  | 27,600,000      | 88,800,000  | 20                       |
| Austria . . . . .        | 11,700,000   | 3,900,000   | 34,500,000  | 24,700,000      | 74,800,000  | 39                       |
| Italy . . . . .          | 16,200,000   | 10,600,000  | 27,000,000  | 18,200,000      | 72,000,000  | 48                       |
| Spain . . . . .          | 12,400,000   | 6,900,000   | 12,600,000  | 3,500,000       | 35,400,000  | 38                       |
| Portugal . . . . .       | 1,000,000    | 3,100,000   | 2,500,000   | 1,800,000       | 8,400,000   | 38                       |
| Sweden . . . . .         | 600,000      | 2,100,000   | 1,000,000   | 1,100,000       | 4,800,000   | 20                       |
| Norway . . . . .         | ...          | 1,100,000   | 400,000     | 900,000         | 2,400,000   | 24                       |
| Denmark . . . . .        | 500,000      | 1,400,000   | 600,000     | 500,000         | 3,000,000   | 30                       |
| Holland . . . . .        | 2,300,000    | 400,000     | 5,600,000   | 1,800,000       | 10,100,000  | 44                       |
| Belgium . . . . .        | 2,100,000    | 1,100,000   | 3,600,000   | 6,100,000       | 12,900,000  | 43                       |
| Switzerland . . . . .    | ...          | 1,200,000   | 600,000     | 1,100,000       | 2,900,000   | 20                       |
| Greece . . . . .         | 900,000      | 700,000     | 800,000     | 700,000         | 3,100,000   | 31                       |
| Europe . . . . .         | 101,600,000  | 93,100,000  | 276,300,000 | 212,600,000     | 683,600,000 | 45                       |
| United States . . . . .  | ...          | 45,600,000  | 27,200,000  | 6,800,000       | 80,600,000  | 26                       |
| Canada . . . . .         | ...          | 4,500,000   | 1,300,000   | 2,000,000       | 7,800,000   | 31                       |
| Australia . . . . .      | ...          | 8,200,000   | 2,500,000   | 16,900,000      | 27,600,000  | 150                      |
| India . . . . .          | 19,500,000   | 1,200,000   | 26,800,000  | 21,600,000      | 69,100,000  | 7                        |
| Argentina . . . . .      | 800,000      | 3,900,000   | 400,000     | 300,000         | 5,400,000   | 30                       |
| Total . . . . .          | 121,900,000  | 157,500,000 | 334,500,000 | 260,200,000     | 874,100,000 | ...                      |

Expenditure compared with population at the above date thus :—

|                              | Shillings per Inhabitant |      |      |      |      |      |         |
|------------------------------|--------------------------|------|------|------|------|------|---------|
|                              | 1830                     | 1840 | 1850 | 1860 | 1870 | 1881 | 1881-88 |
| United Kingdom . . . . .     | 46                       | 40   | 40   | 50   | 45   | 47   | 48      |
| France . . . . .             | 25                       | 34   | 35   | 46   | 50   | 68   | 84      |
| Germany . . . . .            | 12                       | 15   | 17   | 18   | 25   | 40   | 54      |
| Russia . . . . .             | 9                        | 10   | 13   | 15   | 19   | 20   | 18      |
| Austria . . . . .            | 15                       | 20   | 26   | 28   | 34   | 40   | 43      |
| Italy . . . . .              | 15                       | 20   | 31   | 38   | 34   | 40   | 48      |
| Spain . . . . .              | 16                       | 18   | 20   | 27   | 40   | 40   | 42      |
| Portugal . . . . .           | 11                       | 17   | 20   | 20   | 24   | 36   | 40      |
| Holland . . . . .            | 24                       | 34   | 46   | 44   | 46   | 50   | 52      |
| Belgium . . . . .            | 18                       | 25   | 27   | 25   | 28   | 42   | 50      |
| Denmark . . . . .            | 36                       | 35   | 33   | 31   | 34   | 24   | 30      |
| Sweden and Norway . . . . .  | 10                       | 10   | 10   | 12   | 17   | 22   | 25      |
| Greece . . . . .             | 20                       | 20   | 20   | 16   | 34   | 45   | 40      |
| Romania . . . . .            | ...                      | ...  | ...  | ...  | ...  | 19   | 20      |
| Turkey . . . . .             | 7                        | 10   | 13   | 18   | 27   | 60   | 70      |
| Europe . . . . .             | 16                       | 20   | 22   | 28   | 31   | 39   | 45      |
| United States . . . . .      | 4                        | 6    | 7    | 8    | 30   | 21   | 20      |
| Brazil . . . . .             | 7                        | 9    | 12   | 15   | 18   | 23   | 26      |
| Canada . . . . .             | 10                       | 14   | 16   | 18   | 20   | 27   | 40      |
| Australia . . . . .          | 40                       | 33   | 30   | 125  | 120  | 141  | 188     |
| Cape Colony . . . . .        | ...                      | 30   | 28   | 49   | 27   | 90   | 100     |
| India . . . . .              | 5                        | 5    | 5    | 7    | 7    | 8    | 8       |
| Java . . . . .               | 7                        | 10   | 10   | 10   | 10   | 12   | 12      |
| Egypt . . . . .              | 12                       | 12   | 27   | 40   | 56   | 30   | 33      |
| Argentine Republic . . . . . | 10                       | 10   | 10   | 15   | 34   | 40   | 44      |
| Chili . . . . .              | 7                        | 7    | 15   | 13   | 21   | 35   | 38      |
| The world . . . . .          | 11                       | 13   | 14   | 18   | 22   | 25   | 28      |

It appears that since 1830 the annual public expenditure in Europe per head of population has trebled, but that in the United Kingdom there has been no sensible increase. The ratio per inhabitant has, meantime, risen more in the United States, Canada, Australia, and Argentina than in Europe.

The revenue and expenditure of the principal countries since 1870 have been as follows :—

|                           | 1871-88             |             |                     |
|---------------------------|---------------------|-------------|---------------------|
|                           | Amount in Million £ |             |                     |
|                           | Revenue             | Expenditure | Surplus Expenditure |
| United Kingdom . . . . .  | 1,474               | 1,467       | ...                 |
| France . . . . .          | 2,170               | 2,935       | 765                 |
| Germany . . . . .         | 1,610               | 1,880       | 270                 |
| Russia . . . . .          | 1,192               | 1,606       | 414                 |
| Austria . . . . .         | 1,154               | 1,342       | 188                 |
| Italy . . . . .           | 1,034               | 1,161       | 127                 |
| Spain . . . . .           | 564                 | 784         | 220                 |
| United States . . . . .   | 1,228               | 964         | ...                 |
| Australia . . . . .       | 333                 | 464         | 131                 |
| Canada . . . . .          | 109                 | 139         | 30                  |
| India . . . . .           | 1,152               | 1,230       | 78                  |
| Other countries . . . . . | 2,500               | 2,792       | 292                 |
| Total . . . . .           | 14,520              | 16,764      | 2,244               |

The revenue and expenditure of Europe were approximately as follows :—

|                    | Millions Sterling £ |             |                     |
|--------------------|---------------------|-------------|---------------------|
|                    | Revenue             | Expenditure | Surplus Expenditure |
| 1821-40 . . . . .  | 3,780               | 3,840       | 60                  |
| 1841-50 . . . . .  | 2,290               | 2,320       | 30                  |
| 1851-60 . . . . .  | 2,930               | 3,400       | 470                 |
| 1861-70 . . . . .  | 3,840               | 4,760       | 920                 |
| 1871-80 . . . . .  | 5,080               | 6,030       | 950                 |
| 1881-88 . . . . .  | 5,150               | 6,110       | 960                 |
| 68 years . . . . . | 23,070              | 26,460      | 3,390               |

In 38 years, from 1851 to 1888, the expenditure surpassed income by 3300 millions sterling, say 87 millions yearly, which went mostly in wars and armaments.

The public debt, stated in millions £ sterling, was as follows:—

|                         | 1713 | 1763 | 1793 | 1816  | 1848  | 1870  | 1889  |
|-------------------------|------|------|------|-------|-------|-------|-------|
| Great Britain . . .     | 54   | 147  | 370  | 900   | 773   | 801   | 698   |
| France . . .            | 48   | 110  | 32   | 140   | 260   | 504   | 1,269 |
| Germany . . .           | ...  | ...  | ...  | 39    | 69    | 148   | 435   |
| Russia . . .            | ...  | ...  | 47   | 145   | 90    | 342   | 756   |
| Austria . . .           | 10   | 15   | 42   | 99    | 125   | 340   | 580   |
| Italy . . .             | ...  | ...  | ...  | 25    | 36    | 333   | 460   |
| Spain . . .             | 7    | 11   | 20   | 117   | 113   | 285   | 260   |
| Portugal . . .          | ...  | ...  | 1    | 7     | 22    | 59    | 113   |
| Holland . . .           | ...  | ...  | 70   | 110   | 114   | 76    | 89    |
| Belgium . . .           | ...  | ...  | ...  | ...   | 25    | 28    | 77    |
| Denmark . . .           | ...  | ...  | 2    | 12    | 12    | 13    | 11    |
| Sweden and Norway . . . | ...  | ...  | ...  | ...   | 2     | 6     | 20    |
| Greece . . .            | ...  | ...  | ...  | ...   | 10    | 18    | 23    |
| Turkey . . .            | ...  | ...  | ...  | ...   | 92    | 180   | ...   |
| Roumania . . .          | ...  | ...  | ...  | ...   | ...   | 36    | ...   |
| Servia . . .            | ...  | ...  | ...  | ...   | ...   | 13    | ...   |
| Europe . . .            | 119  | 283  | 584  | 1,594 | 1,651 | 3,045 | 5,020 |
| United States . . .     | ...  | ...  | 17   | 26    | 10    | 485   | 221   |
| Spanish America . . .   | ...  | ...  | ...  | ...   | 17    | 135   | 333   |
| Canada . . .            | ...  | ...  | ...  | ...   | 5     | 17    | 49    |
| Australia . . .         | ...  | ...  | ...  | ...   | ...   | 37    | 171   |
| India . . .             | ...  | ...  | 9    | 29    | 51    | 108   | 186   |
| Japan . . .             | ...  | ...  | ...  | ...   | 2     | 10    | 50    |
| Egypt . . .             | ...  | ...  | ...  | ...   | ...   | 37    | 103   |
| South Africa . . .      | ...  | ...  | ...  | ...   | ...   | 2     | 27    |
| The world . . .         | 119  | 283  | 610  | 1,649 | 1,736 | 3,876 | 6,160 |

Debt has multiplied tenfold in ninety-six years. The annual increase since 1870 has averaged 118 millions sterling. The increase from the date of the Treaty of Utrecht, 1713, to the present is shown in successive stages thus:—

| Period              | Millions, £ | Per Annum   |
|---------------------|-------------|-------------|
| 1713-63 . . . . .   | 164         | £ 3,300,000 |
| 1764-93 . . . . .   | 327         | 10,900,000  |
| 1794-1816 . . . . . | 1,039       | 45,200,000  |
| 1817-1848 . . . . . | 87          | 2,700,000   |
| 1849-70 . . . . .   | 2,140       | 97,300,000  |
| 1871-89 . . . . .   | 2,244       | 118,100,000 |
| 176 years . . . . . | 6,001       | 34,100,000  |

The origin of the debt may be approximately summed up thus:—

|                                  |                |
|----------------------------------|----------------|
| War and armaments . . . . .      | 3,610 millions |
| Railways and telegraph . . . . . | 1,450 „        |
| Roads and bridges . . . . .      | 780 „          |
| Sundries . . . . .               | 161 „          |

6,001

In 1889 the interest which bondholders received, taking the various loans of nations at the prices current in the market, were as follows per £100 per annum.

|                           | £   |                        | £   |
|---------------------------|-----|------------------------|-----|
| United Kingdom . . . . .  | 2.7 | Austria . . . . .      | 4.3 |
| United States . . . . .   | 3.1 | Chile . . . . .        | 4.3 |
| Belgium . . . . .         | 3.2 | Russia . . . . .       | 4.6 |
| Holland . . . . .         | 3.3 | Brazil . . . . .       | 4.8 |
| New South Wales . . . . . | 3.4 | Spain . . . . .        | 4.9 |
| Canada . . . . .          | 3.5 | Portugal . . . . .     | 5.0 |
| Switzerland . . . . .     | 3.5 | Argentina . . . . .    | 5.1 |
| France . . . . .          | 3.6 | Egypt . . . . .        | 5.1 |
| Victoria . . . . .        | 3.5 | China . . . . .        | 5.4 |
| Cape Colony . . . . .     | 3.6 | Buenos Ayres . . . . . | 5.9 |
| Prussia . . . . .         | 3.7 | Hawaii . . . . .       | 6.0 |
| Norway . . . . .          | 3.7 | Santa Fé . . . . .     | 6.0 |
| Sweden . . . . .          | 3.8 | Japan . . . . .        | 6.3 |
| New Zealand . . . . .     | 3.9 | Uruguay . . . . .      | 6.6 |

The following table shows approximately the wealth and debt of the principal nations in 1888:—

|                             | Millions £ Sterling |       |               |
|-----------------------------|---------------------|-------|---------------|
|                             | Wealth              | Debt  | Ratio of Debt |
| United Kingdom . . . . .    | 9,400               | 698   | 7.7           |
| France . . . . .            | 8,598               | 1,269 | 14.7          |
| Germany . . . . .           | 6,437               | 435   | 6.8           |
| Russia . . . . .            | 5,089               | 756   | 14.8          |
| Austria . . . . .           | 3,855               | 580   | 15.0          |
| Italy . . . . .             | 2,963               | 460   | 15.5          |
| Spain . . . . .             | 2,516               | 260   | 10.3          |
| Portugal . . . . .          | 408                 | 113   | 27.5          |
| Sweden and Norway . . . . . | 880                 | 20    | 2.2           |
| Denmark . . . . .           | 404                 | 11    | 2.8           |
| Holland . . . . .           | 980                 | 89    | 9.1           |
| Belgium . . . . .           | 1,007               | 77    | 7.6           |
| Switzerland . . . . .       | 494                 | 17    | 3.5           |
| Greece . . . . .            | 300                 | 23    | 7.7           |
| Roumania . . . . .          | 593                 | 36    | 6.1           |
| Servia . . . . .            | 217                 | 13    | 6.0           |
| Turkey . . . . .            | 593                 | 180   | 30.3          |
| Europe . . . . .            | 44,734              | 5,037 | 11.2          |
| United States . . . . .     | 12,824              | 221   | 1.7           |
| Canada . . . . .            | 980                 | 49    | 5.0           |
| Australia . . . . .         | 1,373               | 171   | 12.5          |
| South Africa . . . . .      | 135                 | 27    | 20.0          |
| Argentina . . . . .         | 509                 | 110   | 21.6          |
| Total . . . . .             | 60,555              | 5,615 | 9.3           |

For local finances see *Local Taxation*.

#### UNITED KINGDOM

The financial year ends March 31. The various principal items of revenue and expenditure for 52 years to date are shown as follows:—

#### REVENUE IN MILLIONS £ STERLING

|                       | 1837-51 | 1852-61 | 1862-71 | 1872-81 | 1882-89 | 52 Years |
|-----------------------|---------|---------|---------|---------|---------|----------|
| Customs . . . . .     | 324     | 237     | 221     | 199     | 159     | 1,140    |
| Excise . . . . .      | 216     | 181     | 204     | 268     | 210     | 1,079    |
| Stamps . . . . .      | 101     | 78      | 94      | 110     | 95      | 478      |
| Income-tax . . . . .  | 55      | 102     | 78      | 71      | 103     | 409      |
| Post-office . . . . . | 25      | 30      | 45      | 74      | 79      | 253      |
| Sundries . . . . .    | 66      | 50      | 69      | 77      | 58      | 320      |
| Total . . . . .       | 787     | 678     | 711     | 799     | 704     | 3,679    |

#### EXPENDITURE IN MILLIONS £ STERLING

| Years              | Millions £ |       |               |       |
|--------------------|------------|-------|---------------|-------|
|                    | Government | Debt  | Army and Navy | Total |
| 1837-51 . . . . .  | 139        | 395   | 219           | 753   |
| 1852-61 . . . . .  | 136        | 285   | 288           | 709   |
| 1862-71 . . . . .  | 164        | 265   | 263           | 692   |
| 1872-81 . . . . .  | 233        | 281   | 280           | 794   |
| 1882-89 . . . . .  | 238        | 222   | 247           | 707   |
| 52 years . . . . . | 910        | 1,448 | 1,297         | 3,655 |

Expenditure includes sums paid for redemption of national debt, and as this has been reduced 94 millions during the present reign, the net expenditure may be set down thus:—

|                               | Millions £ | Per Annum, £ |
|-------------------------------|------------|--------------|
| Revenue of 52 years . . . . . | 3,679      | 70,700,000   |
| Reduction of debt . . . . .   | 94         | 1,800,000    |
| Real expenditure . . . . .    | 3,585      | 68,900,000   |

The following table shows approximately the revenue and expenditure from the accession of William III. to the present time :—

| Reign        | Date      | Millions £ |             | Annual Average, £ |             | Public Debt, Millions £ |
|--------------|-----------|------------|-------------|-------------------|-------------|-------------------------|
|              |           | Revenue    | Expenditure | Revenue           | Expenditure |                         |
| William III. | 1689-1702 | 59         | 72          | 4,500,000         | 5,500,000   | 13                      |
| Anne         | 1702-14   | 62         | 122         | 5,200,000         | 10,200,000  | 73                      |
| George I.    | 1714-27   | 77         | 80          | 5,900,000         | 6,100,000   | 76                      |
| George II.   | 1727-60   | 217        | 276         | 6,600,000         | 8,400,000   | 135                     |
| George III.  | 1760-1820 | 1,666      | 2,252*      | 27,800,000        | 37,500,000  | 900                     |
| George IV.   | 1820-30   | 648        | 608         | 64,800,000        | 60,800,000  | 800                     |
| William IV.  | 1830-37   | 439        | 431         | 62,400,000        | 61,300,000  | 792                     |
| Victoria     | 1837-51   | 787        | 753         | 60,500,000        | 57,900,000  | 787                     |
| "            | 1852-61   | 678        | 709         | 67,800,000        | 70,900,000  | 819                     |
| "            | 1862-71   | 711        | 692         | 71,100,000        | 69,200,000  | 798                     |
| "            | 1872-81   | 799        | 794         | 79,900,000        | 79,400,000  | 772                     |
| "            | 1882-89   | 704        | 707         | 88,000,000        | 88,400,000  | 698                     |

The following table shows the revenue of England down to 1707, of Great Britain from 1713 to 1810, and of the United Kingdom from the last-mentioned year down to date. The groat, 4d., from William the Conqueror down to Edward III., had more than three times as much silver as our shilling of to-day; hence the real amount in silver must be distinguished from the nominal. The purchasing power of £1 sterling has also varied, and in the following table this is likewise given :—

| Date | Reign        | Nominal    | In Silver   | Purchasing Value | Shillings per Inhab. |
|------|--------------|------------|-------------|------------------|----------------------|
|      |              |            |             |                  | In Silver            |
| 1066 | William I.   | £ 400,000  | £ 1,320,000 | 4,010,000        | 12                   |
| 1099 | Rufus        | 350,000    | 1,150,000   | 3,520,000        | 10                   |
| 1120 | Henry I.     | 300,000    | 990,000     | 3,005,000        | 9                    |
| 1150 | Stephen      | 250,000    | 830,000     | 2,510,000        | 8                    |
| 1180 | Henry II.    | 200,000    | 660,000     | 2,005,000        | 6                    |
| 1210 | John         | 100,000    | 330,000     | 1,000,000        | 3                    |
| 1272 | Henry III.   | 80,000     | 264,000     | 800,000          | 2½                   |
| 1300 | Edward I.    | 150,000    | 495,000     | 1,502,000        | 4½                   |
| 1350 | Edward III.  | 154,000    | 460,000     | 1,360,000        | 4                    |
| 1400 | Henry IV.    | 100,000    | 264,000     | 900,000          | 2                    |
| 1480 | Edward IV.   | 100,000    | 162,000     | 530,000          | 1                    |
| 1500 | Henry VII.   | 400,000    | 650,000     | 2,100,000        | 3                    |
| 1540 | Henry VIII.  | 800,000    | 1,300,000   | 2,600,000        | 6                    |
| 1600 | Elizabeth    | 500,000    | 550,000     | 1,000,000        | 2                    |
| 1620 | James I.     | 600,000    | 640,000     | 1,000,000        | 2½                   |
| 1640 | Charles I.   | 806,000    | 950,000     | 1,300,000        | 4½                   |
| 1662 | Charles II.  | 1,800,000  | 1,910,000   | 2,300,000        | 7                    |
| 1686 | James II.    | 2,002,000  | 2,120,000   | 2,300,000        | 8                    |
| 1700 | William III. | 3,895,000  | 4,135,000   | ...              | 15                   |
| 1713 | Anne         | 5,692,000  | 6,030,000   | ...              | 18                   |
| 1716 | George I.    | 6,763,000  | 7,160,000   | ...              | 21                   |
| 1726 | George II.   | 8,523,000  | 9,030,000   | ...              | 25                   |
| 1760 | George III.  | 8,880,000  | 9,420,000   | ...              | 20                   |
| 1790 | "            | 13,745,000 | 14,540,000  | ...              | 29                   |
| 1800 | "            | 37,520,000 | 39,700,000  | ...              | 76                   |
| 1810 | "            | 52,672,000 | 55,810,000  | ...              | 93                   |
| 1820 | George IV.   | 61,634,000 | 61,634,000  | ...              | 62                   |
| 1830 | William IV.  | 59,365,000 | 59,365,000  | ...              | 50                   |
| 1840 | Victoria     | 52,916,000 | 52,916,000  | ...              | 40                   |
| 1850 | "            | 58,205,000 | 58,205,000  | ...              | 43                   |
| 1860 | "            | 71,090,000 | 71,090,000  | ...              | 49                   |
| 1870 | "            | 75,434,000 | 75,434,000  | ...              | 49                   |
| 1880 | "            | 81,265,000 | 81,265,000  | ...              | 47                   |
| 1889 | "            | 88,470,000 | 88,470,000  | ...              | 49                   |

The value of the £ sterling in gold and silver coin was unaltered from the time of James II. until the year 1817, when the currency was debased 5 per cent., the same quantity of metal serving for 21s. as previously for 20s.

The following table shows the incidence of revenue and expenditure per inhabitant during the present reign :—

#### SHILLINGS PER INHABITANT YEARLY

|         | Revenue |        |          |       | Expenditure |      |            |       |
|---------|---------|--------|----------|-------|-------------|------|------------|-------|
|         | Customs | Excise | Sundries | Total | Army, &c.   | Debt | Government | Total |
| 1837-51 | 16.7    | 11.2   | 14.1     | 42.0  | 11.9        | 21.3 | 7.5        | 40.7  |
| 1852-61 | 16.9    | 12.8   | 18.5     | 48.2  | 20.5        | 20.3 | 9.7        | 50.5  |
| 1862-71 | 14.7    | 13.5   | 18.9     | 47.1  | 17.5        | 17.7 | 10.9       | 46.1  |
| 1872-81 | 12.2    | 16.2   | 20.2     | 48.6  | 16.9        | 17.0 | 14.2       | 48.1  |
| 1882-89 | 11.0    | 14.5   | 23.1     | 48.6  | 17.0        | 15.2 | 16.3       | 48.5  |

The following table shows the outlay compared with population over the whole period of 52 years, taking the mean population at 32 million souls :—

|                    | Expenditure, Millions £ | Average, £ Yearly | Shillings per Inhabitant Yearly |
|--------------------|-------------------------|-------------------|---------------------------------|
| Army and navy      | 1,297                   | 24,940,000        | 15.7                            |
| Debt               | 1,354                   | 26,040,000        | 16.3                            |
| Redemption of debt | 94                      | 1,810,000         | 1.1                             |
| Government         | 910                     | 17,500,000        | 11.0                            |
| Total              | 3,655                   | 70,290,000        | 44.1                            |

The following table shows how the three kingdoms contribute to the national revenue (1888) :—

|            | "Economist" Estimates |             |            |               |
|------------|-----------------------|-------------|------------|---------------|
|            | England, £            | Scotland, £ | Ireland, £ | U. Kingdom, £ |
| Stamps     | 7,440,000             | 840,000     | 440,000    | 8,720,000     |
| Customs    | 16,130,000            | 1,640,000   | 2,020,000  | 19,790,000    |
| Excise     | 16,680,000            | 4,680,000   | 4,260,000  | 25,620,000    |
| Income-tax | 12,500,000            | 1,180,000   | 600,000    | 14,280,000    |
| Land, &c.  | 2,790,000             | 160,000     | ...        | 2,950,000     |
| Total      | 55,540,000            | 8,500,000   | 7,320,000  | 71,360,000    |

\* Loans amounting nominally to 733 millions sterling were emitted, the net product of which was 526 millions, which helped to meet deficit, there being also 60 millions of floating debt, which brings up the total expenditure to 2252 millions.

The above compare with the Treasury estimates thus:—

|              | Economist,<br>£ | Treasury,<br>£ | Ratio     |          |
|--------------|-----------------|----------------|-----------|----------|
|              |                 |                | Economist | Treasury |
| England . .  | 55,540,000      | 58,860,000     | 77.8      | 81.0     |
| Scotland . . | 8,500,000       | 7,790,000      | 11.9      | 10.7     |
| Ireland . .  | 7,320,000       | 6,080,000      | 10.3      | 8.3      |
| Total . .    | 71,360,000      | 72,730,000     | 100.0     | 100.0    |

If we compare the income-tax assessments with the share of revenue raised in each of the three kingdoms, we find, taking the latter at a medium between the "Economist" and the Treasury estimates, as follows:—

|              | Assessed<br>Incomes | Revenue    | Ratio of Latter<br>to Income, |
|--------------|---------------------|------------|-------------------------------|
|              | £                   | £          | £                             |
| England . .  | 542,500,000         | 57,200,000 | 10.6                          |
| Scotland . . | 57,200,000          | 8,200,000  | 14.3                          |
| Ireland . .  | 36,600,000          | 6,700,000  | 18.0                          |
| Total . .    | 636,300,000         | 72,100,000 | 11.3                          |

It would appear that England bears much less than her share, and the sister kingdoms a great deal too much.

*Debt.*—The National Debt began with William III., and reached its maximum in 1816, after the overthrow of Bonaparte, when the amount was variously estimated, viz.:—

|                     |             |
|---------------------|-------------|
| Douleday . . . . .  | 944,152,000 |
| Porter . . . . .    | 885,186,000 |
| M'Culloch . . . . . | 840,850,000 |

The last mentioned appears to have regarded only the funded debt, the total, according to Whittaker, having stood thus in January 1816:—

|                                |             |
|--------------------------------|-------------|
| Funded . . . . .               | 816,312,000 |
| Unfunded . . . . .             | 44,727,000  |
| Terminable annuities . . . . . | 39,397,000  |

Total . . . . . 900,436,000

The estimated wealth of the nation, according to the best authorities, may be placed side by side with the debt to show the relative magnitude of the latter at different epochs:—

| Date | Millions £ Stg. |      | Ratio<br>of Debt | £ per Inhab. |      | Obs.       |
|------|-----------------|------|------------------|--------------|------|------------|
|      | Wealth          | Debt |                  | Wealth       | Debt |            |
| 1702 | 490             | 13   | 2.7              | 72           | 2    | England    |
| 1763 | 1,100           | 147  | 13.4             | 156          | 21   | G. Britain |
| 1797 | 1,800           | 413  | 22.9             | 177          | 41   | "          |
| 1816 | 2,400           | 900  | 37.5             | 120          | 45   | U. K.      |
| 1837 | 3,900           | 788  | 20.2             | 158          | 32   | "          |
| 1860 | 5,560           | 826  | 14.9             | 193          | 29   | "          |
| 1870 | 7,080           | 801  | 11.3             | 230          | 26   | "          |
| 1889 | 9,400           | 698  | 7.4              | 250          | 19   | "          |

The history of the National Debt may be briefly explained thus:—

|                                       | Millions £ | Date      |
|---------------------------------------|------------|-----------|
| Wars of William and Anne . . . . .    | 73         | 1689-1712 |
| Conquest of Canada . . . . .          | 62         | 1759-61   |
| American war . . . . .                | 121        | 1775-80   |
| Campaigns against Bonaparte . . . . . | 581        | 1793-1815 |
| Malversation in Ireland . . . . .     | 63         | 1802-16   |

Total in 1816 . . . . . 900

The war loans negotiated by George II. and George III. amounted to 794 millions sterling, but produced in

reality only 585 millions, or 73 per cent. of the written value, viz.:—

| Years     | Nominal<br>Amount | Realised     | Annual<br>Charge | Actual<br>Interest |
|-----------|-------------------|--------------|------------------|--------------------|
| 1756-63   | £ 60,670,000      | £ 59,500,000 | £ 2,315,000      | 3.90               |
| 1776-84   | 114,687,000       | 92,700,000   | 5,012,000        | 5.40               |
| 1785-1816 | 618,404,000       | 433,000,000  | 23,387,000       | 5.40               |
| 60 years  | 793,761,000       | 585,200,000  | 30,714,000       | 5.25               |

The principal conversions of debt were the following:—

| Date    | Minister   | Sum, £      | Annual<br>Saving, £ |
|---------|------------|-------------|---------------------|
| 1716    | Walpole    | 32,500,000  | 325,000             |
| 1749    | Pelham     | 56,500,000  | 565,000             |
| 1822    | Vansittart | 153,000,000 | 1,530,000           |
| 1824    | Robinson   | 76,000,000  | 380,000             |
| 1830    | Goulburn   | 153,000,000 | 760,000             |
| 1844    | "          | 248,000,000 | 1,240,000           |
| 1860-74 | Gladstone  | 59,000,000  | 330,000             |
| 1884    | "          | 79,000,000  | "                   |
| 1888    | Goschen    | 549,100,000 | 1,400,000           |

Walpole and Vansittart converted 5 into 4 per cents., Pelham 4 into 3 per cents., Robinson 4 into 3½ per cents. The conversions effected by Gladstone were connected with sums held in the Court of Chancery and Savings-bank funds. Goschen's conversion reduced the 3 per cents. into new stock bearing 2½ per cent. for a number of years, after which to be reduced to 2½ per cents., which latter will lead to an annual saving of £2,800,000, as compared with the interest payable in 1887.

In March 1889 the debt was made up thus:—

|                                |             |
|--------------------------------|-------------|
| Funded . . . . .               | 607,058,000 |
| Terminable annuities . . . . . | 75,279,000  |
| Unfunded debt . . . . .        | 16,093,000  |
| Total . . . . .                | 698,430,000 |

The following table shows the quotations of Consols:—

| Period          | Debt,<br>Millions £ | Quotations |         |         | Year of |        |
|-----------------|---------------------|------------|---------|---------|---------|--------|
|                 |                     | Maximum    | Minimum | Average | Highest | Lowest |
| 1740-60 . . . . | 78                  | 104        | 82      | 93.5    | 1749    | ...    |
| 1761-80 . . . . | 139                 | 91         | 61      | 82.1    | ...     | 1780   |
| 1781-1800 . . . | 240                 | 97         | 47      | 67.2    | ...     | 1798   |
| 1801-20 . . . . | 841                 | 84         | 50      | 64.9    | 1817    | 1803   |
| 1821-40 . . . . | 781                 | 97         | 69      | 85.8    | 1824    | 1821   |
| 1841-60 . . . . | 786                 | 102        | 79      | 93.4    | 1852    | 1847   |
| 1861-81 . . . . | 776                 | 103        | 84      | 93.1    | 1867    | 1866   |
| 1882-88 . . . . | 740                 | 103        | 96      | 100.8   | 1883    | 1885   |

The following table shows the number of holders of Consols at various dates:—

| Average, £ | 1830    | 1848    | 1880    |
|------------|---------|---------|---------|
| 100,000    | 172     | 177     | 283     |
| 50,000     | 1,810   | 1,550   | 1,892   |
| 10,000     | 22,189  | 20,561  | 19,140  |
| 3,000      | 124,014 | 120,487 | 112,077 |
| 500        | 132,960 | 141,352 | 103,122 |
| Total      | 281,145 | 284,127 | 236,514 |

Unclaimed dividends in March 1882 amounted to £3,027,000.



When Mr. Goschen converted the debt in 1889, no fewer than 12,700 notices were returned by the Post-Office as "not known." After every inquiry, £7,850,000 was unclaimed, and credited to 10,900 accounts in the Bank of England; most were probably dead or gone away.

## SCOTLAND

Official returns of Scottish revenue show as follows:—

| Period            | Annual Average | Per Inhabitant |
|-------------------|----------------|----------------|
|                   | £              | £ s. d.        |
| 1804-09 . . . . . | 3,500,000      | 2 1 0          |
| 1810-15 . . . . . | 4,950,000      | 2 15 0         |

In the estimate already given for 1881 the revenue of Scotland appears as £9,990,000, or 54s. per inhabitant, almost the same as the ratio of 75 years ago.

## IRELAND

Ware says that the revenue of the royal palace at Kincora was 5100 horned cattle, 100 horses, and 4800 swine, contributed yearly by the various chieftains. Noy states that Edward III. drew £30,000 from Ireland for the campaigns of the Black Prince. Henry VII. levied a duty of 5 per cent. *ad valorem* on all Irish imports and exports, which would probably produce £10,000 a year. Regular records were kept under William III. and subsequent monarchs, which show as follows:—

| Period              | Annual Average, £ | Per Inhab. |
|---------------------|-------------------|------------|
|                     | £ s. d.           |            |
| 1690-1700 . . . . . | 640,000           | 0 7 6      |
| 1730-60 . . . . .   | 620,000           | 0 6 3      |
| 1761-70 . . . . .   | 890,000           | 0 6 8      |
| 1771-80 . . . . .   | 1,340,000         | 0 9 6      |
| 1790 . . . . .      | 2,162,000         | 0 11 0     |
| 1809-10 . . . . .   | 5,480,000         | 1 0 2      |
| 1811-16 . . . . .   | 7,400,000         | 1 5 0      |
| 1817-20 . . . . .   | 5,850,000         | 0 17 0     |
| 1821-30 . . . . .   | 4,930,000         | 0 14 0     |

In 1801 the Act of Union ordained the revenues and debt of Ireland to be kept distinct. The debt was:—

| Year           | £          |
|----------------|------------|
| 1784 . . . . . | 1,997,000  |
| 1793 . . . . . | 2,220,000  |
| 1801 . . . . . | 31,950,000 |
| 1809 . . . . . | 77,445,000 |

The finances got into very bad hands after the Union. The Budgets of Ireland from 1802 to 1816 summed up as follows:—

| Period             | Revenue    | Expenditure | Deficit    |
|--------------------|------------|-------------|------------|
|                    | £          | £           | £          |
| 1809-10 . . . . .  | 49,400,000 | 89,500,000  | 40,100,000 |
| 1811-16 . . . . .  | 44,200,000 | 90,300,000  | 46,100,000 |
| 15 years . . . . . | 93,600,000 | 179,800,000 | 86,200,000 |

| Reign                    | Date    | Millions £ |             | Annual Average, £ |             | Debt, Millions £ |
|--------------------------|---------|------------|-------------|-------------------|-------------|------------------|
|                          |         | Revenue    | Expenditure | Revenue           | Expenditure |                  |
| Bourbons . . . . .       | 1815-30 | 595        | 659         | 36,800,000        | 41,100,000  | 177              |
| Louis Philippe . . . . . | 1831-48 | 749        | 979         | 47,800,000        | 50,600,000  | 230              |
| Republic . . . . .       | 1848-52 | 220        | 280         | 55,000,000        | 70,000,000  | 290              |
| Empire . . . . .         | 1853-70 | 1,354      | 1,497       | 74,500,000        | 82,200,000  | 468              |
| Republic . . . . .       | 1871-80 | 1,151      | 1,301       | 115,100,000       | 130,100,000 | 1,060            |
| " . . . . .              | 1881-88 | 1,118      | 1,280       | 139,700,000       | 160,000,000 | 1,269            |
| 74 years . . . . .       | ...     | 5,187      | 5,996       | ...               | ...         | ...              |

In 1817 Great Britain took over the Irish debt and amalgamated the finances of the two countries, but separate statements of revenue were published down to 1831, from which date none have been kept. The revenue from 1821 to 1830 was made up thus:—

|                    | Annual Average, £ |
|--------------------|-------------------|
| Customs . . . . .  | 1,920,000         |
| Excise . . . . .   | 1,940,000         |
| Sundries . . . . . | 1,070,000         |
| Total . . . . .    | 4,930,000         |

## FRANCE

The revenue at various periods has been as follows:—

| Date | Reign                    | Amount      | Per Inhabitant | National Debt, Millions £ |
|------|--------------------------|-------------|----------------|---------------------------|
|      |                          | £           | £ s. d.        |                           |
| 1252 | Louis IX. . . . .        | 140,000     | 0 0 4          | ...                       |
| 1380 | Charles V. . . . .       | 120,000     | 0 0 4          | ...                       |
| 1460 | Charles VII. . . . .     | 150,000     | 0 0 4          | ...                       |
| 1546 | Francis I. . . . .       | 640,000     | 0 1 0          | ...                       |
| 1607 | Henry IV. . . . .        | 1,300,000*  | 0 2 0          | ...                       |
| 1661 | Louis XIV. . . . .       | 3,400,000   | 0 4 0          | ...                       |
| 1683 | " . . . . .              | 4,800,000   | 0 5 6          | 48                        |
| 1742 | Louis XV. . . . .        | 13,700,000  | 0 13 0         | 110                       |
| 1775 | Louis XVI. . . . .       | 14,800,000  | 0 12 0         | 129                       |
| 1786 | " . . . . .              | 20,800,000  | 0 16 0         | 200                       |
| 1791 | " . . . . .              | 27,800,000  | 1 2 0          | 468                       |
| 1814 | Napoleon I. . . . .      | 40,000,000  | 1 7 0          | 50                        |
| 1830 | Charles X. . . . .       | 36,500,000  | 1 2 6          | 187                       |
| 1846 | Louis Philippe . . . . . | 46,400,000  | 1 7 0          | 260                       |
| 1850 | Republic . . . . .       | 51,000,000  | 1 9 0          | 248                       |
| 1860 | Napoleon III. . . . .    | 68,500,000  | 1 16 0         | 410                       |
| 1870 | " . . . . .              | 87,600,000  | 2 6 0          | 504                       |
| 1880 | Republic . . . . .       | 135,700,000 | 3 10 0         | 1,060                     |
| 1889 | " . . . . .              | 121,800,000 | 3 5 0          | 1,269                     |

\* The gross revenue, including tithes and local taxes, was £3,800,000; the royal revenue as here given.

The following is an official statement of national revenue and expenditure during 71 years to 1885:—

| Period             | Millions £ Sterling |             |                  |
|--------------------|---------------------|-------------|------------------|
|                    | Revenue             | Expenditure | Excess of Latter |
| 1815-20 . . . . .  | 211                 | 257         | 46               |
| 1821-30 . . . . .  | 384                 | 402         | 18               |
| 1831-40 . . . . .  | 419                 | 458         | 39               |
| 1841-50 . . . . .  | 504                 | 610         | 106              |
| 1851-60 . . . . .  | 619                 | 762         | 143              |
| 1861-70 . . . . .  | 781                 | 926         | 145              |
| 1871-80 . . . . .  | 1,151               | 1,301       | 150              |
| 1881-85 . . . . .  | 687                 | 814         | 127              |
| 71 years . . . . . | 4,756               | 5,530       | 774              |

Some extraordinary items, such as the indemnity to Germany in 1872, are omitted. The above may be also stated according to the successive forms of government as follows:—

During the decade 1871-80 loans were emitted to the nominal sum of 410 millions sterling, producing 329 millions, besides which about 65 millions were added to floating debt. The following table shows the expenditure at different dates :—

|                        | 1830              | 1851              | 1869              | 1877               | 1885               |
|------------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| Debt . . . . .         | 14,500,000        | 16,600,000        | 21,400,000        | 47,600,000         | 52,800,000         |
| Army . . . . .         | 7,500,000         | 11,800,000        | 16,800,000        | 21,600,000         | 24,000,000         |
| Navy . . . . .         | 2,600,000         | 4,200,000         | 7,200,000         | 7,700,000          | 12,400,000         |
| Public works . . . . . | 1,600,000         | 4,900,000         | 5,200,000         | 9,200,000          | 16,800,000         |
| Government . . . . .   | 10,300,000        | 13,500,000        | 35,200,000        | 38,900,000         | 51,700,000         |
| <b>Total</b> . . . . . | <b>36,500,000</b> | <b>51,000,000</b> | <b>85,800,000</b> | <b>125,000,000</b> | <b>157,700,000</b> |

The increase in items of revenue is as follows :—

|                        | 1869              | 1875               | 1885               | Ratio of Increase |            |            |
|------------------------|-------------------|--------------------|--------------------|-------------------|------------|------------|
|                        |                   |                    |                    | 1869              | 1875       | 1885       |
| Customs . . . . .      | 5,800,000         | 10,700,000         | 16,800,000         | 100               | 184        | 290        |
| Excise . . . . .       | 25,100,000        | 42,300,000         | 42,600,000         | 100               | 169        | 170        |
| Stamps . . . . .       | 18,200,000        | 24,300,000         | 27,000,000         | 100               | 134        | 149        |
| Taxes . . . . .        | 23,000,000        | 27,400,000         | 30,300,000         | 100               | 119        | 132        |
| Post-office . . . . .  | 3,800,000         | 4,800,000          | 6,600,000          | 100               | 126        | 173        |
| Sundries . . . . .     | 8,300,000         | 14,500,000         | 18,300,000         | 100               | 175        | 220        |
| <b>Total</b> . . . . . | <b>84,200,000</b> | <b>124,000,000</b> | <b>141,600,000</b> | <b>100</b>        | <b>148</b> | <b>170</b> |

The total revenue and expenditure in the decade 1871-80 were as follows :—

#### MILLIONS £ STERLING

| Revenue                |              | Expenditure                   |              |
|------------------------|--------------|-------------------------------|--------------|
| Customs . . . . .      | 109          | Franco-German war . . . . .   | 304          |
| Excise . . . . .       | 386          | Army and navy . . . . .       | 305          |
| Stamps . . . . .       | 240          | Debt and pensions . . . . .   | 466          |
| Direct taxes . . . . . | 271          | Justice and schools . . . . . | 60           |
| Post-office . . . . .  | 44           | Public works . . . . .        | 90           |
| Sundries . . . . .     | 101          | Gen. administration . . . . . | 380          |
| <b>Total</b> . . . . . | <b>1,151</b> | <b>Total</b> . . . . .        | <b>1,605</b> |

Mr. Yves Guyot compares the rise of revenue since the Bonaparte epoch\* thus :—

|                         | 1800-10 | 1822 | 1840 | 1860 | 1870 | 1880 |
|-------------------------|---------|------|------|------|------|------|
| Customs . . . . .       | 100     | 154  | 198  | 190  | 171  | 408  |
| Stamps . . . . .        | 100     | 92   | 130  | 203  | 223  | 400  |
| Property-tax . . . . .  | 100     | 85   | 85   | 92   | 102  | 112  |
| Value of land . . . . . | 100     | 140  | ...  | 370  | 400  | 366  |

*Debt.*—This began with Louis XIV., who spent great sums in war and in building Versailles. It increased with John Law's state-bank, and rose in the latter years of Louis XVI. to 468 millions sterling. It was repudiated by the Republic, some creditors getting 33 per cent., the rest nothing, and thus reduced to about 30 millions sterling. At the fall of Bonaparte it was only 50 millions. Of late years the accounts published are incomplete, but M. Leroy Beaulieu estimates it now at

\* The Budget for 1802 was made up thus :—

| Revenue                |                   | Expenditure            |                   |
|------------------------|-------------------|------------------------|-------------------|
| Land-tax . . . . .     | 8,800,000         | Army . . . . .         | 9,700,000         |
| Forests . . . . .      | 7,600,000         | Navy . . . . .         | 5,100,000         |
| Customs, &c. . . . .   | 6,400,000         | Government . . . . .   | 6,200,000         |
| <b>Total</b> . . . . . | <b>22,800,000</b> | <b>Total</b> . . . . . | <b>21,000,000</b> |

1269 millions sterling, exclusive of municipal debts. The official returns are as follows :—

| Year           | Millions £ Sterling |          |       |
|----------------|---------------------|----------|-------|
|                | Funded              | Floating | Total |
| 1814 . . . . . | 50                  | ...      | ...   |
| 1830 . . . . . | 177                 | 10       | 187   |
| 1848 . . . . . | 238                 | 22       | 260   |
| 1852 . . . . . | 221                 | 27       | 248   |
| 1869 . . . . . | 468                 | 36       | 504   |
| 1880 . . . . . | 794                 | 61       | 855   |
| 1886 . . . . . | 789                 | 40       | 829   |

These returns are misleading, as it would appear from them that the debt declined 26 millions between 1880 and 1886, whereas it increased. Even the Budget returns show a deficit of 93 millions sterling in those six years, the aggregate revenue being 834 millions, expenditure 927 millions. The floating debt in 1888 was officially stated at 118 millions sterling. The following table shows the funded debt at various dates :—

| Year           | Millions £ Sterling |              |             |             |       |
|----------------|---------------------|--------------|-------------|-------------|-------|
|                | 5 per Cent.         | 4½ per Cent. | 4 per Cent. | 3 per Cent. | Total |
| 1814 . . . . . | 51                  | ...          | ...         | ...         | 51    |
| 1830 . . . . . | 131                 | 1            | 3           | 42          | 177   |
| 1848 . . . . . | 117                 | 1            | 26          | 94          | 238   |
| 1852 . . . . . | 146                 | 1            | 2           | 72          | 221   |
| 1871 . . . . . | ...                 | 33           | ...         | 465         | 498   |
| 1880 . . . . . | 276                 | 33           | ...         | 485         | 794   |
| 1887 . . . . . | ...                 | 301          | ...         | 527         | 828   |

The floating debt at different dates was stated thus :—

| Year           | Millions £ Sterling |               |          |       |
|----------------|---------------------|---------------|----------|-------|
|                | Exchequer Bills     | Savings Banks | Sundries | Total |
| 1860 . . . . . | 5.7                 | 9.2           | 17.5     | 32.4  |
| 1869 . . . . . | 4.6                 | 10.2          | 17.0     | 31.8  |
| 1880 . . . . . | 6.2                 | 23.5          | 31.5     | 61.2  |
| 1888 . . . . . | 59.1                | 38.4          | 21.0     | 118.5 |

Taking the total debt at M. Leroy Beaulieu's estimate of 1269 millions, it may be said approximately to represent the following extraordinary outlay:—

|                                    | Millions £  |
|------------------------------------|-------------|
| Bonaparte's wars . . . . .         | 51          |
| Restoration indemnities . . . . .  | 60          |
| Conquest of Algeria . . . . .      | 38          |
| Crimean war . . . . .              | 93          |
| Wars in Italy, Mexico, &c. . . . . | 33          |
| Franco-German . . . . .            | 316         |
| Sundries . . . . .                 | 678         |
| <b>Total . . . . .</b>             | <b>1269</b> |

There was a loss of 200 millions on the issue of loans, and an expenditure of 260 millions on public works, which leaves a balance of 218 millions for sundries unaccounted for. The loans issued between 1816 and 1881 were as follows:—

| Period       | Number of Loans | Issue, £           | Realised, £        | Per Cent. |
|--------------|-----------------|--------------------|--------------------|-----------|
| 1816-30      | 11              | 80,000,000         | 57,500,000         | 72        |
| 1831-48      | 13              | 95,000,000         | 70,400,000         | 74        |
| 1849-69      | 14              | 200,000,000        | 134,600,000        | 67        |
| 1870-81      | 6               | 410,000,000        | 329,000,000        | 80        |
| <b>Total</b> | <b>44</b>       | <b>785,000,000</b> | <b>591,500,000</b> | <b>75</b> |

The interest paid yearly on the above loans was as follows:—

| Period        | Sum Realised, £ | Interest, £ | Rate |
|---------------|-----------------|-------------|------|
| 1816-30 . . . | 57,500,000      | 3,970,000   | 6.9  |
| 1831-48 . . . | 70,400,000      | 3,850,000   | 5.5  |
| 1849-69 . . . | 134,600,000     | 6,240,000   | 4.6  |
| 1870-81 . . . | 329,000,000     | 18,140,000  | 5.5  |

The total issues of 65 years are summed up thus:—

|                        | Millions £ |
|------------------------|------------|
| 6 per cent . . . . .   | 10         |
| 5 " . . . . .          | 400        |
| 4½ " . . . . .         | 16         |
| 4 " . . . . .          | 11         |
| 3 " . . . . .          | 348        |
| <b>Total . . . . .</b> | <b>785</b> |

If we compare the debt of France with the estimated wealth at various dates, we find thus:—

| Year           | Millions £ Sterling |       | Ratio of Debt |
|----------------|---------------------|-------|---------------|
|                | Wealth              | Debt  |               |
| 1830 . . . . . | 3,480               | 187   | 5.3           |
| 1848 . . . . . | 5,000               | 260   | 5.2           |
| 1869 . . . . . | 7,000               | 504   | 7.2           |
| 1889 . . . . . | 8,600               | 1,269 | 14.7          |

The burden of debt is almost double what it is in the United Kingdom. See also *Local Taxation*.

#### GERMANY

The revenue and debt of Prussia singly, and also of Prussia and the other States now composing the German Empire, were at various dates approximately as follows:—

| Year | Prussia    |             | Germany     |             |
|------|------------|-------------|-------------|-------------|
|      | Revenue, £ | Debt, £     | Revenue, £  | Debt, £     |
| 1752 | 1,800,000  | ...         | ...         | ...         |
| 1786 | 5,400,000  | ...         | ...         | ...         |
| 1801 | 4,700,000  | 4,500,000   | 10,000,000  | 8,000,000   |
| 1810 | 2,700,000  | 10,000,000  | 11,500,000  | 20,000,000  |
| 1822 | 7,000,000  | 14,000,000  | 14,400,000  | 39,000,000  |
| 1850 | 13,300,000 | 27,000,000  | 23,800,000  | 69,000,000  |
| 1865 | 21,800,000 | 42,200,000  | 36,000,000  | 128,300,000 |
| 1875 | 34,700,000 | 65,000,000  | 85,000,000  | 215,000,000 |
| 1890 | 79,300,000 | 207,300,000 | 154,700,000 | 434,800,000 |

The revenue and expenditure of Germany since 1850 may be stated approximately as follows:—

| Period          | Millions £   |              | Yearly Average    |                   |
|-----------------|--------------|--------------|-------------------|-------------------|
|                 | Revenue      | Expenditure  | Revenue, £        | Expenditure, £    |
| 1851-70         | 740          | 850          | 37,000,000        | 42,500,000        |
| 1871-80         | 725          | 840          | 72,500,000        | 84,000,000        |
| 1881-89         | 1,050        | 1,170        | 117,000,000       | 130,000,000       |
| <b>39 years</b> | <b>2,515</b> | <b>2,860</b> | <b>64,500,000</b> | <b>73,300,000</b> |

#### Revenue, £

|                        | 1822              | 1850              | 1867              | 1882              | 1887              |
|------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Prussia . . . . .      | 7,000,000         | 13,300,000        | 25,300,000        | 39,000,000        | 64,400,000        |
| Bavaria . . . . .      | 2,500,000         | 4,000,000         | 5,900,000         | 11,100,000        | 12,000,000        |
| Wurtemberg . . . . .   | 1,000,000         | 1,100,000         | 1,300,000         | 2,500,000         | 2,700,000         |
| Saxony . . . . .       | 900,000           | 1,400,000         | 2,200,000         | 3,200,000         | 3,800,000         |
| Other States . . . . . | 3,000,000         | 4,000,000         | 5,800,000         | 10,700,000        | 11,200,000        |
| <b>Total . . . . .</b> | <b>14,400,000</b> | <b>23,800,000</b> | <b>40,500,000</b> | <b>66,500,000</b> | <b>94,100,000</b> |

The total for 1882 and 1887 do not include the Imperial revenue.

The revenue of Prussia from 1822 to 1833 averaged thus:—

|                        | £                |
|------------------------|------------------|
| Customs . . . . .      | 3,200,000        |
| Land-tax . . . . .     | 2,700,000        |
| Sundries . . . . .     | 1,900,000        |
| <b>Total . . . . .</b> | <b>7,800,000</b> |

The total revenue of Germany is made up approximately as follows:—

|                                   | £                  |
|-----------------------------------|--------------------|
| Customs . . . . .                 | 13,500,000         |
| Income-tax . . . . .              | 12,500,000         |
| Excise . . . . .                  | 22,100,000         |
| Stamps, &c. . . . .               | 16,800,000         |
| Railways . . . . .                | 55,000,000         |
| Post-office, domains, &c. . . . . | 34,800,000         |
| <b>Total . . . . .</b>            | <b>154,700,000</b> |

It may also be classified thus :—

|                                   |                      |
|-----------------------------------|----------------------|
| Imperial taxes . . . . .          | £ 27,700,000         |
| Direct State taxes . . . . .      | 13,700,000           |
| Indirect State taxes . . . . .    | 23,500,000           |
| Railways . . . . .                | 55,000,000           |
| Post-office, domains, &c. . . . . | 34,800,000           |
| <b>Total . . . . .</b>            | <b>£ 154,700,000</b> |

Besides the Imperial taxes the Empire receives "matri-  
cular quotas" from the several States in this order  
(1890) :—

|                      |             |                  |           |
|----------------------|-------------|------------------|-----------|
| Prussia . . . . .    | £ 7,800,000 | Baden . . . . .  | £ 500,000 |
| Bavaria . . . . .    | 1,900,000   | Alsace . . . . . | 500,000   |
| Saxony . . . . .     | 900,000     | Hesse . . . . .  | 260,000   |
| Wurtemberg . . . . . | 700,000     | Others . . . . . | 940,000   |

Making a total of £13,500,000 sterling. These matricu-  
lar quotas are included in the revenue of the several States.

The total Budgets for 1890 may be summed up thus :—

|                                |                      |
|--------------------------------|----------------------|
| Imperial revenue . . . . .     | £ 60,400,000         |
| Prussian budget . . . . .      | 79,300,000           |
| Bavaria, Saxony, &c. . . . .   | 28,500,000           |
| <b>Total . . . . .</b>         | <b>£ 168,200,000</b> |
| Deduct repetitions . . . . .   | 13,500,000           |
| <b>Total revenue . . . . .</b> | <b>£ 154,700,000</b> |

The reason for deducting repetitions is that the "matri-  
cular quotas" are counted in the State Budgets and also  
in that of the Empire.

The civil list of the Emperor is defrayed solely by  
Prussia, and reaches £786,000, of which £386,000 arises  
from crown forests, the rest from ordinary revenue.

As near as we can ascertain the debts of the several  
States at different periods, they stood thus :—

|                        | 1820-22           | 1849-50           | 1889               |
|------------------------|-------------------|-------------------|--------------------|
|                        | £                 | £                 | £                  |
| Prussia . . . . .      | 14,000,000        | 27,000,000        | 222,500,000        |
| Bavaria . . . . .      | 9,200,000         | 10,700,000        | 67,100,000         |
| Saxony . . . . .       | 3,700,000         | 7,000,000         | 32,700,000         |
| Wurtemberg . . . . .   | 2,000,000         | 4,800,000         | 21,700,000         |
| Baden . . . . .        | 2,000,000         | 3,300,000         | 19,400,000         |
| Hamburg . . . . .      | 1,200,000         | 1,600,000         | 11,800,000         |
| Brunswick . . . . .    | 1,000,000         | 1,500,000         | 3,600,000          |
| Small States . . . . . | 6,000,000         | 13,100,000        | 10,800,000         |
| <b>Total . . . . .</b> | <b>39,100,000</b> | <b>69,000,000</b> | <b>389,600,000</b> |

The total for 1889 does not include the Imperial debt,  
which is £45,200,000, bringing up the whole debt of the  
nation to nearly 435 millions sterling.

The items of Russian revenue and expenditure have been as follows, reduced to gold values :—

| Revenue                |                   |                   | Expenditure            |                   |                   |
|------------------------|-------------------|-------------------|------------------------|-------------------|-------------------|
|                        | 1875              | 1889              |                        | 1875              | 1889              |
|                        | £                 | £                 |                        | £                 | £                 |
| Customs . . . . .      | 8,300,000         | 14,100,000        | Debt . . . . .         | 14,400,000        | 27,900,000        |
| Excise . . . . .       | 29,700,000        | 31,100,000        | Army . . . . .         | 23,300,000        | 21,200,000        |
| Poll-tax . . . . .     | 16,000,000        | 8,200,000         | Navy . . . . .         | 3,500,000         | 4,100,000         |
| Post-office . . . . .  | 2,100,000         | 2,900,000         | Interior . . . . .     | 7,000,000         | 7,200,000         |
| Crown lands . . . . .  | 3,200,000         | 3,300,000         | Schools . . . . .      | 1,900,000         | 2,100,000         |
| Sundries . . . . .     | 15,100,000        | 30,300,000        | Sundries . . . . .     | 22,300,000        | 25,700,000        |
| <b>Total . . . . .</b> | <b>74,400,000</b> | <b>89,900,000</b> | <b>Total . . . . .</b> | <b>72,400,000</b> | <b>88,200,000</b> |

The debt of Germany in 1887 stood as follows :—

| Class                  | Amount,<br>Million £ | Interest, £       |
|------------------------|----------------------|-------------------|
| 4 per cents. . . . .   | 310                  | 12,400,000        |
| 3½ per cents. . . . .  | 50                   | 1,750,000         |
| Various . . . . .      | 59                   | 2,550,000         |
| <b>Total . . . . .</b> | <b>419</b>           | <b>16,700,000</b> |

There are 20,000 miles of State railways, representing  
a value of 410 millions sterling, that is, practically the  
whole sum of public debt. Hence it would be in a  
manner justifiable to say that Germany has no public  
debt.

#### RUSSIA

Revenue and debt have been so violently affected by  
the fluctuation of currency, that they can only be taken  
approximately at the various dates, thus :—

| Year | Reign                  | Revenue, £ | Millions £     |               |
|------|------------------------|------------|----------------|---------------|
|      |                        |            | Funded<br>Debt | Total<br>Debt |
| 1620 | Michael . . . . .      | 160,000    | ...            | ...           |
| 1725 | Peter I. . . . .       | 1,600,000  | ...            | ...           |
| 1799 | Paul . . . . .         | 3,900,000  | 7              | 47            |
| 1806 | Alexander I. . . . .   | 9,500,000  | 7              | 95            |
| 1810 | " . . . . .            | 11,200,000 | 7              | 146           |
| 1840 | Nicholas . . . . .     | 17,600,000 | 40             | 150           |
| 1861 | Alexander II. . . . .  | 54,000,000 | 90             | 200           |
| 1875 | " . . . . .            | 74,400,000 | 240            | 370           |
| 1889 | Alexander III. . . . . | 89,900,000 | 624            | 756           |

In 1799 the revenue was made up thus :—

|                        |                  |
|------------------------|------------------|
| Customs . . . . .      | 700,000          |
| Serf-tax . . . . .     | 1,500,000        |
| Liquor-tax . . . . .   | 700,000          |
| Sundries . . . . .     | 1,000,000        |
| <b>Total . . . . .</b> | <b>3,900,000</b> |

The finances since 1850 may be summed up approxi-  
mately thus :—

| Period          | Millions £   |              | Annual Average    |                   |
|-----------------|--------------|--------------|-------------------|-------------------|
|                 | Revenue      | Expenditure  | Revenue           | Expenditure       |
| 1851-70         | 840          | 1,050        | 42,000,000        | 52,500,000        |
| 1871-80         | 603          | 903          | 60,300,000        | 90,300,000        |
| 1881-87         | 518          | 668          | 74,000,000        | 95,400,000        |
| <b>37 years</b> | <b>1,961</b> | <b>2,621</b> | <b>53,000,000</b> | <b>70,800,000</b> |

The above includes extraordinary expenditure. New railways, for example, took 19 millions sterling during the interval of 1884-87.

*Debt.*—It commenced with the issue of inconvertible notes, which rose as follows:—

| Year           | £ Sterling  | Exchange per 100 Gold Roubles |
|----------------|-------------|-------------------------------|
| 1774 . . . . . | 3,250,000   | 103                           |
| 1796 . . . . . | 25,600,000  | 190                           |
| 1800 . . . . . | 34,600,000  | 220                           |
| 1810 . . . . . | 93,800,000  | 300                           |
| 1815 . . . . . | 145,000,000 | 418                           |
| 1823 . . . . . | 96,800,000  | 360                           |
| 1843 . . . . . | 27,000,000  | 100                           |
| 1850 . . . . . | 49,000,000  | 100                           |
| 1864 . . . . . | 113,000,000 | 105                           |
| 1873 . . . . . | 130,000,000 | 116                           |
| 1880 . . . . . | 190,000,000 | 170                           |
| 1888 . . . . . | 174,500,000 | 170                           |

In 1843 the Empire was declared bankrupt, the Treasury calling in the paper issue of 97 millions sterling, and giving the holders new notes of 2 roubles for 7 of the old currency. The new issue began to lose value in 1864, and has now depreciated 40 per cent., a paper rouble being worth only 60 kopecks silver, that is to say, a silver rouble is worth 170 kopecks of paper-money. The first foreign loan was in 1818, which was followed by another in 1820. The growth of debt since 1842 is shown as follows:—

| Year           | Millions £ |          |             |       |
|----------------|------------|----------|-------------|-------|
|                | Foreign    | Internal | Paper-Money | Total |
| 1842 . . . . . | 6          | 23       | 8           | 37    |
| 1852 . . . . . | 12         | 61       | 22          | 95    |
| 1862 . . . . . | 41         | 99       | 61          | 202   |
| 1872 . . . . . | 105        | 133      | 104         | 342   |
| 1882 . . . . . | 189        | 273      | 161         | 623   |
| 1888 . . . . . | 216        | 408      | 132         | 756   |

In the above table only "uncovered" paper-money is counted under that heading. Most of the debt being payable in paper-money worth 2s. per rouble, the debt may be properly put down thus: Foreign 216, internal 324, total 540 millions sterling. The origin of the debt may be approximately set down thus:—

|                                   | Millions £ |
|-----------------------------------|------------|
| Redemption of serfs . . . . .     | 85         |
| Railways and telegraphs . . . . . | 170        |
| Crimean war . . . . .             | 142        |
| Turkish war . . . . .             | 133        |
| Sundries . . . . .                | 226        |
| Total . . . . .                   | 756        |

In 1887 the existing railway loans amounted to 143 millions sterling.

#### AUSTRIA-HUNGARY

The revenue and expenditure since 1831 were approximately:—

| Period   | Millions £ |             | Yearly Average, £ |             |
|----------|------------|-------------|-------------------|-------------|
|          | Revenue    | Expenditure | Revenue           | Expenditure |
| 1831-50  | 340        | 440         | 17,000,000        | 22,000,000  |
| 1851-70  | 720        | 940         | 36,000,000        | 47,000,000  |
| 1871-80  | 560        | 630         | 56,000,000        | 63,000,000  |
| 1881-88  | 544        | 652         | 68,000,000        | 81,500,000  |
| 58 years | 2,164      | 2,662       | 37,300,000        | 46,000,000  |

The revenue and debt are shown approximately thus:—

| Year | Millions £ |      | Year | Millions £ |      |
|------|------------|------|------|------------|------|
|      | Revenue    | Debt |      | Revenue    | Debt |
| 1740 | 4          | 12   | 1862 | 35         | 252  |
| 1793 | 8          | 42   | 1872 | 51         | 324  |
| 1815 | 12         | 83   | 1880 | 62         | 420  |
| 1840 | 16         | 125  | 1889 | 78         | 580  |

The general revenue and expenditure are made up thus (1889):—

|                           | Revenue, £ |                    | Expenditure, £ |
|---------------------------|------------|--------------------|----------------|
| Customs . . . . .         | 3,300,000  | Army . . . . .     | 9,500,000      |
| Austrian quota . . . . .  | 5,800,000  | Navy . . . . .     | 900,000        |
| Hungarian quota . . . . . | 2,700,000  | Sundries . . . . . | 600,000        |
| Total . . . . .           | 11,800,000 | Total . . . . .    | 11,000,000     |

The special budgets of Austria and Hungary may be stated thus:—

|                   | Revenue, £ | Expenditure, £ |
|-------------------|------------|----------------|
| Austria . . . . . | 45,300,000 | 45,000,000     |
| Hungary . . . . . | 29,500,000 | 29,600,000     |
| Total . . . . .   | 74,800,000 | 74,600,000     |

These Budgets include the quotas previously mentioned for the joint or general revenue. The total outlay, therefore, of the whole monarchy is £78,100,000, at the current rate of exchange in 1889, that is, 20d. to the florin.

The finances of Austria proper in 1889 were:—

|                                    | Revenue, £ |                          | Expenditure, £ |
|------------------------------------|------------|--------------------------|----------------|
| Customs . . . . .                  | 3,100,000  | Imperial quota . . . . . | 5,800,000      |
| Excise . . . . .                   | 16,800,000 | Debt . . . . .           | 12,000,000     |
| Property-tax . . . . .             | 8,500,000  | Army and navy . . . . .  | 8,500,000      |
| Stamps . . . . .                   | 1,600,000  | Schools . . . . .        | 1,000,000      |
| Lottery . . . . .                  | 1,800,000  | Board of Trade . . . . . | 4,700,000      |
| Post-office and railways . . . . . | 6,200,000  | Justice . . . . .        | 1,700,000      |
| Sundries . . . . .                 | 7,300,000  | Government . . . . .     | 11,400,000     |
| Total . . . . .                    | 45,300,000 | Total . . . . .          | 45,100,000     |

The Hungarian budget for 1889 was as follows:—

|                        | Revenue, £ |                          | Expenditure, £ |
|------------------------|------------|--------------------------|----------------|
| Trade items . . . . .  | 5,300,000  | Imperial quota . . . . . | 2,700,000      |
| Agricultural . . . . . | 1,000,000  | Debt . . . . .           | 11,000,000     |
| Financial . . . . .    | 22,200,000 | Army . . . . .           | 900,000        |
| Sundries . . . . .     | 1,200,000  | Government, &c. . . . .  | 15,100,000     |
| Total . . . . .        | 29,700,000 | Total . . . . .          | 29,700,000     |

The whole debt of the Empire was as follows:—

|                     | 1875        | 1889        |
|---------------------|-------------|-------------|
|                     | £           | £           |
| General . . . . .   | 300,800,000 | 320,000,000 |
| Austrian . . . . .  | 33,200,000  | 105,900,000 |
| Hungarian . . . . . | 72,000,000  | 154,500,000 |
| Total . . . . .     | 406,000,000 | 580,400,000 |

## ITALY

Estimates were made in 1810, in 1830, and again in 1850 of the revenue and debt of the various States, excepting those provinces held by Austria. Since 1861 the kingdom of Italy publishes official returns :—

| Year | Revenue, £ | Funded Debt, £ | Total Debt, £ |
|------|------------|----------------|---------------|
| 1810 | 4,600,000  | ...            | ...           |
| 1830 | 8,300,000  | ...            | 48,300,000    |
| 1850 | 12,000,000 | ...            | ...           |
| 1861 | 38,000,000 | 85,000,000     | 97,000,000    |
| 1870 | 48,000,000 | 242,000,000    | 333,000,000   |
| 1880 | 55,000,000 | 322,000,000    | 393,000,000   |
| 1890 | 72,000,000 | 363,000,000    | 460,000,000   |

Revenue and expenditure since 1860 have been approximately as follows :—

|          | Millions £ Sterling |             |
|----------|---------------------|-------------|
|          | Revenue             | Expenditure |
| 1861-70  | 430                 | 660         |
| 1871-80  | 534                 | 594         |
| 1881-87  | 440                 | 505         |
| 27 years | 1,404               | 1,759       |

The annual excess of expenditure over revenue since 1861 has been about 13 millions sterling.

The revenue and debt of the various States in 1830 showed as follows :—

|                  | Population | Revenue, £ | Debt, £    | Per Head, £ |      |
|------------------|------------|------------|------------|-------------|------|
|                  |            |            |            | Revenue     | Debt |
| Naples           | 7,420,000  | 3,400,000  | 20,000,000 | 0.45        | 2.70 |
| Sardinia         | 4,160,000  | 2,600,000  | 4,000,000  | 0.63        | 0.98 |
| Church           | 2,590,000  | 1,200,000  | 24,000,000 | 0.45        | 9.20 |
| Tuscany          | 1,280,000  | 700,000    | ...        | 0.55        | ...  |
| Parma and Modena | 790,000    | 400,000    | 300,000    | 0.50        | 0.40 |
| Total            | 16,240,000 | 8,300,000  | 48,300,000 | 0.51        | 5.80 |

The items of ordinary revenue at various dates were :—

|              | 1871       | 1880       | 1888       | Ratio |      |
|--------------|------------|------------|------------|-------|------|
|              | £          | £          | £          | 1871  | 1888 |
| Customs      | 3,200,000  | 5,000,000  | 9,800,000  | 100   | 306  |
| Excise       | 5,900,000  | 7,400,000  | 9,800,000  | 100   | 166  |
| Property-tax | 13,400,000 | 14,400,000 | 15,800,000 | 100   | 118  |
| Grist-tax    | 1,700,000  | 2,200,000  | ...        | ...   | ...  |
| Lottery      | 3,400,000  | 2,900,000  | 3,400,000  | 100   | 100  |
| Stamps       | 1,200,000  | 1,600,000  | 1,500,000  | 100   | 125  |
| Post-office  | 1,100,000  | 1,500,000  | 2,400,000  | 100   | 218  |
| Sundries     | 11,400,000 | 17,300,000 | 20,900,000 | 100   | 183  |
| Total        | 41,300,000 | 52,300,000 | 63,600,000 | 100   | 154  |

The expenditure was made up as follows :—

|              | 1871       | 1880       | 1888       |
|--------------|------------|------------|------------|
|              | £          | £          | £          |
| Debt         | 15,200,000 | 17,400,000 | 20,700,000 |
| Army         | 6,400,000  | 8,300,000  | 12,900,000 |
| Navy         | 1,200,000  | 1,700,000  | 4,900,000  |
| Public works | 4,800,000  | 5,300,000  | 14,600,000 |
| Schools      | 600,000    | 1,100,000  | 1,500,000  |
| Government   | 22,900,000 | 21,600,000 | 26,000,000 |
| Total        | 51,100,000 | 55,400,000 | 80,600,000 |

*Debt.*—This has grown very rapidly, the increase since 1861 being 363 millions sterling, say 14 millions per annum. It may be approximately accounted for as follows :—

|                              | Millions £ |
|------------------------------|------------|
| Railways                     | 80         |
| War and military expenditure | 270        |
| Sundries                     | 110        |
| Total                        | 460        |

Communal and provincial finances in 1885 showed :—

|          | £          |
|----------|------------|
| Revenues | 27,200,000 |
| Debts    | 41,400,000 |

The incidence of debt and interest on population showed thus :—

| Year | Debt, Millions £ | Interest, £ | Debt per Inhabitant, £ | Interest per Inhabitant, Shillings |
|------|------------------|-------------|------------------------|------------------------------------|
| 1850 | 40               | 2,000,000   | 2.0                    | 2                                  |
| 1861 | 97               | 4,600,000   | 4.4                    | 4                                  |
| 1870 | 333              | 16,600,000  | 13.0                   | 13                                 |
| 1880 | 393              | 19,700,000  | 14.0                   | 14                                 |
| 1887 | 460              | 20,700,000  | 15.0                   | 14                                 |

## SPAIN

From official and other statements we find as follows :—

| Year | Reign          | Revenue, £ | Debt, £     |
|------|----------------|------------|-------------|
| 1610 | Philip III.    | 1,320,000  | 40,000,000  |
| 1670 | Charles II.    | 1,930,000  | ...         |
| 1750 | Ferdinand VI.  | 3,320,000  | 11,000,000  |
| 1780 | Charles III.   | 6,400,000  | 20,000,000  |
| 1808 | Ferdinand VII. | 6,000,000  | 69,000,000  |
| 1817 | "              | 7,130,000  | 117,000,000 |
| 1836 | Isabella II.   | 8,500,000  | 276,000,000 |
| 1850 | "              | 11,500,000 | 113,000,000 |
| 1868 | "              | 21,000,000 | 221,000,000 |
| 1878 | Alfonso XII.   | 29,500,000 | 550,000,000 |
| 1888 | Alfonso XIII.  | 35,400,000 | 260,000,000 |

Revenue and expenditure since 1831 have been approximately as follows :—

| Period   | Millions £ |             | Annual Average, £ |             |
|----------|------------|-------------|-------------------|-------------|
|          | Revenue    | Expenditure | Revenue           | Expenditure |
| 1831-50  | 210        | 320         | 10,500,000        | 16,000,000  |
| 1851-70  | 320        | 410         | 16,000,000        | 20,500,000  |
| 1871-80  | 298        | 450         | 29,800,000        | 45,000,000  |
| 1881-88  | 264        | 284         | 33,000,000        | 35,500,000  |
| 58 years | 1,092      | 1,464       | 19,000,000        | 25,400,000  |

The finances of Spain for 1887 showed as follows :—

|                  | Revenue,<br>£ |                  | Expendi-<br>ture, £ |
|------------------|---------------|------------------|---------------------|
| Customs . . . .  | 6,900,000     | Debt . . . . .   | 10,900,000          |
| Direct taxes . . | 12,400,000    | Army and navy .  | 7,300,000           |
| Indirect taxes . | 12,600,000    | Public works . . | 4,000,000           |
| Sundries . . . . | 2,100,000     | Sundries . . . . | 11,800,000          |
| Total . . . . .  | 34,000,000    | Total . . . . .  | 34,000,000          |

*Debt.*—It amounted in 1556 to one million sterling, rising to 40 millions under Philip III., after whose reign it was repudiated. A new debt arose with the War of Succession, which reached eight millions sterling in 1713, and went on increasing till Ferdinand repudiated the most of it. A third debt was caused by the wars of Isabella II. and the Carlists, which reached 276 millions, and was likewise repudiated, holders getting new scrip for about 30 per cent. of the old stock. The fourth debt amounted to 550 millions, when Spain again compounded in 1882, giving bondholders about 40 per cent. in new scrip.

The actual debt stands thus :—

|                               | Amount, £   | Interest, £ |
|-------------------------------|-------------|-------------|
| 4 per cent. foreign . . . .   | 78,800,000  | 3,100,000   |
| Home debt, 4 and 4½ per cent. | 143,200,000 | 5,700,000   |
| Floating, &c. . . . .         | 38,000,000  | 1,200,000   |
| Total . . . . .               | 260,000,000 | 10,000,000  |

#### PORTUGAL

Various statements since 1810 show revenue and debt as follows :—

| Year           | Revenue, £ | Debt, £     |
|----------------|------------|-------------|
| 1810 . . . . . | 1,200,000  | ...         |
| 1825 . . . . . | 2,200,000  | 7,000,000   |
| 1840 . . . . . | 2,700,000  | 17,000,000  |
| 1850 . . . . . | 3,200,000  | 22,000,000  |
| 1878 . . . . . | 5,700,000  | 94,000,000  |
| 1888 . . . . . | 8,400,000  | 113,000,000 |

The finances in 1887 were as follows :—

|                  | Revenue,<br>£ |                 | Expendi-<br>ture, £ |
|------------------|---------------|-----------------|---------------------|
| Customs . . . .  | 4,000,000     | Debt . . . . .  | 3,600,000           |
| Property-tax . . | 700,000       | Army and navy . | 1,400,000           |
| Sundries . . . . | 3,700,000     | Government . .  | 4,000,000           |
| Total . . . . .  | 8,400,000     | Total . . . . . | 9,000,000           |

Since 1850 expenditure has exceeded revenue by 80 millions, say two millions per annum.

Revenue and expenditure since 1831 were approximately as follows :—

| Period   | Millions £ |             | Annual Average, £ |             |
|----------|------------|-------------|-------------------|-------------|
|          | Revenue    | Expenditure | Revenue           | Expenditure |
| 1831-50  | 54         | 74          | 2,700,000         | 3,700,000   |
| 1851-70  | 80         | 120         | 4,000,000         | 6,000,000   |
| 1871-80  | 58         | 87          | 5,800,000         | 8,700,000   |
| 1881-88  | 60         | 72          | 7,500,000         | 9,000,000   |
| 58 years | 252        | 353         | 4,300,000         | 6,000,000   |

*Debt.*—This dates from 1500, but was small in amount till the middle of the present century. It consists at present of 51 millions foreign 3 per cents., 58 millions home 3 per cents., and four millions of floating debt.

#### SWEDEN AND NORWAY

The revenue of these two kingdoms showed as follows :—

| Year           | Sweden, £ | Norway, £ | Total, £  |
|----------------|-----------|-----------|-----------|
| 1810 . . . . . | 1,000,000 | ...       | ...       |
| 1822 . . . . . | 1,300,000 | 300,000   | 1,600,000 |
| 1850 . . . . . | 1,500,000 | 800,000   | 2,300,000 |
| 1878 . . . . . | 4,100,000 | 2,400,000 | 6,500,000 |
| 1888 . . . . . | 4,800,000 | 2,400,000 | 7,200,000 |

Before the annexation of Norway the finances of Sweden showed thus :—

|                     | 1772      | 1784      |
|---------------------|-----------|-----------|
|                     | £         | £         |
| Crown lands . . . . | 330,000   | 330,000   |
| Sundries . . . . .  | 730,000   | 920,000   |
| Total . . . . .     | 1,060,000 | 1,250,000 |

The Swedish debt in 1784 amounted to £8,800,000 sterling.

The items composing the revenue of the two kingdoms in 1887 were :—

|                    | Sweden, £ | Norway, £ | Total, £  |
|--------------------|-----------|-----------|-----------|
| Customs . . . .    | 2,000,000 | 1,100,000 | 3,100,000 |
| Excise . . . . .   | 840,000   | 230,000   | 1,070,000 |
| Property-tax . . . | 440,000   | ...       | 440,000   |
| Railways . . . .   | 330,000   | 330,000   | 660,000   |
| Post-office . . .  | 330,000   | 170,000   | 500,000   |
| Sundries . . . .   | 860,000   | 570,000   | 1,430,000 |
| Total . . . . .    | 4,800,000 | 2,400,000 | 7,200,000 |

The expenditure in 1887 showed as follows :—

|                   | Sweden, £ | Norway, £ | Total, £  |
|-------------------|-----------|-----------|-----------|
| Debt . . . . .    | 500,000   | 200,000   | 700,000   |
| Army and navy .   | 1,100,000 | 350,000   | 1,450,000 |
| Schools . . . . . | 600,000   | 240,000   | 840,000   |
| Government . . .  | 2,600,000 | 1,610,000 | 4,210,000 |
| Total . . . . .   | 4,800,000 | 2,400,000 | 7,200,000 |

Revenue and expenditure for the two kingdoms collectively may be stated approximately since 1831 as follows :—

|          | Millions £ |             | Annual Average, £ |             |
|----------|------------|-------------|-------------------|-------------|
|          | Revenue    | Expenditure | Revenue           | Expenditure |
| 1831-50  | 42         | 42          | 2,100,000         | 2,100,000   |
| 1851-70  | 66         | 74          | 3,300,000         | 3,700,000   |
| 1871-80  | 69         | 74          | 6,900,000         | 7,400,000   |
| 1881-88  | 56         | 61          | 7,000,000         | 7,600,000   |
| 58 years | 233        | 251         | 3,800,000         | 4,200,000   |

*Debt.*—The amount at various dates is shown thus :—

| Year           | Sweden, £  | Norway, £ | Total, £   |
|----------------|------------|-----------|------------|
| 1784 . . . . . | 8,800,000  | ...       | 8,800,000  |
| 1840 . . . . . | 1,200,000  | 300,000   | 1,500,000  |
| 1876 . . . . . | 9,800,000  | 3,900,000 | 13,700,000 |
| 1888 . . . . . | 13,700,000 | 5,900,000 | 19,600,000 |

State railways represent an outlay of £19,800,000, so that it may be said that the public debt of Sweden and Norway is merely a nominal one.

## DENMARK

Revenue and debt since 1771 are shown thus:—

| Year           | Revenue, £ | Debt, £    |
|----------------|------------|------------|
| 1771 . . . . . | 1,060,000  | 3,000,000  |
| 1786 . . . . . | 1,580,000  | 5,800,000  |
| 1810 . . . . . | 1,100,000  | 10,000,000 |
| 1835 . . . . . | 1,560,000  | 14,100,000 |
| 1850 . . . . . | 1,500,000  | 11,800,000 |
| 1866 . . . . . | 2,000,000  | 14,800,000 |
| 1882 . . . . . | 3,000,000  | 11,100,000 |
| 1889 . . . . . | 3,040,000  | 10,800,000 |

Before the French revolution Denmark comprised not only that kingdom and the duchies of Schleswig-Holstein, but also Norway; and the Budget of 1786 showed as follows:—

| Revenue, £                     | Expenditure, £                  |
|--------------------------------|---------------------------------|
| From Denmark . . . . . 900,000 | Army and navy . . . . . 600,000 |
| „ Duchies . . . . . 300,000    | Debt . . . . . 260,000          |
| „ Norway . . . . . 380,000     | Civil service . . . . . 670,000 |
| Total . . . . . 1,580,000      | Total . . . . . 1,530,000       |

The Budgets of 1872 and 1890 compare thus:—

|                        | Revenue, £ |           |                         | Expenditure, £ |           |
|------------------------|------------|-----------|-------------------------|----------------|-----------|
|                        | 1872       | 1890      |                         | 1872           | 1890      |
| Customs . . . . .      | 900,000    | 1,400,000 | Debt . . . . .          | 530,000        | 390,000   |
| Property-tax . . . . . | 400,000    | 500,000   | Army and navy . . . . . | 710,000        | 920,000   |
| Stamps . . . . .       | 100,000    | 150,000   | Schools . . . . .       | 40,000         | 110,000   |
| Railways . . . . .     | 60,000     | 210,000   | Public works . . . . .  | 100,000        | 170,000   |
| Sundries . . . . .     | 610,000    | 780,000   | Sundries . . . . .      | 650,000        | 1,610,000 |
| Total . . . . .        | 2,070,000  | 3,040,000 | Total . . . . .         | 2,030,000      | 3,200,000 |

In 1856 Denmark received £3,600,000 from the European Powers for abolition of the Sound Dues. In 1864 Schleswig-Holstein, on joining Prussia, took over £3,300,000 of the Danish debt.

## HOLLAND

Revenue and debt at various dates stood thus:—

| Year           | Revenue, £ | Debt, £     |
|----------------|------------|-------------|
| 1770 . . . . . | 2,200,000  | ...         |
| 1786 . . . . . | 3,300,000  | ...         |
| 1810 . . . . . | 4,800,000  | ...         |
| 1828 . . . . . | 6,400,000  | 152,000,000 |
| 1850 . . . . . | 5,800,000  | 98,000,000  |
| 1879 . . . . . | 9,400,000  | 80,500,000  |
| 1888 . . . . . | 10,000,000 | 89,200,000  |

The sources of revenue were as follows:—

|                        | 1879      | 1888       |
|------------------------|-----------|------------|
|                        | £         | £          |
| Customs . . . . .      | 380,000   | 400,000    |
| Excise . . . . .       | 3,220,000 | 2,000,000  |
| Property-tax . . . . . | 1,700,000 | 1,900,000  |
| Post-office . . . . .  | 420,000   | 450,000    |
| Sundries . . . . .     | 3,680,000 | 5,250,000  |
| Total . . . . .        | 9,400,000 | 10,000,000 |

The expenditure was as follows:—

|                      | 1879      | 1888       |
|----------------------|-----------|------------|
|                      | £         | £          |
| Debt . . . . .       | 2,400,000 | 3,100,000  |
| Army . . . . .       | 1,800,000 | 1,700,000  |
| Navy . . . . .       | 1,100,000 | 1,100,000  |
| Government . . . . . | 4,600,000 | 5,500,000  |
| Total . . . . .      | 9,900,000 | 11,400,000 |

The revenue of Denmark in the eighteenth century consisted partly of a land-tax, averaging 1s. per acre. The Budget of 1835 was made up as follows:—

| Revenue, £                         | Expenditure, £               |
|------------------------------------|------------------------------|
| Land and forests . . . . . 520,000 | Army . . . . . 300,000       |
| Customs . . . . . 390,000          | Debt . . . . . 530,000       |
| Sundries . . . . . 650,000         | Government . . . . . 750,000 |

Total . . . . . 1,560,000      Total . . . . . 1,580,000

Denmark contributed £1,060,000, the duchies £500,000 to the revenue.

The revenue and expenditure from 1831 were approximately as follows:—

|                    | Millions £ |             | Annual Average, £ |             |
|--------------------|------------|-------------|-------------------|-------------|
|                    | Revenue    | Expenditure | Revenue           | Expenditure |
| 1831-50 . . . . .  | 28         | 28          | 1,400,000         | 1,400,000   |
| 1851-70 . . . . .  | 36         | 40          | 1,800,000         | 2,000,000   |
| 1871-80 . . . . .  | 27         | 23          | 2,700,000         | 2,300,000   |
| 1881-87 . . . . .  | 21         | 21          | 3,000,000         | 3,000,000   |
| 57 years . . . . . | 112        | 112         | 1,900,000         | 1,900,000   |

Holland had no public debt till its conquest by the French in 1793, but when Louis Bonaparte was made king in 1806 the debt was 83 millions sterling, and it rapidly rose to 152 millions. At present there is a set-off to the amount of 21 millions for State railways, so that the debt may be properly stated at 68 millions sterling. When Belgium separated from Holland in 1830 it caused a decline of revenue, as shown above. The revenue and expenditure since 1830 were approximately as follows:—

| Period            | Millions £ |             | Annual Average, £ |             |
|-------------------|------------|-------------|-------------------|-------------|
|                   | Revenue    | Expenditure | Revenue           | Expenditure |
| 1831-50 . . . . . | 94         | 94          | 4,700,000         | 4,700,000   |
| 1851-80 . . . . . | 240        | 220         | 8,000,000         | 7,300,000   |
| 1881-88 . . . . . | 76         | 85          | 9,500,000         | 10,600,000  |
| Total . . . . .   | 410        | 399         | ...               | ...         |

## BELGIUM

When Belgium formed part of the kingdom of the Netherlands, her contribution to the national exchequer averaged, says Kolb, £3,500,000 per annum, or half the total revenue. On attaining her independence she took over £8,800,000 of the Dutch debt, involving an annual burden of £440,000. The revenue and debt at various dates show thus:—

| Year           | Revenue, £ | Debt, £    |
|----------------|------------|------------|
| 1832 . . . . . | 3,500,000  | 8,800,000  |
| 1850 . . . . . | 4,700,000  | 25,100,000 |
| 1870 . . . . . | 7,600,000  | 27,300,000 |
| 1878 . . . . . | 10,200,000 | 42,000,000 |
| 1890 . . . . . | 12,900,000 | 77,400,000 |



The revenue and expenditure have been approximately as follows :—

| Period  | Millions £ |             | Annual Average, £ |             |
|---------|------------|-------------|-------------------|-------------|
|         | Revenue    | Expenditure | Revenue           | Expenditure |
| 1831-50 | 82         | 98          | 4,100,000         | 4,900,000   |
| 1851-70 | 124        | 126         | 6,200,000         | 6,300,000   |
| 1871-87 | 186        | 236         | 11,000,000        | 14,000,000  |
| Total   | 392        | 460         | ...               | ...         |

The revenue was made up as follows :—

|                | 1835      | 1850      | 1870      | 1890       |
|----------------|-----------|-----------|-----------|------------|
|                | £         | £         | £         | £          |
| Customs . . .  | 300,000   | 500,000   | 900,000   | 1,100,000  |
| Income-tax . . | 1,000,000 | 1,100,000 | 1,200,000 | 1,800,000  |
| Railways . . . | ...       | 600,000   | 1,700,000 | 4,200,000  |
| Sundries . . . | 2,300,000 | 2,500,000 | 3,800,000 | 5,800,000  |
| Total          | 3,600,000 | 4,700,000 | 7,600,000 | 12,900,000 |

The items of expenditure were :—

|            | 1835      | 1850      | 1870      | 1890       |
|------------|-----------|-----------|-----------|------------|
|            | £         | £         | £         | £          |
| Army . . . | 1,600,000 | 1,000,000 | 2,400,000 | 1,800,000  |
| Debt . . . | 400,000   | 1,400,000 | 1,700,000 | 4,000,000  |
| Government | 1,400,000 | 2,200,000 | 3,600,000 | 7,000,000  |
| Total      | 3,400,000 | 4,600,000 | 7,700,000 | 12,800,000 |

There are 2000 miles of State railways, which cost 29 millions sterling, representing nearly 40 per cent. of the public debt.

#### SWITZERLAND

The *Almanac de Gotha* for 1810 puts the revenue at only £100,000 for that year. The *Repertoire Economique* puts it for 1822 at £500,000, whereas a statement published in 1850 makes it for the last-mentioned year only £500,000.

Official figures give us the following for later years :—

| Year       | Revenue, £ | Debt, £   |
|------------|------------|-----------|
| 1868 . . . | 1,700,000  | 200,000   |
| 1877 . . . | 1,700,000  | 1,300,000 |
| 1889 . . . | 2,400,000  | 1,200,000 |

The above debt is that of the Confederation, besides which the various Cantons have their own, which Kauffmann says amounted in 1876 to 16 millions sterling. The sources of Federal revenue were :—

|                | 1877      | 1888      |
|----------------|-----------|-----------|
|                | £         | £         |
| Customs . . .  | 650,000   | 1,200,000 |
| Sundries . . . | 1,050,000 | 1,200,000 |
| Total . . .    | 1,700,000 | 2,400,000 |

The expenditure was as follows :—

|                | 1877      | 1888      |
|----------------|-----------|-----------|
|                | £         | £         |
| Army . . .     | 600,000   | 800,000   |
| Government . . | 1,100,000 | 1,600,000 |
| Total . . .    | 1,700,000 | 2,400,000 |

These tables do not include the Cantonal revenues or expenditure.

#### GREECE

The kingdom dates from 1832, but the finances for some years were obscure. The following shows approximately revenue and debt :—

| Year       | Revenue, £ | Debt, £    |
|------------|------------|------------|
| 1840 . . . | 800,000    | 10,000,000 |
| 1879 . . . | 1,600,000  | 19,400,000 |
| 1889 . . . | 3,400,000  | 22,700,000 |

Revenue and expenditure were approximately as follows :—

| Period   | Millions £ |             | Annual Average, £ |             |
|----------|------------|-------------|-------------------|-------------|
|          | Revenue    | Expenditure | Revenue           | Expenditure |
| 1833-50  | 16         | 25          | 900,000           | 1,400,000   |
| 1851-70  | 24         | 30          | 1,200,000         | 1,500,000   |
| 1871-80  | 14         | 18          | 1,400,000         | 1,800,000   |
| 1881-87  | 18         | 22          | 2,600,000         | 3,100,000   |
| 55 years | 72         | 95          | 1,300,000         | 1,700,000   |

The finances for 1887 showed as follows :—

|                  | Revenue, £ |             | Expenditure, £ |
|------------------|------------|-------------|----------------|
| Direct taxes . . | 900,000    | Debt . . .  | 1,500,000      |
| Indirect taxes . | 1,900,000  | Army . . .  | 600,000        |
| Sundries . . .   | 1,000,000  | Government  | 1,700,000      |
| Total . . .      | 3,800,000  | Total . . . | 3,800,000      |

The debt is mostly internal, and includes £3,200,000 of bank-notes.

#### ROUMANIA AND SERVIA

The finances of these two kingdoms in 1889 showed thus :—

|                     | Roumania, £ | Servia, £ |
|---------------------|-------------|-----------|
| <b>Revenue—</b>     |             |           |
| Customs . . .       | 900,000     | 200,000   |
| Excise . . .        | 1,700,000   | 800,000   |
| Taxes . . .         | 3,600,000   | 800,000   |
| Total . . .         | 6,200,000   | 1,800,000 |
| <b>Expenditure—</b> |             |           |
| Debt . . .          | 2,600,000   | 460,000   |
| Army . . .          | 1,400,000   | 640,000   |
| Government . .      | 2,500,000   | 700,000   |
| Total . . .         | 6,500,000   | 1,800,000 |

The Roumanian debt is 36 millions sterling, that of Servia 13 millions, one-half of the amount in each case having its origin in State railways.

#### BULGARIA

Revenue, £2,900,000. A loan for £1,200,000 in 6 per cents. was effected at Vienna in January 1890. The estimates for 1890 are—Army, £1,200,000; debt, £250,000; public works, £400,000; government, £1,150,000, making a total of three millions sterling. Deficit, £100,000.

#### TURKEY

Revenue and debt are shown approximately thus :—

| Year       | Revenue, £ | Debt, £     |
|------------|------------|-------------|
| 1810 . . . | 3,000,000  | ...         |
| 1830 . . . | 4,000,000  | 8,000,000   |
| 1854 . . . | 9,000,000  | 12,000,000  |
| 1870 . . . | 12,000,000 | 92,000,000  |
| 1878 . . . | 15,000,000 | 245,000,000 |
| 1887 . . . | 16,200,000 | 180,000,000 |

The debt has been reduced by compounding with the bond-holders. It now comprises 105 millions foreign consols, over 40 millions of internal debt, and 32 millions war indemnity due to Russia. Revenue and expenditure since 1851 were approximately as follows :—

| Period   | Millions £ |             | Annual Average, £ |             |
|----------|------------|-------------|-------------------|-------------|
|          | Revenue    | Expenditure | Revenue           | Expenditure |
| 1851-70  | 210        | 300         | 10,500,000        | 15,000,000  |
| 1871-80  | 140        | 240         | 14,000,000        | 24,000,000  |
| 1881-87  | 110        | 110         | 16,000,000        | 16,000,000  |
| 37 years | 460        | 650         | 12,400,000        | 17,600,000  |

The Budget for 1889 showed—Revenue, £16,700,000; expenditure, £19,300,000. Since the composition of 1882 the bond-holders receive 1 per cent. annual interest. The taxes set apart for this purpose gave as follows in 1888 :—

|         |           |          |           |
|---------|-----------|----------|-----------|
| Tobacco | £ 680,000 | Excise   | £ 200,000 |
| Salt    | £ 620,000 | Sundries | £ 480,000 |

These taxes also provide a sinking-fund.

#### EGYPT

The finances may be approximately set down thus :—

| Year | Revenue, £ | Debt, £     |
|------|------------|-------------|
| 1833 | 2,520,000  | ...         |
| 1863 | 6,000,000  | 3,300,000   |
| 1870 | 7,000,000  | 37,000,000  |
| 1878 | 7,400,000  | 85,000,000  |
| 1889 | 9,700,000  | 103,400,000 |

Revenue and expenditure were approximately as follows :—

| Period   | Millions £ |             | Annual Average, £ |             |
|----------|------------|-------------|-------------------|-------------|
|          | Revenue    | Expenditure | Revenue           | Expenditure |
| 1841-60  | 90         | 90          | 4,500,000         | 4,500,000   |
| 1861-70  | 65         | 100         | 6,500,000         | 10,000,000  |
| 1871-80  | 75         | 135         | 7,500,000         | 13,500,000  |
| 1881-88  | 68         | 68          | 8,500,000         | 8,500,000   |
| 48 years | 298        | 393         | 6,200,000         | 8,200,000   |

Revenue and expenditure for 1889 showed as follows :—

| Revenue, £ |           | Expenditure, £ |           |
|------------|-----------|----------------|-----------|
| Land-tax   | 4,890,000 | Debt charge    | 4,090,000 |
| Customs    | 1,030,000 | Police         | 740,000   |
| Railways   | 1,300,000 | Khedive        | 270,000   |
| Sundries   | 2,375,000 | Government     | 4,300,000 |
| Total      | 9,595,000 | Total          | 9,400,000 |

The sources of American revenue have been as follows :—

| Period    | Millions £ Sterling |                  |          |       | Annual Average, £ |            |           |
|-----------|---------------------|------------------|----------|-------|-------------------|------------|-----------|
|           | Customs             | Internal Revenue | Sundries | Total | Customs           | Internal   | Sundries  |
| 1790-1809 | 35                  | 1                | 4        | 40    | 1,750,000         | 50,000     | 200,000   |
| 1810-29   | 73                  | 3                | 9        | 85    | 3,650,000         | 150,000    | 450,000   |
| 1830-59   | 201                 | ...              | 37       | 238   | 6,700,000         | ...        | 1,230,000 |
| 1860-69   | 165                 | 183              | 22       | 370   | 16,500,000        | 18,300,000 | 2,200,000 |
| 1870-79   | 316                 | 236              | 44       | 596   | 31,600,000        | 23,600,000 | 4,400,000 |
| 1880-89   | 426                 | 266              | 65       | 757   | 42,600,000        | 26,600,000 | 6,500,000 |
| 100 years | 1,216               | 689              | 181      | 2,086 | 12,160,000        | 6,890,000  | 1,810,000 |

*Debt.*—Before 1860 there was no debt, although large sums had been expended in irrigation works. The debt reached 120 millions sterling in 1880, and was thus accounted for :—

|                       | £          | Loss on             | £          |
|-----------------------|------------|---------------------|------------|
| Railways              | 13,360,000 | Goschen loans       | 1,900,000  |
| Suez Canal            | 6,770,000  | Oppenheim do.       | 18,900,000 |
| Nile Canal            | 12,600,000 | Bischoffsheim do.   | 2,100,000  |
| Sugar-mills           | 6,100,000  | Rothschild do.      | 2,500,000  |
| Alexandria harbour    | 2,540,000  | Various do.         | 1,000,000  |
| Bridges, schools, &c. | 4,890,000  | Ballet-dancers, &c. | 47,340,000 |

Public works 46,260,000

Unproductive 73,740,000

The nine loans effected between 1862 and 1880 represented nominally £77,000,000, but produced only £50,589,000, the difference being lost in discounts and other unavoidable drawbacks.

#### UNITED STATES

Official returns for 100 years show as follows :—

| Year | Revenue, £ | Expenditure, £ | Debt, £     |
|------|------------|----------------|-------------|
| 1790 | 900,000    | 600,000        | 15,700,000  |
| 1800 | 2,200,000  | 2,200,000      | 17,200,000  |
| 1810 | 1,900,000  | 1,800,000      | 11,000,000  |
| 1820 | 3,500,000  | 3,800,000      | 19,000,000  |
| 1830 | 5,100,000  | 3,100,000      | 9,000,000   |
| 1840 | 4,100,000  | 5,000,000      | 1,100,000   |
| 1850 | 9,200,000  | 8,600,000      | 13,300,000  |
| 1860 | 11,600,000 | 13,100,000     | 13,500,000  |
| 1870 | 71,500,000 | 53,700,000     | 485,000,000 |
| 1880 | 69,200,000 | 55,000,000     | 399,000,000 |
| 1889 | 80,600,000 | 68,600,000     | 221,000,000 |

The total revenue and expenditure of 100 years were :—

| Period    | Millions £ Sterling |             | Annual Average, £ |             |
|-----------|---------------------|-------------|-------------------|-------------|
|           | Revenue             | Expenditure | Revenue           | Expenditure |
| 1790-1809 | 40                  | 31          | 2,000,000         | 1,550,000   |
| 1810-1829 | 85                  | 82          | 4,250,000         | 4,100,000   |
| 1830-1849 | 115                 | 112         | 5,750,000         | 5,600,000   |
| 1850-1859 | 123                 | 120         | 12,300,000        | 12,000,000  |
| 1860-1869 | 370                 | 713         | 37,000,000        | 71,300,000  |
| 1870-1879 | 596                 | 517         | 59,600,000        | 51,700,000  |
| 1880-1889 | 757                 | 545         | 75,700,000        | 54,500,000  |
| 100 years | 2,086               | 2,120       | 20,860,000        | 21,200,000  |

If we compare revenue with population we find :—

| Period  | Shillings per Inhab. |
|---------|----------------------|
| 1831-50 | 7                    |
| 1851-60 | 8                    |
| 1861-70 | 22                   |
| 1871-80 | 26                   |
| 1881-88 | 28                   |

The items of expenditure were as follows :—

| Period          | Millions £ Sterling |               |         |          |          | Total |
|-----------------|---------------------|---------------|---------|----------|----------|-------|
|                 | Government          | Army and Navy | Indians | Pensions | Interest |       |
| 1790-1809 . . . | 6                   | 12            | ...     | ...      | 13       | 31    |
| 1810-29 . . .   | 12                  | 47            | 2       | 4        | 17       | 82    |
| 1830-49 . . .   | 25                  | 68            | 8       | 8        | 3        | 112   |
| 1850-59 . . .   | 48                  | 55            | 7       | 3        | 7        | 120   |
| 1860-69 . . .   | 57                  | 527           | 5       | 17       | 107      | 713   |
| 1870-79 . . .   | 125                 | 115           | 11      | 57       | 209      | 517   |
| 1880-89 . . .   | 151                 | 117           | 14      | 136      | 127      | 545   |
| 100 years . . . | 424                 | 941           | 47      | 225      | 483      | 2,120 |

*Debt.*—There was hardly any (except local debts) previous to the war of 1861. It reached its maximum in August 1865, namely, 572 millions sterling (2756 million dollars), being £16 per inhabitant, and fell in 1889 to 221 millions sterling, or less than £4 per inhabitant.

Debt and wealth compared thus :—

| Year       | Millions £ Sterling |      | Ratio of Debt  |
|------------|---------------------|------|----------------|
|            | Wealth              | Debt |                |
| 1865 . . . | 4,180               | 572  | 13.6 per cent. |
| 1889 . . . | 12,824              | 221  | 1.7 " "        |

#### AUSTRALIA

The aggregate revenue and debt of the seven colonies which form Australia are shown thus :—

| Year | Revenue, £ | Debt, £     | Ratio per Inhabitant |         |
|------|------------|-------------|----------------------|---------|
|      |            |             | Revenue, £           | Debt, £ |
| 1825 | 72,000     | ...         | 0.8                  | ...     |
| 1840 | 680,000    | ...         | 2.2                  | ...     |
| 1850 | 930,000    | ...         | 2.0                  | ...     |
| 1860 | 6,700,000  | 11,900,000  | 5.3                  | 9.5     |
| 1870 | 11,600,000 | 36,200,000  | 5.8                  | 18.1    |
| 1880 | 17,100,000 | 87,900,000  | 6.0                  | 31.0    |
| 1888 | 27,600,000 | 166,500,000 | 7.5                  | 45.0    |

The revenue of the several colonies in 1888 was made up thus :—

|                 | Customs   | Railways, &c. | Lands     | Sundries  | Total      |
|-----------------|-----------|---------------|-----------|-----------|------------|
| New South Wales | 2,140,000 | 3,660,000     | 2,270,000 | 820,000   | 8,890,000  |
| Victoria        | 2,350,000 | 3,230,000     | 660,000   | 1,370,000 | 7,610,000  |
| Queensland      | 1,350,000 | 1,000,000     | 640,000   | 470,000   | 3,460,000  |
| South Australia | 530,000   | 1,170,000     | 320,000   | 470,000   | 2,490,000  |
| West Australia  | 180,000   | 60,000        | 80,000    | 40,000    | 360,000    |
| Tasmania        | 300,000   | 110,000       | 80,000    | 150,000   | 640,000    |
| New Zealand     | 1,390,000 | 1,330,000     | 300,000   | 1,090,000 | 4,110,000  |
| Total           | 8,240,000 | 10,560,000    | 4,350,000 | 4,410,000 | 27,560,000 |

*Debt.*—In June 1889 it amounted to 171 millions sterling, having risen almost 160 millions since 1860. The money has been expended thus :—

|             |             |
|-------------|-------------|
| Railways    | 99,300,000  |
| Waterworks  | 13,000,000  |
| Immigration | 5,500,000   |
| Sundries    | 48,700,000  |
| Total       | 166,500,000 |

The revenue and expenditure since 1850 may be summed up approximately as follows :—

| Millions £     |         |             |
|----------------|---------|-------------|
| Period         | Revenue | Expenditure |
| 1851-60 . . .  | 38      | 50          |
| 1861-70 . . .  | 92      | 116         |
| 1871-80 . . .  | 147     | 199         |
| 1881-88 . . .  | 186     | 265         |
| 38 years . . . | 463     | 630         |

The income and expenditure of the several colonies in the last eight years, 1881-88, were :—

|                 | Millions £ |             |                     |
|-----------------|------------|-------------|---------------------|
|                 | Revenue    | Expenditure | Surplus Expenditure |
| New South Wales | 60         | 89          | 29                  |
| Victoria        | 50         | 64          | 14                  |
| Queensland      | 22         | 36          | 14                  |
| South Australia | 17         | 26          | 9                   |
| West Australia  | 2          | 3           | 1                   |
| Tasmania        | 4          | 6           | 2                   |
| New Zealand     | 31         | 41          | 10                  |
| Total           | 186        | 265         | 79                  |

The aggregate of customs revenue in the last eight years compares with trade and population as follows :—

| Customs      | Trade, Millions £ | Population | Ratio of Customs   |                       |
|--------------|-------------------|------------|--------------------|-----------------------|
|              |                   |            | Per cent. of Trade | Per Inhabitant Yearly |
| N. S. Wales  | 13,760,000        | 309        | 900,000            | 4.5                   |
| Victoria     | 16,050,000        | 269        | 950,000            | 5.8                   |
| Queensland   | 7,270,000         | 87         | 290,000            | 8.4                   |
| S. Australia | 4,330,000         | 88         | 300,000            | 5.0                   |
| W. Australia | 1,110,000         | 9          | 35,000             | 12.1                  |
| Tasmania     | 2,220,000         | 24         | 130,000            | 9.3                   |
| New Zealand  | 11,160,000        | 113        | 590,000            | 9.8                   |
| Total        | 55,900,000        | 899        | 3,195,000          | 6.2                   |

The revenue of New South Wales in 1889 reached £9,100,000.

The railways in 1889 showed gross receipts £8,160,000, working expenses £5,110,000, leaving a net profit of £3,050,000, equal to 3 per cent. on cost of construction. The annual interest on debt is £7,000,000; hence the railways pay nearly half the annual charge on the country for debt. If we deduct the value of railways and waterworks, the public debt will be only 54 millions sterling, or 4 per cent. of the wealth of Australia, against 7½ per cent. in the United Kingdom.

The increase of public debt has been accompanied by an enormous increase of wealth, as we see by comparing the two items :—

| Year           | Millions £ Sterling |      | Ratio to Wealth |
|----------------|---------------------|------|-----------------|
|                | Wealth              | Debt |                 |
| 1860 . . . . . | 180                 | 12   | 6.6 per cent.   |
| 1870 . . . . . | 320                 | 36   | 11.2 "          |
| 1888 . . . . . | 1,373               | 166  | 12.1 "          |

The wealth and debt of the several colonies in 1888 were as follows :—

|                             | Millions £ |      | Debt Ratio |
|-----------------------------|------------|------|------------|
|                             | Wealth     | Debt |            |
| New South Wales . . . . .   | 483        | 44   | 9.1        |
| Victoria . . . . .          | 370        | 35   | 9.5        |
| Queensland . . . . .        | 132        | 26   | 19.5       |
| South Australia . . . . .   | 131        | 19   | 14.5       |
| Western Australia . . . . . | 13         | 1    | 7.7        |
| Tasmania . . . . .          | 36         | 4    | 11.2       |
| New Zealand . . . . .       | 208        | 37   | 17.8       |
| Total . . . . .             | 1,373      | 166  | 12.1       |

The increase of debt since 1870 has averaged in the aggregate 7 millions sterling per annum, that of wealth 58 millions. Debt is equal to six years of revenue, the same as in Canada.

The debt and annual charge in the several colonies in December 1889 stood as follows :—

|                             | Debt, £     | Interest, £ | Debt per Inhab., £ |
|-----------------------------|-------------|-------------|--------------------|
| New South Wales . . . . .   | 46,800,000  | 1,810,000   | 43                 |
| Victoria . . . . .          | 37,400,000  | 1,520,000   | 34                 |
| Queensland . . . . .        | 25,800,000  | 1,035,000   | 65                 |
| South Australia . . . . .   | 20,500,000  | 820,000     | 63                 |
| New Zealand . . . . .       | 37,000,000  | 1,530,000   | 60                 |
| Tasmania . . . . .          | 5,300,000   | 210,000     | 36                 |
| Western Australia . . . . . | 1,300,000   | 50,000      | 30                 |
| Total . . . . .             | 174,100,000 | 6,975,000   | 48                 |

## CANADA

Official returns show revenue and debt as follows :—

| Year           | Amount, £ |            | Per Inhabitant |         |
|----------------|-----------|------------|----------------|---------|
|                | Revenue   | Debt       | Revenue, £     | Debt, £ |
| 1840 . . . . . | 500,000   | 1,200,000  | 0.3            | 0.7     |
| 1860 . . . . . | 2,400,000 | 14,100,000 | 0.7            | 4.0     |
| 1870 . . . . . | 3,600,000 | 16,700,000 | 1.0            | 4.6     |
| 1880 . . . . . | 5,100,000 | 32,100,000 | 1.1            | 7.0     |
| 1889 . . . . . | 7,760,000 | 49,200,000 | 1.5            | 9.9     |

The revenue and expenditure since 1840 may be approximately summed up as follows :—

| Period             | Millions £ Sterling |             |                     |
|--------------------|---------------------|-------------|---------------------|
|                    | Revenue             | Expenditure | Surplus Expenditure |
| 1841-60 . . . . .  | 30                  | 43          | 13                  |
| 1861-70 . . . . .  | 33                  | 36          | 3                   |
| 1871-80 . . . . .  | 49                  | 64          | 15                  |
| 1881-89 . . . . .  | 66                  | 83          | 17                  |
| 49 years . . . . . | 178                 | 226         | 48                  |

Customs revenue averages 60 per cent. of total revenue, and is about 12 per cent. as compared with the value of trade. Debt has been largely caused by expenditure for railways. If we compare it with an approximate of public wealth, the account stands thus :—

| Year           | Millions £ Sterling |      | Debt Ratio | Per Inhabitant |         |
|----------------|---------------------|------|------------|----------------|---------|
|                | Wealth              | Debt |            | Wealth, £      | Debt, £ |
| 1860 . . . . . | 392                 | 14   | 3.6        | 120            | 4.2     |
| 1888 . . . . . | 980                 | 49   | 5.0        | 196            | 9.9     |

The incidence of debt is less than £10 per inhabitant, against £48 in Australia; but, compared with revenue, it is equal, being six times the revenue in both cases.

In 1889 the debt consisted of £39,000,000 due in London and £10,000,000 internal debt. When the Dominion was constituted in 1867 the total debt was £15,600,000; the subsequent increase of £33,600,000 was caused thus :—

|                              | £          |
|------------------------------|------------|
| Pacific Railway . . . . .    | 13,000,000 |
| Other railways . . . . .     | 8,300,000  |
| Canals . . . . .             | 6,800,000  |
| Other public works . . . . . | 5,500,000  |

Total . . . . . 33,600,000

The total cost of the Pacific Railway was £21,600,000. The annual interest on the public debt of Canada is £2,040,000.

## INDIA

Revenue and debt according to official returns were :—

| Year           | Revenue, £ | Debt, £     |
|----------------|------------|-------------|
| 1810 . . . . . | 15,600,000 | 31,900,000  |
| 1820 . . . . . | 19,500,000 | 39,800,000  |
| 1830 . . . . . | 19,600,000 | 36,400,000  |
| 1840 . . . . . | 19,400,000 | 32,500,000  |
| 1850 . . . . . | 27,600,000 | 53,900,000  |
| 1860 . . . . . | 39,700,000 | 98,100,000  |
| 1870 . . . . . | 50,900,000 | 108,200,000 |
| 1880 . . . . . | 69,700,000 | 160,400,000 |
| 1890 . . . . . | 82,900,000 | 191,900,000 |

Revenue and expenditure may be summed up approximately thus :—

| Period             | Millions £ Sterling |             |
|--------------------|---------------------|-------------|
|                    | Revenue             | Expenditure |
| 1810-40 . . . . .  | 565                 | 565         |
| 1841-60 . . . . .  | 572                 | 638         |
| 1861-70 . . . . .  | 473                 | 483         |
| 1871-80 . . . . .  | 564                 | 616         |
| 1881-87 . . . . .  | 514                 | 540         |
| 77 years . . . . . | 2,688               | 2,842       |

In the foregoing tables the rupee is taken at the official value of 2s. Revenue and expenditure in 1890 stood thus :—

|                       | Revenue, £ |                       | Expenditure, £ |
|-----------------------|------------|-----------------------|----------------|
| Land-tax . . . . .    | 23,400,000 | Army . . . . .        | 22,100,000     |
| Railways . . . . .    | 16,700,000 | Railways . . . . .    | 18,700,000     |
| Opium . . . . .       | 8,300,000  | Post-office . . . . . | 13,300,000     |
| Salt-tax . . . . .    | 8,000,000  | Roads . . . . .       | 5,500,000      |
| Post-office . . . . . | 2,300,000  | Irrigation . . . . .  | 2,600,000      |
| Irrigation . . . . .  | 1,900,000  | Debt . . . . .        | 4,400,000      |
| Sundries . . . . .    | 22,300,000 | Sundries . . . . .    | 16,200,000     |
| Total . . . . .       | 82,900,000 | Total . . . . .       | 82,800,000     |

## SOUTH AFRICA

Revenue and debt were as follows:—

| Year           | Revenue, £ | Debt, £    |
|----------------|------------|------------|
| 1840 . . . . . | 200,000    | ...        |
| 1860 . . . . . | 800,000    | 600,000    |
| 1870 . . . . . | 950,000    | 1,400,000  |
| 1880 . . . . . | 3,100,000  | 13,000,000 |
| 1887 . . . . . | 4,000,000  | 26,500,000 |

Revenue and expenditure are approximately summed up thus:—

| Period             | Millions £ |             |
|--------------------|------------|-------------|
|                    | Revenue    | Expenditure |
| 1841-60 . . . . .  | 10         | 11          |
| 1861-70 . . . . .  | 9          | 10          |
| 1871-80 . . . . .  | 19         | 31          |
| 1881-87 . . . . .  | 27         | 40          |
| 47 years . . . . . | 65         | 92          |

## WEST INDIES

Revenue and debt were as follows:—

| Year           | Revenue, £ | Debt, £   |
|----------------|------------|-----------|
| 1850 . . . . . | 700,000    | 900,000   |
| 1860 . . . . . | 1,000,000  | 1,000,000 |
| 1870 . . . . . | 1,400,000  | 1,600,000 |
| 1880 . . . . . | 1,900,000  | 1,800,000 |
| 1887 . . . . . | 2,100,000  | 3,100,000 |

## ARGENTINA

Official returns are to the following effect:—

| Year           | Revenue, £ | Debt, £    |
|----------------|------------|------------|
| 1864 . . . . . | 1,400,000  | 5,100,000  |
| 1870 . . . . . | 3,000,000  | 10,100,000 |
| 1880 . . . . . | 3,900,000  | 23,000,000 |
| 1888 . . . . . | 5,440,000  | 46,500,000 |

Revenue and expenditure seem therefore to have been as follows:—

| Period             | Millions £ Sterling |             |                     |
|--------------------|---------------------|-------------|---------------------|
|                    | Revenue             | Expenditure | Surplus Expenditure |
| 1864-70 . . . . .  | 15                  | 20          | 5                   |
| 1871-80 . . . . .  | 35                  | 48          | 13                  |
| 1881-88 . . . . .  | 38                  | 62          | 24                  |
| 25 years . . . . . | 88                  | 130         | 42                  |

The Budgets for 1884 and 1889 compared as follows:—

|                         | Revenue     |           |
|-------------------------|-------------|-----------|
|                         | 1884        | 1889      |
| Import dues . . . . .   | 4,230,000   | 3,880,000 |
| Railways . . . . .      | 410,000     | 80,000    |
| Stamps . . . . .        | 420,000     | 350,000   |
| Sundries . . . . .      | 1,440,000   | 1,130,000 |
| Total . . . . .         | 6,500,000   | 5,440,000 |
|                         | Expenditure |           |
|                         | 1884        | 1889      |
| Eschequer . . . . .     | 2,720,000   | 2,470,000 |
| Interior . . . . .      | 1,200,000   | 1,480,000 |
| Army and navy . . . . . | 1,680,000   | 1,090,000 |
| Schools, &c. . . . .    | 900,000     | 960,000   |
| Total . . . . .         | 6,500,000   | 6,000,000 |

Interest on debt takes £2,400,000, or 40 per cent. of the total revenue.

The statement of debt omits inconvertible paper-money issued by Government banks, and Cédulas or mortgage debentures guaranteed by Government (see *Banks*). On the other hand, the Government claims to have assets worth 71 millions sterling, viz:—

|                               |             |
|-------------------------------|-------------|
| Treasury department . . . . . | 27,200,000  |
| Interior . . . . .            | 37,560,000  |
| Schools . . . . .             | 2,920,000   |
| War and Marine . . . . .      | 2,850,000   |
| Sundries . . . . .            | 220,000     |
| Total . . . . .               | 70,810,000* |

Real estate consisting of lands and public buildings stands for 41 millions, bank and railway shares and Treasury balances for 26 millions, and sundries four millions.

Each of the fourteen Argentine provinces, as well as the capital, Buenos Ayres, has its own revenue and debt, distinct from those of the Federal Government. Latest returns were as follows:—

| Province               | Revenue   | Debt       |
|------------------------|-----------|------------|
| Capital . . . . .      | 1,500,000 | 2,400,000  |
| Buenos Ayres . . . . . | 2,400,000 | 17,400,000 |
| Santa Fé . . . . .     | 600,000   | 9,400,000  |
| Cordoba . . . . .      | 300,000   | 4,000,000  |
| Entre Rios . . . . .   | 300,000   | 4,000,000  |
| Corrientes . . . . .   | 160,000   | 1,100,000  |
| Santiago . . . . .     | 80,000    | 1,100,000  |
| Mendoza . . . . .      | 120,000   | 1,000,000  |
| Salta . . . . .        | 80,000    | 1,000,000  |
| Rioja . . . . .        | 40,000    | 1,000,000  |
| Tucuman . . . . .      | 100,000   | 600,000    |
| Catamarca . . . . .    | 40,000    | 600,000    |
| San Luis . . . . .     | 60,000    | 600,000    |
| San Juan . . . . .     | 50,000    | 400,000    |
| Jujuy . . . . .        | 20,000    | ...        |
| Total . . . . .        | 5,850,000 | 44,600,000 |

The consolidated debt, federal and provincial, may be summed up thus:—

|                      | Foreign    | Home Debt                | Total      |
|----------------------|------------|--------------------------|------------|
| Federal . . . . .    | 25,800,000 | 207,300,000 = 20,700,000 | 46,500,000 |
| Provincial . . . . . | 38,700,000 | 44,100,000 = 4,400,000   | 43,100,000 |
| Total . . . . .      | 64,500,000 | 251,400,000 = 25,100,000 | 89,600,000 |

If we add 20 millions sterling for 300 million dollars of forced issue, it makes the total debt 110 millions sterling, without counting 400 millions of Cédulas worth about 30 millions sterling (see *Banks*). Wealth and debt at various dates were approximately as follows:—

| Year           | Millions £ Sterling |      | Debt Ratio |
|----------------|---------------------|------|------------|
|                | Wealth              | Debt |            |
| 1857 . . . . . | 74                  | 2    | 2.7        |
| 1864 . . . . . | 139                 | 5    | 3.6        |
| 1884 . . . . . | 375                 | 43   | 11.4       |
| 1890 . . . . . | 509                 | 110  | 21.6       |

\* This valuation does not merit confidence, since it magnifies certain items exceedingly. No impartial person would put the total at more than 10 or 12 millions sterling.

## URUGUAY

Official records since 1831 show thus:—

| Period         | Millions £ Sterling |             |      |
|----------------|---------------------|-------------|------|
|                | Revenue             | Expenditure | Debt |
| 1831-50 . . .  | 4                   | 5           | 1    |
| 1851-60 . . .  | 4                   | 7           | 4    |
| 1861-70 . . .  | 6                   | 10          | 8    |
| 1871-80 . . .  | 13                  | 16          | 11   |
| 1881-88 . . .  | 20                  | 24          | 15   |
| 58 years . . . | 47                  | 62          | 15   |

The value of real estate and cattle in 1886 amounted to 282 million gold dollars, or 59 millions sterling. The total wealth of the Republic is approximately 100 millions. The debt is therefore 15 per cent. against 22 per cent. in Argentina.

## BRAZIL

Official returns give as follows:—

| Year           | Revenue, £ | Debt, £     |
|----------------|------------|-------------|
| 1864 . . . . . | 6,100,000  | 18,700,000  |
| 1874 . . . . . | 11,200,000 | 72,100,000  |
| 1888 . . . . . | 14,100,000 | 107,200,000 |

The finances since 1850 may be summed up approximately thus:—

| Period            | Millions £ |             |
|-------------------|------------|-------------|
|                   | Revenue    | Expenditure |
| 1851-60 . . . . . | 45         | 50          |
| 1861-70 . . . . . | 65         | 130         |
| 1871-80 . . . . . | 115        | 135         |
| 1881-88 . . . . . | 105        | 122         |
| Total . . . . .   | 330        | 437         |

The origin of the debt is shown thus:—

|                          |              |
|--------------------------|--------------|
| Paraguayan war . . . . . | £ 48,000,000 |
| Railways . . . . .       | 29,000,000   |
| Sundries . . . . .       | 30,200,000   |
| Total . . . . .          | 107,200,000  |

## MEXICO

Official returns give the following:—

| Debt, 1889 |            | Revenue |           | 1889     |           |
|------------|------------|---------|-----------|----------|-----------|
| Foreign    | £          | 1870    | £         | Customs  | £         |
| Home       | 18,500,000 | 1880    | 3,400,000 | Sundries | 2,000,000 |
|            |            | 1889    | 5,000,000 |          |           |
| Total      | 31,200,000 |         |           | Total    | 5,000,000 |

## CHINA

In 1889 the revenue was stated thus:—

|                    |             |
|--------------------|-------------|
| Land-tax . . . . . | £ 4,800,000 |
| Customs . . . . .  | 5,500,000   |
| Salt-tax . . . . . | 2,300,000   |
| Sundries . . . . . | 6,400,000   |
| Total . . . . .    | 19,000,000  |

## JAPAN

The revenue in 1889 was £13,400,000, and the debt stood thus:—

|                           |              |
|---------------------------|--------------|
| Funded . . . . .          | £ 41,100,000 |
| Forced currency . . . . . | 9,000,000    |
| Total . . . . .           | 50,100,000   |

## FINES

The following were in force in the Middle Ages in France and England:—

| Offence                                | £ | s  | d |
|----------------------------------------|---|----|---|
| Drawing a knife to any one . . . . .   | 0 | 10 | 0 |
| Wounding a person . . . . .            | 2 | 0  | 0 |
| Calling a woman a prostitute . . . . . | 2 | 0  | 0 |

## FIRE

The *Journal des Economistes* (1883) published the following table of property annually destroyed by fire, except the countries in italics, the figures for which are doubtful:—

|                          |             |                         |            |
|--------------------------|-------------|-------------------------|------------|
| United Kingdom . . . . . | £ 9,100,000 | Spain . . . . .         | £ 500,000  |
| France . . . . .         | 3,200,000   | Holland . . . . .       | 400,000    |
| Germany . . . . .        | 6,100,000   | Belgium . . . . .       | 500,000    |
| Russia . . . . .         | 21,000,000  | Scandinavia . . . . .   | 1,000,000  |
| Austria . . . . .        | 3,500,000   | United States . . . . . | 22,500,000 |
| Italy . . . . .          | 1,000,000   | Canada . . . . .        | 4,100,000  |

The total reaches 73 millions sterling. In twelve years ending 1883 the average for Austria proper was £1,800,000 per annum, exclusive of Hungary.

Losses in the principal cities are shown thus:—

|                         | Number of Fires | Number per 100,000 Inhab. | Loss, £   | Per Inhabitant, Pence |
|-------------------------|-----------------|---------------------------|-----------|-----------------------|
| London . . . . .        | 2,338           | 56                        | 1,100,000 | 66                    |
| Paris . . . . .         | ...             | ...                       | 270,000   | 34                    |
| New York . . . . .      | 1,783           | 144                       | 780,000   | 150                   |
| Manchester . . . . .    | 328             | 59                        | 120,000   | 55                    |
| San Francisco . . . . . | ...             | ...                       | 112,000   | 122                   |
| Philadelphia . . . . .  | 655             | 76                        | 460,000   | 130                   |
| Chicago . . . . .       | 490             | 98                        | 360,000   | 180                   |
| Boston . . . . .        | 389             | 117                       | 130,000   | 95                    |
| Baltimore . . . . .     | 172             | 52                        | 70,000    | 55                    |
| Cincinnati . . . . .    | 213             | 85                        | 144,000   | 144                   |
| St. Louis . . . . .     | 197             | 49                        | 160,000   | 98                    |
| Vienna . . . . .        | 365             | 36                        | 100,000   | 24                    |

The record of London fires since 1840 has been as follows:—

| Years             | Annual Average  |                  |                       |
|-------------------|-----------------|------------------|-----------------------|
|                   | Number of Fires | Houses to a Fire | Inhabitants to a Fire |
| 1840-49 . . . . . | 768             | 362              | 2,731                 |
| 1850-59 . . . . . | 977             | 331              | 2,570                 |
| 1860-69 . . . . . | 1,430           | 288              | 2,390                 |
| 1870-80 . . . . . | 1,795           | 264              | 2,150                 |
| 1881-89 . . . . . | 2,160           | 260              | 1,760                 |

Fires on Saturday are 5 per cent. more numerous than on any other day in London; but in Paris Friday has 20 per cent. over the average.

## FRANCE

Official returns for the whole of France show thus:—

| Years             | Annual Average  |                  |                       |
|-------------------|-----------------|------------------|-----------------------|
|                   | Number of Fires | Houses to a Fire | Inhabitants to a Fire |
| 1845-50 . . . . . | 8,260           | 873              | 4,120                 |
| 1851-60 . . . . . | 10,556          | 715              | 3,435                 |
| 1861-70 . . . . . | 13,865          | 562              | 2,720                 |

## RUSSIA

The number of houses burnt yearly from 1860 to 1864 was only 10,600, representing a value of barely two millions sterling. Police estimates seem to have a cipher too much.

## UNITED STATES.

Down to 1880 the annual losses from fire averaged only 17 millions sterling. Possibly the figure given above includes Canada, a large portion of Canadian property being insured at New York. The *Chronicle* (N.Y.) gives the losses in United States as follows:—

| Period            | £ Sterling per Annum |
|-------------------|----------------------|
| 1875-80 . . . . . | 14,800,000           |
| 1881-85 . . . . . | 19,900,000           |

This was only 1 per cent. of the property insured, which exceeded 2100 millions sterling, or one-fifth of the total wealth of the United States.

*Loss of Life.*—The following table shows the deaths by fire per million inhabitants in various cities:—

|                   |    |                   |    |
|-------------------|----|-------------------|----|
| Munich . . . . .  | 4  | Naples . . . . .  | 41 |
| Glasgow . . . . . | 17 | Hanover . . . . . | 57 |
| Berlin . . . . .  | 20 | Cologne . . . . . | 71 |
| Paris . . . . .   | 24 | London . . . . .  | 83 |

The loss of life in England and Wales from fire averages 1490 persons yearly, of whom 42 per cent. are males and 58 per cent. females. The London firemen save 110 lives yearly. Three persons in England per 1000 die by fire.

*Remarkable Fires.*—The worst recorded in history have been:—

| Year           | Place                    | Loss            |
|----------------|--------------------------|-----------------|
| 1570 . . . . . | Moscow . . . . .         | 200,000 victims |
| 1666 . . . . . | London . . . . .         | 13,200 houses   |
| 1812 . . . . . | Moscow . . . . .         | 15,500 houses   |
| 1824 . . . . . | Cairo . . . . .          | 4000 victims    |
| 1831 . . . . . | Constantinople . . . . . | 18,000 houses   |
| 1835 . . . . . | New York . . . . .       | £6,000,000      |
| 1842 . . . . . | Hamburg . . . . .        | £7,200,000      |
| 1851 . . . . . | San Francisco . . . . .  | 2500 blocks     |
| 1863 . . . . . | Santiago . . . . .       | 1800 victims    |
| 1871 . . . . . | Chicago . . . . .        | £33,000,000     |
| 1872 . . . . . | Boston . . . . .         | £15,000,000     |

See also *Theatres*, in which some fires caused great loss of life.

*Fire Brigades.*—The first in London was established in 1791. The various brigades in 1882 stood thus:—

|                          | Fire-Engines | Fire-men | Cost of Brigade. | Firemen per 100,000 Inhabitants | Cost of Brigade, Pence per Inhab. |
|--------------------------|--------------|----------|------------------|---------------------------------|-----------------------------------|
| London . . . . .         | 38           | 536      | £80,000          | 13                              | 5                                 |
| Paris . . . . .          | 203          | 1,500    | 98,000           | 68                              | 11                                |
| St. Petersburg . . . . . | 37           | 1,150    | ...              | 127                             | ...                               |
| Hamburg . . . . .        | 53           | 790      | ...              | 305                             | ...                               |
| New York . . . . .       | 38           | 690      | 250,000          | 55                              | 48                                |
| Philadelphia . . . . .   | 27           | 404      | 103,000          | 49                              | 29                                |
| Chicago . . . . .        | 27           | 200      | 94,000           | 40                              | 48                                |
| Boston . . . . .         | 26           | 472      | 110,000          | 138                             | 79                                |
| Cincinnati . . . . .     | 18           | 155      | 62,000           | 62                              | 64                                |
| St. Louis . . . . .      | 17           | 100      | 40,000           | 26                              | 24                                |
| Baltimore . . . . .      | 18           | 140      | 40,000           | 43                              | 30                                |
| San Francisco . . . . .  | 14           | 200      | ...              | 82                              | ...                               |
| Berlin . . . . .         | 50           | 1,000    | ...              | 96                              | ...                               |
| Lyons . . . . .          | 48           | 475      | ...              | 98                              | ...                               |

The expenditure on fire-brigades compared with the number of fires shows the following average per fire:—

|                    | £   | Philadelphia . | £   | Baltimore . | £ |
|--------------------|-----|----------------|-----|-------------|---|
| London . . . . .   | 40  | 153            | 188 | 230         |   |
| Sydney . . . . .   | 88  | 188            | 201 | 280         |   |
| New York . . . . . | 138 | 201            | 295 |             |   |

The London fire-brigade uses 17 million gallons water yearly, that is, 4½ gallons per inhabitant, or 8500 gallons for each fire. The New York brigade consumes 32 million gallons, that is, 25 gallons per inhabitant, or 18,000 gallons per fire.

## FISH

*Anchorvy.*—The fishermen of Finisterre, France, take 700 tons yearly, value £10,000.

*Cod.*—The average take is as follows:—

|                         | Million Fish | Tons    | Value, £  |
|-------------------------|--------------|---------|-----------|
| Great Britain . . . . . | 8            | 13,000  | 200,000   |
| France . . . . .        | 21           | 34,000  | 340,000   |
| Norway . . . . .        | 65           | 110,000 | 1,050,000 |
| Canada . . . . .        | 28           | 45,000  | 520,000   |
| Total . . . . .         | 122          | 202,000 | 2,110,000 |

The production of cod-liver oil averages 900,000 gallons yearly, chiefly in Norway and Canada, 100 livers yielding one gallon of oil.

## Herring

| Fishers             | Tons Herrings | Value, £  |
|---------------------|---------------|-----------|
| Scotch . . . . .    | 140,000       | 1,700,000 |
| English . . . . .   | 80,000        | 950,000   |
| Irish . . . . .     | 20,000        | 240,000   |
| French . . . . .    | 42,000        | 550,000   |
| Norwegian . . . . . | 60,000        | 700,000   |
| Canadian . . . . .  | 48,000        | 600,000   |
| Total . . . . .     | 390,000       | 4,740,000 |

About 10,000 herrings go to a ton, a British barrel containing 1000, a Norwegian 500 fish. The number of men engaged in herring-fishing is 180,000, who catch on an average 22,000 fish each.

*Mussels.*—In 1850 there were 300 mussel-beds, and now there are 3000, in the Bay of Aguilon, France, extending seven miles along the shore. The industry was introduced by an Irish settler, and these beds produce annually 350,000 bushels, valued at £55,000.

*Oysters.*—The ordinary production and consumption are:—

|                         | Per Annum         |                       |                |
|-------------------------|-------------------|-----------------------|----------------|
|                         | Product, Millions | Consumption, Millions | Per Inhabitant |
| U. Kingdom . . . . .    | 29                | London . . . . .      | 500            |
| France . . . . .        | 300               | Paris . . . . .       | 57             |
| United States . . . . . | 3,500             | New York . . . . .    | 810            |
| Portugal . . . . .      | 600               | France . . . . .      | 260            |
| Total . . . . .         | 4,429             | ...                   | ...            |

Baltimore packs seven million bushels per annum. An oyster three months old is the size of a shilling, six months half-a-crown, but is not fit to eat before four years old. The oyster-beds established by advice of Abbé Bonnetard in France produced 97 million oysters in 1881. According to Mayhew, the consumption in London in 1864 was 310,000 barrels, containing 496 million oysters, being 1600 to the barrel, and representing a value of £2,100,000; this, however, seems a retail value, as they were valued the same year in France at £2 per thousand, which would be only one million sterling. The American oyster-fishing is valued at five millions sterling per annum, that of Canada (60,000 barrels) at £40,000 yearly.

*Pilchards.*—The Cornishmen take 150 millions yearly; exportation, 12,000 hogsheds.

*Salmon.*—The annual fishery in the United Kingdom is as follows:—

|                    | Tons  | Value, £ |
|--------------------|-------|----------|
| England . . . . .  | 360   | 40,000   |
| Scotland . . . . . | 2,600 | 280,000  |
| Ireland . . . . .  | 2,900 | 320,000  |
| Total . . . . .    | 5,860 | 640,000  |

London consumes nearly one-third, namely, 1840 tons yearly. England imports 50 tons per annum from Norway. Salmon have been caught in the Tay weighing 70 lbs., but the average weight of this fish is only 8 lbs. The exportation of tinned salmon from California exceeds 10 million lbs. yearly, of which one-half goes to England, one-fourth to the Continent, and the rest to New York, &c. The quantity has doubled since 1875. This is irrespective of six million lbs. annually consumed in California. There is a royal salmon-fishery at Ulea, in Finland, where 60,000 are taken yearly. The largest salmon caught in the United Kingdom in 1889 was one of 61 lbs., in the Severn. The fishermen of Colombia River, Canada, exported 415,000 cases of tinned salmon to England in 1889, containing 21,000,000 tins. The total consumption of British and imported salmon in London in 1883 was 5000 tons, or nearly 3 lbs. per inhabitant.

#### *Sardines*

|                  | Annual Fishery |             |
|------------------|----------------|-------------|
|                  | Million Fish   | Tons Weight |
| Spain . . . . .  | 1,260          | 52,000      |
| France . . . . . | 980            | 41,000      |

The exportation from France averages 450 millions per annum, say 20,000 tons.

#### *Seals*

| Fishery                    | Annual Slaughter | Tons Oil |
|----------------------------|------------------|----------|
| Canadian . . . . .         | 460,000          | 9,200    |
| Norwegian . . . . .        | 80,000           | 1,600    |
| Falkland Islands . . . . . | 5,000            | 100      |
| Montevideo . . . . .       | 5,000            | 100      |
| Total . . . . .            | 550,000          | 11,000   |

The skins vary in value; the oil fetches £25 per ton. One fishing vessel sometimes kills as many as 50,000 in a season off Nova Scotia. The practice of slaughtering seals while suckling their young threatens to exterminate the breed. In 1889 the British seal-fishers of British Columbia killed 28,000, the American 7000, and the skins were valued at 35s. each.

### FISHERIES

#### UNITED KINGDOM

The Report for 1888 gave the following:—

|                    | Tons Fish | Value, £  |
|--------------------|-----------|-----------|
| England . . . . .  | 317,000   | 4,210,000 |
| Scotland . . . . . | 238,000   | 1,690,000 |
| Ireland . . . . .  | 20,000    | 510,000   |
| Total . . . . .    | 575,000   | 6,410,000 |

The above would seem to be the value of the fish when first caught. Some estimates place the value much higher: hence apparent discrepancies on this point.

According to a previous statement, the strength of the fishing marine and the take of herrings were:—

|                   | Vessels | Men     | Barrels Herrings |
|-------------------|---------|---------|------------------|
| English . . . . . | 14,420  | 44,200  | 845,000          |
| Scotch . . . . .  | 14,650  | 47,100  | 1,580,000        |
| Irish . . . . .   | 5,830   | 21,300  | 210,000          |
| Total . . . . .   | 34,900  | 112,600 | 2,635,000        |

The above vessels take other fish besides herrings, but the latter form 70 per cent. of the total value of our sea-fishing. Including fresh-water fish, the value in 1885 was estimated at £5,100,000, viz.:—

| Kind                  | Tons    | Value, £  |
|-----------------------|---------|-----------|
| Salmon . . . . .      | 3,600   | 390,000   |
| Cod . . . . .         | 13,000  | 200,000   |
| Whale . . . . .       | ...     | 700,000   |
| Herrings . . . . .    | 260,000 | 2,900,000 |
| Pilchards . . . . .   | 3,000   | 30,000    |
| Lobsters, &c. . . . . | ...     | 900,000   |
| Total . . . . .       | ...     | 5,120,000 |

The take of salmon is 45 per cent. Scotch, 50 per cent. Irish, and 6 per cent. English. A barrel of herrings contains 1000; of pilchards, 3000 fish. About half of the herrings and two-thirds of the pilchards are exported.

The railways in 1887 carried 341,000 tons of fish, against 278,000 in 1882, viz.:—

|                    | 1882    | 1887    |
|--------------------|---------|---------|
| England . . . . .  | 215,000 | 250,000 |
| Scotland . . . . . | 57,000  | 84,000  |
| Ireland . . . . .  | 6,000   | 7,000   |
| Total . . . . .    | 278,000 | 341,000 |

The value of fish taken in England and Wales in 1888 was:—

| Kind                              | Tons    | Value, £  | Value per Ton, £ |
|-----------------------------------|---------|-----------|------------------|
| Turbot . . . . .                  | 2,700   | 170,000   | 63               |
| Sole . . . . .                    | 3,600   | 380,000   | 106              |
| Haddock . . . . .                 | 77,000  | 600,000   | 8                |
| Herrings . . . . .                | 86,000  | 490,000   | 6                |
| Cod . . . . .                     | 12,000  | 160,000   | 13               |
| Mackerel . . . . .                | 16,000  | 250,000   | 15               |
| Pilchards . . . . .               | 8,000   | 40,000    | 5                |
| Plaice . . . . .                  | 35,000  | 610,000   | 18               |
| Salmon . . . . .                  | 360     | 40,000    | 110              |
| Various . . . . .                 | 76,340  | 1,200,000 | 16               |
| Total . . . . .                   | 317,000 | 3,940,000 | 12               |
| Oysters (million) . . . . .       | 29      | 100,000   | ...              |
| Lobsters, &c. (million) . . . . . | 5½      | 170,000   | ...              |
| Total . . . . .                   | ...     | 4,210,000 | ...              |

In 1888 there were 298 fishermen drowned at sea, equal to 9 per 1000 of those constantly engaged in English and Welsh waters in fishing, or 6 per 1000 if casuals be included. In that year London took 180,000 tons, or nearly 60 per cent. of all fish caught in England, equal to 100 lbs. of fish per inhabitant for yearly consumption. The Scotch fisheries have multi-



plied fourteen-fold since the time of the Napoleon wars, viz. :—

1805-10.—Cured . . . 90,000 barrels fish per annum  
1881-83.—Cured . . . 1,250,000 " "

The imports and exports of fish at various dates were :—

| Year       | Imports |           | Exports |           |
|------------|---------|-----------|---------|-----------|
|            | Tons    | Value, £  | Tons    | Value, £  |
| 1853 . . . | 10,000  | 170,000   | 43,000  | 450,000   |
| 1860 . . . | 22,000  | 370,000   | 42,000  | 580,000   |
| 1870 . . . | 38,000  | 770,000   | 75,000  | 910,000   |
| 1880 . . . | 67,000  | 1,670,000 | 134,000 | 1,780,000 |
| 1888 . . . | 95,000  | 2,320,000 | 136,000 | 1,570,000 |

The quantities exported can only be given approximately, the weight only of herrings, the value of other kinds being stated in the Customs. Herrings are about three-fourths of the total of fish exports.

## FRANCE

The product in 1880 was as follows :—

| Kind                       | Tons    | Value, £  |
|----------------------------|---------|-----------|
| Cod . . .                  | 34,000  | 310,000   |
| Herring and mackerel . . . | 48,000  | 680,000   |
| Sardines . . .             | 38,000  | 1,650,000 |
| Various . . .              | 10,000  | 840,000   |
| Total . . .                | 130,000 | 3,480,000 |

The difference between deep-sea and coast fishing was as follows :—

|                  | Deep-Sea | Coast     | Total     |
|------------------|----------|-----------|-----------|
| Men . . .        | 13,000   | 72,000    | 85,000    |
| Tons, fish . . . | 34,000   | 96,000    | 130,000   |
| Value, £ . . .   | 350,000  | 3,130,000 | 3,480,000 |

Being an average of £26 per deep-sea, and £44 per coast fisherman.

The following report was published in 1886 :—

| Class         | 1874      |           | 1885      |           |
|---------------|-----------|-----------|-----------|-----------|
|               | Fishermen | Tons Fish | Fishermen | Tons Fish |
| Cod . . .     | 11,700    | 31,000    | 12,300    | 40,000    |
| Various . . . | 101,300   | 71,000    | 131,700   | 113,000   |
| Total . . .   | 113,000   | 102,000   | 144,000   | 153,000   |

The take of oysters and sardines was as follows :—

| Year       | Oysters, Million | Sardines, Million |
|------------|------------------|-------------------|
| 1874 . . . | 52               | 611               |
| 1885 . . . | 127              | 494               |

The French oyster-beds showed the following product :—

| Year       | Millions      |                |       |                |              | Total |
|------------|---------------|----------------|-------|----------------|--------------|-------|
|            | Arca-<br>chon | Roche-<br>fort | Auray | Gran-<br>ville | Can-<br>cale |       |
| 1862 . . . | 8             | 1              | ...   | 13             | 18           | 40    |
| 1868 . . . | 8             | 3              | 3     | 0              | 1            | 15    |
| 1872 . . . | 10            | 1              | 7     | 1              | 4            | 23    |
| 1874 . . . | 42            | 2              | 10    | 1              | 9            | 64    |
| 1876 . . . | 197           | 30             | 22    | 1              | 9            | 259   |

The Cancale beds produced 70 millions in 1843, the Granville 46 millions in 1857. The total French product was valued at £34,000 in 1869, at £74,000 in 1874.

The value of all fish taken in 1885 was £3,700,000, against £2,900,000 in 1874. The exportation of sardines was as follows :—

| Year       | Tons   | Million Fish |
|------------|--------|--------------|
| 1880 . . . | 10,300 | 260          |
| 1889 . . . | 12,400 | 310          |

In 1888 France exported 19,000 tons of dried codfish; the fish bounty paid that year by Government was £160,000 sterling. Nevertheless, the deep-sea fishery is not progressing; the returns of sixty years ago (1830) showed 441 vessels of 67,000 tons burthen, manned by 12,100 fishermen, the same number at present.

## HOLLAND

Such was the importance of Dutch fisheries 300 years ago, that Amsterdam was said to be built of herring-bones. In the sixteenth century the Dutch had 1500 vessels in the Shetland herring-fisheries, and 260 Arctic whalers, manned by 14,000 seamen. Injudicious restrictions and heavy taxes brought down this industry, till, in 1854, Holland had only 80 busses.

The returns of herring-fishery in recent years show thus :—

| Year       | Busses       |       |       | Value Taken, £ |        |         |
|------------|--------------|-------|-------|----------------|--------|---------|
|            | Deep-<br>Sea | Coast | Total | Deep-<br>Sea   | Coast  | Total   |
| 1874 . . . | 114          | 218   | 332   | 110,000        | 40,000 | 150,000 |
| 1880 . . . | 133          | 284   | 417   | 150,000        | 60,000 | 210,000 |
| 1882 . . . | 145          | 261   | 416   | 190,000        | 80,000 | 270,000 |

Deep-sea fishing showed annual averages as follows :—

| Period        | Busses | Tons Fish | Value, £ |
|---------------|--------|-----------|----------|
| 1858-67 . . . | 86     | 4,000     | 50,000   |
| 1868-77 . . . | 110    | 7,200     | 100,000  |
| 1878-82 . . . | 134    | 15,000    | 150,000  |

Coast-fishing was as follows :—

| Year       | Busses | Barrels Fish | Value, £ |
|------------|--------|--------------|----------|
| 1874 . . . | 218    | 27,600       | 35,000   |
| 1880 . . . | 284    | 56,700       | 60,000   |
| 1882 . . . | 261    | 51,100       | 80,000   |

The oyster-fishery produced as follows :—

| Year       | Number     | Tons  |
|------------|------------|-------|
| 1876 . . . | 36,600,000 | 2,900 |
| 1880 . . . | 16,500,000 | 1,200 |
| 1882 . . . | 15,600,000 | 1,100 |

It appears that 14,000 oysters go to a ton. The consumption was as follows :—

|                  | Tons  |
|------------------|-------|
| Holland . . .    | 154   |
| Germany . . .    | 346   |
| England, &c. . . | 600   |
| Total . . .      | 1,100 |

## RUSSIA

In 1800 Hermann valued the fisheries at £1,500,000 per annum. In 1880 the take was estimated at 220,000 tons, worth £2,200,000.

## SWEDEN

In 1800 the annual take was 600 million fish, or 600,000 barrels, of which three-fourths were consumed at home. The exports have been as follows :—

| Year       | Tons   | Value, £ |
|------------|--------|----------|
| 1800 . . . | 15,000 | 150,000  |
| 1830 . . . | 30,000 | 300,000  |
| 1886 . . . | 25,000 | 280,000  |

In 1880 there were 29,000 fishermen; the annual take would probably exceed 60,000 tons.

## NORWAY

In 1883; the returns showed as follows:—

| Class             | Fishermen | Fish, Millions | Value, £  |
|-------------------|-----------|----------------|-----------|
| Cod . . . . .     | 58,000    | 65             | 920,000   |
| Herring . . . . . | 53,000    | 410            | 640,000   |
| Total . . . . .   | 111,000   | 475            | 1,560,000 |

Besides the above, the Norwegians take 350 whales, 80,000 seals, and in fresh waters a quantity of salmon.

## UNITED STATES

In 1880 there were 131,400 fishermen, with 51,400 boats of all sizes, and the annual take was valued at £8,610,000.

## CANADA

According to a statement in 1883 we find:—

| Fish                    | Value, £        |
|-------------------------|-----------------|
| Cod, tons . . . . .     | 45,000 520,000  |
| Herring, tons . . . . . | 48,000 580,000  |
| Seals, number . . . . . | 460,000 280,000 |
| Whales, &c. . . . .     | ... 1,070,000   |
| Total . . . . .         | 2,450,000       |

In 1889 there were 31,600 vessels, manned by 59,800 fishermen, whose take was valued at £3,800,000 yearly.

The fisheries of the principal nations may be summed up thus, approximately:—

|                      | Vessels | Men     | Tons Fish | Value, £   | Value per Man, £ |
|----------------------|---------|---------|-----------|------------|------------------|
| England . . . . .    | 14,400  | 47,300  | 320,000   | 4,200,000  | 95               |
| Scotland . . . . .   | 14,600  | 50,000  | 240,000   | 1,700,000  | 34               |
| Ireland . . . . .    | 5,800   | 21,800  | 25,000    | 500,000    | 23               |
| U. Kingdom . . . . . | 34,800  | 129,100 | 585,000   | 6,400,000  | 50               |
| France . . . . .     | 23,900  | 144,000 | 153,000   | 3,700,000  | 26               |
| Germany . . . . .    | 8,100   | 17,000  | 40,000    | 400,000    | 24               |
| Russia . . . . .     | 13,500  | 68,000  | 220,000   | 2,200,000  | 32               |
| Austria . . . . .    | 2,800   | 7,000   | 15,000    | 150,000    | 22               |
| Italy . . . . .      | 18,200  | 61,000  | 100,000   | 1,000,000  | 17               |
| Spain . . . . .      | 10,200  | 38,000  | 50,000    | 500,000    | 13               |
| Sweden . . . . .     | 7,000   | 29,000  | 60,000    | 600,000    | 21               |
| Norway . . . . .     | 31,600  | 111,000 | 160,000   | 1,600,000  | 15               |
| Holland . . . . .    | 500     | 8,000   | 20,000    | 270,000    | 34               |
| Europe . . . . .     | 150,600 | 612,100 | 1,403,000 | 16,820,000 | 27               |
| U. States . . . . .  | 51,400  | 131,400 | 600,000   | 8,600,000  | 65               |
| Canada . . . . .     | 31,600  | 59,800  | 300,000   | 3,800,000  | 63               |
| Total . . . . .      | 233,600 | 803,300 | 2,303,000 | 29,220,000 | 36               |

## FLAX AND LINEN.

Flax-growing received an abnormal impulse by the American War of 1861-64 and ensuing cotton-famine, but has been on the decline in most countries, except Russia, during the last ten years. The production in the United Kingdom was as follows:—

| Year           | Tons   | Value of Crop, £ |
|----------------|--------|------------------|
| 1830 . . . . . | 15,500 | 1,240,000        |
| 1850 . . . . . | 21,000 | 760,000          |
| 1870 . . . . . | 32,500 | 1,700,000        |
| 1888 . . . . . | 20,000 | 680,000          |

Neumann-Spallart's table for 1885 and some late figures show flax-growing as follows:—

|                            | Acres     | Tons Flax | Lbs. per Acre |
|----------------------------|-----------|-----------|---------------|
| United Kingdom . . . . .   | 116,000   | 21,000    | 400           |
| France . . . . .           | 109,000   | 28,000    | 570           |
| Germany . . . . .          | 270,000   | 44,000    | 365           |
| Russia . . . . .           | 3,000,000 | 330,000   | 240           |
| Austria . . . . .          | 240,000   | 47,000    | 440           |
| Italy . . . . .            | 170,000   | 20,000    | 265           |
| Belgium . . . . .          | 98,000    | 21,000    | 470           |
| Holland . . . . .          | 38,000    | 8,000     | 460           |
| Sweden . . . . .           | 28,000    | 3,000     | 230           |
| Other countries* . . . . . | 46,000    | 4,000     | 200           |
| United States . . . . .    | 400,000   | 42,000    | 230           |
| Total . . . . .            | 4,515,000 | 568,000   | 320           |

*Linen Manufacture.*—The latest information may be summed up thus, the consumption of flax and value of product being given approximately:—

|                       | Number of Spindles | Power- Looms | Tons Flax Consumed | Value of Manufacture |
|-----------------------|--------------------|--------------|--------------------|----------------------|
| U. Kingdom . . . . .  | 1,160,000          | 47,600       | 85,000             | 8,500,000            |
| France . . . . .      | 500,000            | 23,000       | 90,000             | 9,000,000            |
| Germany . . . . .     | 318,000            | 8,000        | 64,000             | 7,000,000            |
| Russia . . . . .      | 150,000            | 2,500        | 120,000            | 9,000,000            |
| Austria . . . . .     | 399,000            | 500          | 57,000             | 5,700,000            |
| Italy . . . . .       | 59,000             | 800          | 27,000             | 2,700,000            |
| Spain . . . . .       | ...                | 1,000        | 10,000             | 1,000,000            |
| Sweden . . . . .      | 4,000              | 100          | 3,000              | 300,000              |
| Holland . . . . .     | 8,000              | 1,200        | 5,000              | 500,000              |
| Belgium . . . . .     | 289,000            | 4,800        | 50,000             | 5,000,000            |
| Switzerland . . . . . | 9,000              | ...          | 3,000              | 300,000              |
| U. States . . . . .   | 13,000             | 7,000        | 42,000             | 4,200,000            |
| Total . . . . .       | 2,909,000          | 96,500       | 556,000            | 53,200,000           |

## UNITED KINGDOM.

The production of linen from 1700 to 1830 was recorded for the purpose of bounties; since the latter year it is estimated according to the consumption of flax. The production in the three kingdoms was approximately as follows:—

| Period            | Millions of Yards per Annum |          |          |       |
|-------------------|-----------------------------|----------|----------|-------|
|                   | England                     | Scotland | Ireland† | Total |
| 1701-50 . . . . . | ...                         | 5        | 8        | 13    |
| 1751-99 . . . . . | 8                           | 14       | 31       | 53    |
| 1800-10 . . . . . | 15                          | 25       | 46       | 86    |
| 1811-20 . . . . . | 20                          | 33       | 60       | 113   |
| 1821-30 . . . . . | 24                          | 60       | 90       | 174   |
| 1831-40 . . . . . | 35                          | 90       | 125      | 250   |
| 1841-50 . . . . . | 50                          | 100      | 160      | 310   |
| 1851-60 . . . . . | 50                          | 100      | 150      | 300   |
| 1861-70 . . . . . | 50                          | 110      | 190      | 350   |
| 1871-80 . . . . . | 50                          | 100      | 150      | 300   |
| 1881-90 . . . . . | 45                          | 95       | 140      | 280   |

\* New Zealand exports yearly 1500 tons of a fibre which yields 17 per cent. flax.

† The production and export of Irish linen in the 18th century were approximately as follows:—

| Year           | Yards Made | Yards Exported | Home Use  |
|----------------|------------|----------------|-----------|
| 1710 . . . . . | 4,500,000  | 2,000,000      | 2,500,000 |
| 1740 . . . . . | 12,000,000 | 7,000,000      | 5,000,000 |
| 1800 . . . . . | 44,000,000 | 36,000,000     | 8,000,000 |

The following table shows the consumption of flax and the domestic and foreign trade in linen since 1806 :—

| Year           | Flax, Tons | Millions of Yards Linen |          |          | Export Yarn,<br>Million Lbs. | Value of Manu-<br>facture, £ |
|----------------|------------|-------------------------|----------|----------|------------------------------|------------------------------|
|                |            | Made                    | Exported | Home Use |                              |                              |
| 1806 . . . . . | 22,000     | 86                      | 40       | 46       | ...                          | 3,800,000                    |
| 1820 . . . . . | 40,000     | 145                     | 50       | 95       | ...                          | 5,800,000                    |
| 1830 . . . . . | 62,000     | 223                     | 62       | 161      | ...                          | 7,600,000                    |
| 1840 . . . . . | 94,000     | 290                     | 87       | 203      | 16                           | 10,800,000                   |
| 1850 . . . . . | 110,000    | 340                     | 105      | 235      | 18                           | 12,600,000                   |
| 1860 . . . . . | 102,000    | 270                     | 144      | 126      | 31                           | 11,400,000                   |
| 1870 . . . . . | 130,000    | 360                     | 226      | 134      | 37                           | 13,500,000                   |
| 1881 . . . . . | 102,000    | 310                     | 174      | 136      | 18                           | 11,700,000                   |
| 1888 . . . . . | 85,000     | 260                     | 177      | 83       | 15                           | 8,500,000                    |

The total value represented by the linen industry since 1821 is approximately as follows :—

| Period             | Millions £ Sterling |                 |               |       |
|--------------------|---------------------|-----------------|---------------|-------|
|                    | Home Use            | Exported Linens | Exported Yarn | Total |
| 1821-30 . . . . .  | 52                  | 21              | ...           | 73    |
| 1831-40 . . . . .  | 60                  | 25              | 3             | 88    |
| 1841-50 . . . . .  | 63                  | 34              | 6             | 103   |
| 1851-60 . . . . .  | 56                  | 44              | 13            | 113   |
| 1861-70 . . . . .  | 52                  | 71              | 24            | 147   |
| 1871-80 . . . . .  | 50                  | 66              | 16            | 132   |
| 1881-88 . . . . .  | 36                  | 44              | 8             | 88    |
| 68 years . . . . . | 369                 | 305             | 70            | 744   |

The following table shows approximately the output of linen in English statute miles, the amount paid for flax in 68 years, and the product of this industry :—

| Period             | Miles of Linen | Amount in Millions £ |                   |             | Price of Linen per Mile, £ |
|--------------------|----------------|----------------------|-------------------|-------------|----------------------------|
|                    |                | Flax                 | Manu-<br>factures | Net Product |                            |
| 1821-30 . . . . .  | 990,000        | 41                   | 73                | 32          | 70                         |
| 1831-40 . . . . .  | 1,420,000      | 58                   | 88                | 30          | 60                         |
| 1841-50 . . . . .  | 1,760,000      | 54                   | 103               | 49          | 55                         |
| 1851-60 . . . . .  | 1,700,000      | 46                   | 113               | 67          | 52                         |
| 1861-70 . . . . .  | 2,000,000      | 59                   | 147               | 88          | 60                         |
| 1871-80 . . . . .  | 1,700,000      | 56                   | 132               | 76          | 55                         |
| 1881-88 . . . . .  | 1,300,000      | 29                   | 88                | 59          | 45                         |
| 68 years . . . . . | 10,870,000     | 343                  | 744               | 401         | 55                         |

The factory statistics of this industry are as follows :—

| Year           | Factories | Operatives | Spindles  |
|----------------|-----------|------------|-----------|
| 1840 . . . . . | 392       | 43,000     | ...       |
| 1870 . . . . . | 502       | 125,000    | 1,480,000 |
| 1885 . . . . . | 388       | 112,000    | 1,160,000 |

In 1879 the industry stood thus :—

|                      | No. of Factories | Spindles  | Power-Looms | Operatives |
|----------------------|------------------|-----------|-------------|------------|
| England . . . . .    | 101              | 191,000   | 4,100       | 15,000     |
| Scotland . . . . .   | 155              | 265,000   | 16,800      | 37,000     |
| Ireland . . . . .    | 144              | 809,000   | 19,600      | 56,000     |
| U. Kingdom . . . . . | 400              | 1,265,000 | 40,500      | 108,000    |

#### FRANCE

In 1839 the linen manufactures were estimated by Berghus at £10,400,000, which would be equivalent to 280 million yards, and indicate a consumption of 70,000 tons of flax. They were valued by Tolosan in the previous century, 1788, at about five millions sterling. France

consumes three times as much flax as she produces, the import of this fibre showing thus :—

| Year           | Tons   |
|----------------|--------|
| 1872 . . . . . | 56,000 |
| 1880 . . . . . | 67,000 |
| 1887 . . . . . | 60,000 |

In this branch of manufacture she is ahead of the United Kingdom, and turns out about 360 million yards per annum. In five years ending 1888 France exported £3,200,000 of linens yearly.

#### GERMANY

In 1805 Oddy valued the linen manufactures of Prussia at £1,800,000; and in 1843 the value had risen to £2,800,000. At the latter date Prussia stood for three-fourths of the linen manufactures of the Zollverein.

Germany in 1838 counted 13,000 spindles and 283,000 looms, showing an increase of 30 per cent. since 1822, but it was not until after the land-reform of 1848 and the introduction of railways that this industry notably expanded. In 1855 there were 74,000 flax-spindles, and 189,000 in 1865.

The home production of flax is 44,000 tons.

The net imports are as follows :—

| Year           | Tons   |
|----------------|--------|
| 1873 . . . . . | 24,000 |
| 1880 . . . . . | 13,000 |
| 1887 . . . . . | 20,000 |

The consumption, therefore, seems to average 64,000 tons yearly, which is equivalent to a make of 260 million yards of linen.

#### RUSSIA

In 1828 there were 214 linen-factories, which turned out 20 million yards, valued at £800,000; this was exclusive of Poland, which made two million yards yearly. In 1864 there were 599 factories, with 44,000 operatives, the production being estimated by Bushen at £5,300,000.

According to Mr. Spallart and the official report, an enormous increase took place recently in flax-growing, the area under this crop reaching 3,785,000 acres, and being supposed to yield 400,000 tons of flax; a pure delusion, for we see that the exports of flax have diminished. The area under flax in 1872 was 2,250,000 acres, the crop 242,000 tons; the real figures are probably still the same. During ten years ending 1887 Russia imported linen manufactures worth £400,000 a year. The exports of flax were :—

| Period            | Tons Yearly |
|-------------------|-------------|
| 1861-63 . . . . . | 65,000      |
| 1870-71 . . . . . | 162,000     |
| 1885-87 . . . . . | 140,000     |

#### AUSTRIA

An official return published in 1828 showed that the production of linen since 1824 averaged 92 million yards per annum. In 1840 there were 869 factories, with

280,000 hands. Most of the industry is situate in Bohemia, where it has flourished since the fourteenth century.

The production of flax averages 5000 tons in Hungary, 8000 in Bohemia, and amounts altogether to 47,000 tons, besides which the Empire imports 10,000 tons. The factories may, therefore, be estimated to produce 230 million yards linen per annum. In ten years ending 1887 Austria exported £600,000 per annum of linen goods.

#### ITALY

The official report of 1877 showed linen-factories with an aggregate of 13,000 operatives, and 59,000 spindles worked by 3000 horse-power, of which 2500 water and 500 steam. About 20,000 tons of flax are grown, and linen yarn is imported, the imports showing thus:—

| Period            | Tons Yarn<br>Yearly |
|-------------------|---------------------|
| 1862-64 . . . . . | 3000                |
| 1872-73 . . . . . | 4000                |
| 1885-87 . . . . . | 6600                |

The actual product of linen is about 120 million yards yearly.

#### SPAIN

A statement published about 1870 gives the linen-factories a total of 6000 operatives and 5000 looms, the annual product being valued at £1,100,000 sterling. This indicates a consumption of 10,000 tons flax and an output of 40 million yards. At that time the average importation of flax and linen yarn was 5000 tons yearly, from which it would appear that Spain produces 5000 tons of her own.

The import of linen yarn yearly was as follows:—

| Period            | Tons |
|-------------------|------|
| 1863-66 . . . . . | 7500 |
| 1873-76 . . . . . | 5500 |
| 1883-87 . . . . . | 3800 |

This shows a very steady decline of the industry, notwithstanding the enormous import dues on foreign linen goods. In ten years ending 1887 the import of linens averaged £400,000 yearly.

#### BELGIUM

The industry has been almost stationary for 50 years. Thus in 1835 there were 101,000 acres under flax, producing 21,000 tons, and the factories turned out 90 million yards linen, valued at four millions sterling. At present the flax area is 98,000 acres, and the mills turn out about 120 million yards linen. The output has always been, as in the United Kingdom, largely in excess of the requirements for home consumption. The export of linen fabrics and yarn has been:—

| Period            | Annual Average, £ |
|-------------------|-------------------|
| 1860-62 . . . . . | 1,700,000         |
| 1870-72 . . . . . | 2,600,000         |
| 1885-87 . . . . . | 4,100,000         |

This includes 13,000 tons of linen yarn. Belgium imports about 30,000 tons of flax, the mills consuming altogether about 50,000 tons. In ten years ending 1887 the export of linens averaged £800,000 yearly.

The following table shows approximately the quantities of food produced and the population subsisting thereon:—

| Period            | Tons Produced Yearly |            |           |                | Population  |
|-------------------|----------------------|------------|-----------|----------------|-------------|
|                   | Grain                | Meat       | Sugar     | Coffee and Tea |             |
| 1831-40 . . . . . | 101,000,000          | 8,700,000  | 530,000   | 210,000        | 251,000,000 |
| 1851-60 . . . . . | 139,000,000          | 10,490,000 | 1,100,000 | 390,000        | 300,000,000 |
| 1875-84 . . . . . | 204,000,000          | 13,260,000 | 3,670,000 | 745,000        | 370,000,000 |
| 1888 . . . . .    | 241,000,000          | 14,430,000 | 5,260,000 | 920,000        | 404,000,000 |

#### UNITED STATES

The industry is of no magnitude, counting only 13,000 spindles and 7000 looms, which appear to consume native flax only, the crop being estimated at 42,000 tons. The Americans, meantime, consume imported linens largely, the value averaging thus:—

| Period            | £         |
|-------------------|-----------|
| 1841-43 . . . . . | 800,000   |
| 1861-63 . . . . . | 1,400,000 |
| 1871-73 . . . . . | 3,800,000 |
| 1881-83 . . . . . | 3,700,000 |

The consumption of linen is about 300 million yards, of which one-half is made in the country.

#### APPROXIMATE PRODUCTION OF LINEN

| Million<br>Yards         | Million<br>Yards |
|--------------------------|------------------|
| United Kingdom . . . . . | 300              |
| France . . . . .         | 320              |
| Germany . . . . .        | 260              |
| Russia . . . . .         | 360              |
| Austria . . . . .        | 230              |
| Italy . . . . .          | 120              |
| Spain . . . . .          | 40               |
| Sweden . . . . .         | 10               |
| Holland . . . . .        | 20               |
| Belgium . . . . .        | 120              |
| United States . . . . .  | 160              |
| Switzerland . . . . .    | 10               |

The whole makes up nearly 2000 million yards, worth about 50 millions sterling.

#### FLOODS

| Date           | Place                  | Loss          |
|----------------|------------------------|---------------|
| 1642 . . . . . | China . . . . .        | 300,000 lives |
| 1646 . . . . . | Holland . . . . .      | 110,000 lives |
| 1875 . . . . . | Toulouse . . . . .     | £15,000,000   |
| 1876 . . . . . | Bengal . . . . .       | 200,000 lives |
| 1879 . . . . . | Zegedin . . . . .      | £8,500,000    |
| 1883 . . . . . | Rhine Valley . . . . . | £6,000,000    |

In the last-mentioned the area of country under water was 260 square miles, equal to the extent of the Lake of Constance.

#### FODDER

In feeding animals it is found that 10 lbs. hay are equivalent to:—

| Lbs.                    | Lbs. | Lbs. |
|-------------------------|------|------|
| Oil-cake . . . . .      | 3    | 6    |
| Beans . . . . .         | 4    | 22   |
| Oats . . . . .          | 5    | 25   |
| Maize . . . . .         | 6    | 30   |
| Wheat . . . . .         | 6    | 22   |
| Potatoes . . . . .      | 22   | 25   |
| Cabbage . . . . .       | 25   | 30   |
| Carrots . . . . .       | 30   | 30   |
| Mangel-wurzel . . . . . | 33   | 45   |
| Straw . . . . .         | 45   | 47   |
| Turnips . . . . .       | 47   | 50   |
| Clover . . . . .        | 50   | 50   |

A horse will eat in a year nine times his own weight, a cow nine times, an ox six times, a sheep six times.

#### FOOD

The food supply of the civilised nations, that is, Europe, United States, British Colonies, &c., has increased (except as regards meat) during the nineteenth century much faster than population, which shows that the material welfare of mankind has advanced in its most important particular.

In the above table grain includes what is used both for man and beast. The averages per head of population were :—

| Period            | Lbs. per Inhabitant |      |       |                |
|-------------------|---------------------|------|-------|----------------|
|                   | Grain               | Meat | Sugar | Coffee and Tea |
| 1831-40 . . . . . | 900                 | 79   | 5     | 2              |
| 1851-60 . . . . . | 1,040               | 79   | 8     | 3              |
| 1871-80 . . . . . | 1,240               | 72   | 22    | 4½             |
| 1887 . . . . .    | 1,330               | 79   | 29    | 5              |

The production of wheat, as shown already when treating of Agriculture, has averaged as follows :—

| Period  | Tons Yearly |               |               |            |
|---------|-------------|---------------|---------------|------------|
|         | Europe      | United States | Colonies, &c. | Total      |
| 1831-40 | 17,800,000  | 1,950,000     | 2,900,000     | 22,650,000 |
| 1851-60 | 21,420,000  | 3,430,000     | 5,120,000     | 29,970,000 |
| 1871-80 | 28,150,000  | 8,450,000     | 8,250,000     | 44,850,000 |
| 1881-87 | 30,770,000  | 11,000,000    | 11,230,000    | 53,000,000 |
| 1888    | 32,400,000  | 10,370,000    | 14,050,000    | 56,820,000 |

In the period ending 1840 Europe produced 80 per cent. of the wheat of the world, as compared with 56 per cent. at present. In the interval the production in the United States and in the Colonies has quintupled.

The weight and value of grain used for human food in 1887 are shown approximately in the following table :—

|                          | Tons       |            |            |            | Value, Millions £ |
|--------------------------|------------|------------|------------|------------|-------------------|
|                          | Wheat      | Rye        | Oats, &c.  | Total      |                   |
| United Kingdom . . . . . | 6,200,000  | ...        | 200,000    | 6,400,000  | 46                |
| France . . . . .         | 8,200,000  | 900,000    | ...        | 9,100,000  | 77                |
| Germany . . . . .        | 3,000,000  | 6,000,000  | 2,200,000  | 11,200,000 | 68                |
| Russia . . . . .         | 4,200,000  | 14,500,000 | 4,300,000  | 23,000,000 | 97                |
| Austria . . . . .        | 3,300,000  | 3,300,000  | 800,000    | 8,400,000  | 52                |
| Italy . . . . .          | 3,000,000  | 400,000    | 1,900,000  | 5,300,000  | 39                |
| Spain* . . . . .         | 3,000,000  | 400,000    | 400,000    | 3,800,000  | 28                |
| Portugal . . . . .       | 300,000    | 300,000    | 300,000    | 900,000    | 6                 |
| Sweden . . . . .         | 300,000    | 700,000    | 200,000    | 1,200,000  | 8                 |
| Norway . . . . .         | 100,000    | 200,000    | 100,000    | 400,000    | 3                 |
| Denmark . . . . .        | 200,000    | 300,000    | ...        | 500,000    | 4                 |
| Holland . . . . .        | 500,000    | 400,000    | 200,000    | 1,100,000  | 8                 |
| Belgium . . . . .        | 800,000    | 600,000    | 200,000    | 1,600,000  | 12                |
| Switzerland . . . . .    | 300,000    | 200,000    | 100,000    | 600,000    | 4                 |
| Roumania . . . . .       | 300,000    | 200,000    | 300,000    | 800,000    | 4                 |
| Servia . . . . .         | 100,000    | 100,000    | 100,000    | 300,000    | 2                 |
| Europe . . . . .         | 34,800,000 | 28,500,000 | 11,300,000 | 74,600,000 | 458               |
| United States . . . . .  | 7,300,000  | 600,000    | 2,100,000  | 10,000,000 | 48                |
| Canada . . . . .         | 800,000    | ...        | 100,000    | 900,000    | 6                 |
| Australia . . . . .      | 700,000    | ...        | ...        | 700,000    | 5                 |
| Total . . . . .          | 43,600,000 | 29,000,000 | 13,500,000 | 86,200,000 | 517               |

The different kinds of meat produced were as follows :—

| Period  | Tons Yearly |           |           |            |
|---------|-------------|-----------|-----------|------------|
|         | Beef        | Mutton    | Pork      | Total      |
| 1831-40 | 3,821,000   | 2,050,000 | 2,830,000 | 8,701,000  |
| 1851-60 | 4,950,000   | 2,203,000 | 3,340,000 | 10,493,000 |
| 1871-80 | 6,303,000   | 2,470,000 | 4,490,000 | 13,263,000 |
| 1887    | 7,205,000   | 2,709,000 | 4,479,000 | 14,393,000 |

\* Spanish statistics, as a rule, bear the impress of exaggeration, and hence the production and consumption of grain and the numbers of live-stock must be doubtful.

The production of other grain during the same period was approximately as follows :—

| Period  | Tons Yearly |               |               |             |
|---------|-------------|---------------|---------------|-------------|
|         | Europe      | United States | Colonies, &c. | Total       |
| 1831-40 | 62,500,000  | 11,550,000    | 4,300,000     | 78,350,000  |
| 1851-60 | 79,730,000  | 22,920,000    | 6,380,000     | 109,030,000 |
| 1871-80 | 86,850,000  | 49,500,000    | 7,150,000     | 143,500,000 |
| 1881-87 | 101,230,000 | 56,500,000    | 10,270,000    | 168,000,000 |
| 1888    | 105,800,000 | 68,710,000    | 9,450,000     | 183,960,000 |

The total grain production since 1830 has been approximately :—

| Period  | Tons Yearly |               |               |             |
|---------|-------------|---------------|---------------|-------------|
|         | Europe      | United States | Colonies, &c. | Total       |
| 1831-40 | 80,300,000  | 13,500,000    | 7,200,000     | 101,000,000 |
| 1851-60 | 101,150,000 | 26,350,000    | 11,500,000    | 139,000,000 |
| 1871-80 | 115,000,000 | 57,950,000    | 15,400,000    | 188,350,000 |
| 1881-87 | 132,000,000 | 67,500,000    | 21,500,000    | 221,000,000 |
| 1888    | 138,200,000 | 79,080,000    | 23,500,000    | 240,780,000 |

The ratio of increase in production of grain was thus :—

|                         | 1831-40 | 1851-60 | 1871-80 | 1888 |
|-------------------------|---------|---------|---------|------|
| Europe . . . . .        | 100     | 126     | 144     | 172  |
| United States . . . . . | 100     | 195     | 430     | 585  |
| Colonies, &c. . . . .   | 100     | 160     | 214     | 326  |
| Total . . . . .         | 100     | 138     | 186     | 238  |

The consumption of meat in Europe at present averages 61 lbs. yearly per inhabitant, against 64 lbs. in the decade ending 1840, viz. :—

|                          | Lbs. per Inhabitant |      |
|--------------------------|---------------------|------|
|                          | 1840                | 1888 |
| United Kingdom . . . . . | 87                  | 109  |
| France . . . . .         | 43                  | 77   |
| Germany . . . . .        | 60                  | 64   |
| Russia . . . . .         | 67                  | 51   |
| Austria . . . . .        | 76                  | 61   |
| Belgium . . . . .        | 50                  | 65   |

Meantime there has been an increased consumption per head in towns.

About 60,000 tons of frozen mutton are imported into Europe annually from Australia and the River Plate. An engine of 70-horse power serves to refrigerate a chamber containing 250 tons of meat, and consumes 50 tons of coal in a voyage of forty days.

The production of meat was approximately as follows:—

|                    | Tons Yearly |            |            |            |
|--------------------|-------------|------------|------------|------------|
|                    | 1831-40     | 1851-60    | 1874-84    | 1887       |
| U. Kingdom         | 980,000     | 1,047,000  | 1,100,000  | 1,105,000  |
| France             | 670,000     | 940,000    | 1,155,000  | 1,200,000  |
| Germany            | 900,000     | 1,246,000  | 1,300,000  | 1,375,000  |
| Russia             | 1,430,000   | 1,670,000  | 1,800,000  | 1,885,000  |
| Austria            | 990,000     | 980,000    | 1,080,000  | 1,080,000  |
| Italy              | 300,000     | 300,000    | 330,000    | 360,000    |
| Spain              | 405,000     | 350,000    | 470,000    | 525,000    |
| Portugal           | 70,000      | 77,000     | 90,000     | 95,000     |
| Sweden             | 106,000     | 120,000    | 135,000    | 140,000    |
| Norway             | 44,000      | 64,000     | 67,000     | 67,000     |
| Denmark            | 100,000     | 115,000    | 110,000    | 115,000    |
| Holland            | 96,000      | 104,000    | 120,000    | 125,000    |
| Belgium            | 70,000      | 90,000     | 106,000    | 110,000    |
| Other countries    | 310,000     | 360,000    | 440,000    | 451,000    |
| Europe             | 6,471,000   | 7,463,000  | 8,303,000  | 8,633,000  |
| U. States          | 2,050,000   | 2,650,000  | 4,120,000  | 4,750,000  |
| Canada             | 90,000      | 140,000    | 240,000    | 260,000    |
| Australia          | 40,000      | 140,000    | 300,000    | 450,000    |
| Argentine Republic | 50,000      | 100,000    | 300,000    | 300,000    |
| Total              | 8,701,000   | 10,493,000 | 13,263,000 | 14,393,000 |

The production in the various countries in 1887 was approximately as follows:—

|                | Tons Produced |           |           |            | Consumption |
|----------------|---------------|-----------|-----------|------------|-------------|
|                | Beef          | Mutton    | Pork      | Total      |             |
| United Kingdom | 545,000       | 365,000   | 195,000   | 1,105,000  | 1,783,000   |
| France         | 660,000       | 250,000   | 290,000   | 1,200,000  | 1,320,000   |
| Germany        | 710,000       | 210,000   | 455,000   | 1,375,000  | 1,385,000   |
| Russia         | 1,050,000     | 415,000   | 420,000   | 1,885,000  | 1,854,000   |
| Austria        | 640,000       | 120,000   | 320,000   | 1,080,000  | 1,050,000   |
| Italy          | 220,000       | 85,000    | 55,000    | 360,000    | 330,000     |
| Spain          | 125,000       | 220,000   | 180,000   | 525,000    | 525,000     |
| Portugal       | 25,000        | 25,000    | 45,000    | 95,000     | 94,000      |
| Sweden         | 103,000       | 14,000    | 23,000    | 140,000    | 140,000     |
| Norway         | 48,000        | 15,000    | 4,000     | 67,000     | 73,000      |
| Denmark        | 74,000        | 15,000    | 26,000    | 115,000    | 57,000      |
| Holland        | 93,000        | 9,000     | 23,000    | 125,000    | 105,000     |
| Belgium        | 74,000        | 5,000     | 31,000    | 110,000    | 160,000     |
| Switzerland    | 48,000        | 6,000     | 14,000    | 68,000     | 83,000      |
| Roumania       | 120,000       | 40,000    | 80,000    | 240,000    | 210,000     |
| Servia         | 27,000        | 23,000    | 50,000    | 100,000    | 75,000      |
| Greece         | 12,000        | 28,000    | 3,000     | 43,000     | 47,000      |
| Europe         | 4,574,000     | 1,845,000 | 2,214,000 | 8,633,000  | 9,297,000   |
| United States  | 2,190,000     | 390,000   | 2,170,000 | 4,750,000  | 4,100,000   |
| Canada         | 176,000       | 24,000    | 60,000    | 260,000    | 200,000     |
| Australia      | 115,000       | 300,000   | 35,000    | 450,000    | 420,000     |
| Argentina      | 150,000       | 150,000   | ...       | 300,000    | 250,000     |
| Total          | 7,205,000     | 2,709,000 | 4,479,000 | 14,393,000 | 14,267,000  |

There is a surplus production of 126,000 tons, which is consumed in the West Indies, Brazil, and other countries. At present Europe imports 660,000 tons yearly, and large supplies may in future be obtained from the United States, Australia, and the River Plate. Taking the

The annual production in tons was as follows:—

| Period  | Beef           |           |               |               | Total     |
|---------|----------------|-----------|---------------|---------------|-----------|
|         | United Kingdom | Continent | United States | Colonies, &c. |           |
| 1831-40 | 300,000        | 2,790,000 | 630,000       | 100,000       | 3,820,000 |
| 1851-60 | 410,000        | 3,420,000 | 920,000       | 200,000       | 4,950,000 |
| 1874-84 | 520,000        | 3,843,000 | 1,540,000     | 400,000       | 6,303,000 |
| 1887    | 545,000        | 4,029,000 | 2,190,000     | 441,000       | 7,205,000 |

| Mutton. |         |           |         |         |           |
|---------|---------|-----------|---------|---------|-----------|
| 1831-40 | 480,000 | 1,320,000 | 170,000 | 80,000  | 2,050,000 |
| 1851-60 | 430,000 | 1,390,000 | 220,000 | 163,000 | 2,203,000 |
| 1874-84 | 390,000 | 1,420,000 | 310,000 | 350,000 | 2,470,000 |
| 1887    | 365,000 | 1,480,000 | 390,000 | 474,000 | 2,709,000 |

| Pork.   |         |           |           |        |           |
|---------|---------|-----------|-----------|--------|-----------|
| 1831-40 | 200,000 | 1,380,000 | 1,250,000 | ...    | 2,830,000 |
| 1851-60 | 210,000 | 1,600,000 | 1,510,000 | 20,000 | 3,340,000 |
| 1874-84 | 190,000 | 1,940,000 | 2,270,000 | 90,000 | 4,490,000 |
| 1887    | 195,000 | 2,019,000 | 2,170,000 | 95,000 | 4,479,000 |

| Total of Meat. |           |           |           |         |            |
|----------------|-----------|-----------|-----------|---------|------------|
| 1831-40        | 980,000   | 5,490,000 | 2,050,000 | 170,000 | 8,700,000  |
| 1851-60        | 1,050,000 | 6,410,000 | 2,650,000 | 340,000 | 10,493,000 |
| 1874-84        | 1,100,000 | 7,203,000 | 4,120,000 | 840,000 | 13,263,000 |
| 1887           | 1,105,000 | 7,528,000 | 4,750,000 | 920,000 | 14,393,000 |

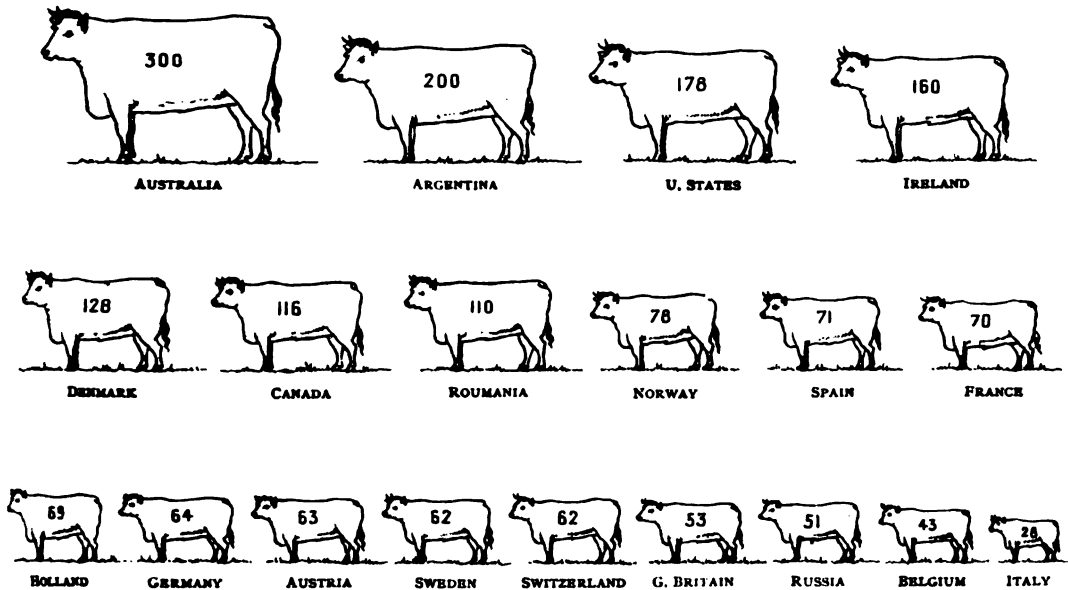
The relative increase of each kind of meat since 1840 is shown in the following table:—

|          | 1831-40 | 1851-60 | 1887 |
|----------|---------|---------|------|
| Beef     | 100     | 130     | 188  |
| Mutton   | 100     | 108     | 132  |
| Pork     | 100     | 118     | 158  |
| All meat | 100     | 120     | 166  |

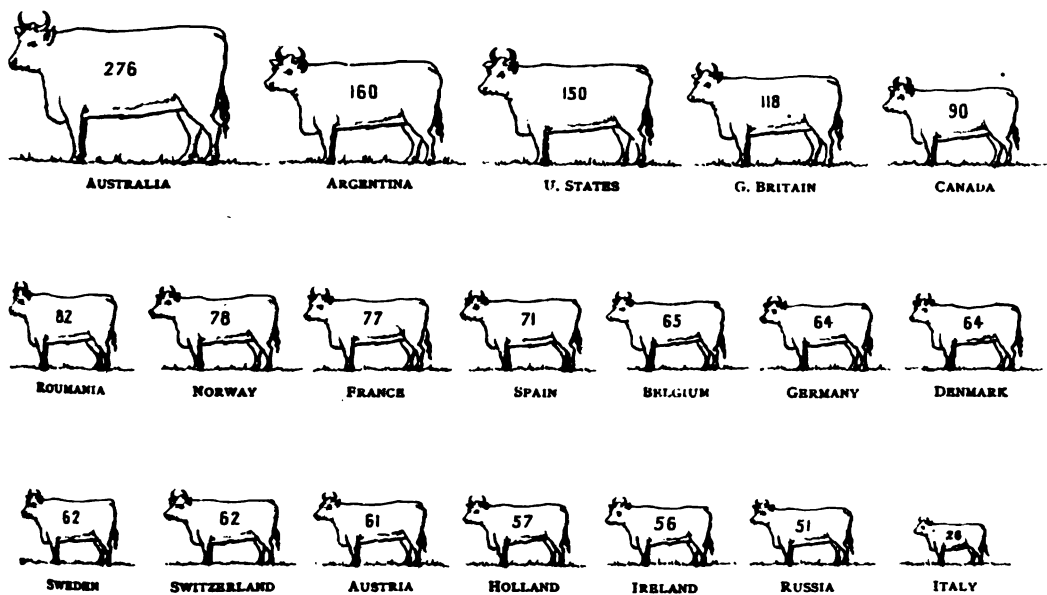
slaughter as usual in Europe, viz., 20 per cent. yearly of horned cattle, 40 per cent. of sheep, and 100 per cent. of pigs, and the average carcass at 500 lbs. of beef, 50 lbs. of mutton, and 100 lbs. pork, the annual production and the available surplus for exportation would be:—

FOOD-SUPPLY.

*Production of Meat, lbs. yearly per Inhabitant.*



*Consumption of Meat, lbs. yearly per Inhabitant.*







|                       | Tons Production |           |           |           | Tons Consumption | Tons for Export |
|-----------------------|-----------------|-----------|-----------|-----------|------------------|-----------------|
|                       | Beef            | Mutton    | Pork      | Total     |                  |                 |
| United States . . . . | 2,190,000       | 390,000   | 2,170,000 | 4,750,000 | 4,140,000        | 610,000         |
| Australia . . . . .   | 400,000         | 870,000   | 30,000    | 1,300,000 | 420,000          | 880,000         |
| River Plate . . . . . | 1,120,000       | 900,000   | 10,000    | 2,030,000 | 260,000          | 1,770,000       |
| Total . . . . .       | 3,710,000       | 2,160,000 | 2,210,000 | 8,080,000 | 4,820,000        | 3,260,000       |

The available surplus of the above three countries will be equal to 34 per cent. of the annual meat consumption of Europe, say four months' supply.

At present, however, the beef of the River Plate is out of the question, owing to the poor quality of the beasts. The importation of frozen mutton into England from the Southern Hemisphere has increased rapidly of late years. In 1889 the following quantities were received :—

| From                 | Tons   | Value, £  | Per Ton, £ |
|----------------------|--------|-----------|------------|
| Australia . . . . .  | 30,600 | 1,290,000 | 43         |
| Argentina . . . . .  | 19,700 | 750,000   | 38         |
| Falklands, &c. . . . | 7,100  | 360,000   | 50         |
| Total . . . . .      | 57,400 | 2,400,000 | 42         |

New Zealand sheep average 70 lbs., Argentine 40 lbs., and the approximate cost of the mutton delivered in London is as follows :—

|                             | Pence per Lb. | £ per Ton |
|-----------------------------|---------------|-----------|
| First cost of meat . . . .  | 2.5           | 23.3      |
| Freezing process . . . .    | 0.5           | 4.7       |
| Freight and charges . . . . | 1.0           | 9.4       |
| Total . . . . .             | 4.0           | 37.4      |

The production of beef-extract has also increased, as the slaughter at Liebig's factory at Fray Bentos, Uruguay, rose from 200,000 head of cattle in 1881 to 580,000 in 1884.

Block gave the average annual consumption of meat in the following cities in ten years down to 1877 as follows :—

| Pounds Meat per Inhabitant |     |                  |     |
|----------------------------|-----|------------------|-----|
| Paris . . . . .            | 207 | Milan . . . . .  | 106 |
| Vienna . . . . .           | 150 | Berlin . . . . . | 90  |
| Dresden . . . . .          | 140 | Naples . . . . . | 75  |
| Turin . . . . .            | 125 | Boston . . . . . | 306 |

In London the apparent consumption is only 230,000 tons, or 128 lbs. per inhabitant, but this does not include tinned meats, such as corned beef.

In 1861 the consumption per head was estimated at 172 lbs. in London, 138 in Paris, 119 in Berlin, and 103 in Madrid.

The consumption of food is approximately :—

|                       | Lbs. per Inhabitant |      |                   |       |          |      | Tea and Coffee, Oz. |
|-----------------------|---------------------|------|-------------------|-------|----------|------|---------------------|
|                       | Grain               | Meat | Butter and Cheese | Sugar | Potatoes | Salt |                     |
| U. Kingdom . . . .    | 378                 | 109  | 19                | 75    | 380      | 40   | 91                  |
| France . . . . .      | 540                 | 77   | 8                 | 20    | 570      | 20   | 66                  |
| Germany . . . . .     | 550                 | 64   | 8                 | 18    | 1,020    | 17   | 78                  |
| Russia . . . . .      | 635                 | 51   | 5                 | 11    | 180      | 19   | 6                   |
| Austria . . . . .     | 460                 | 61   | 7                 | 18    | 560      | 14   | 28                  |
| Italy . . . . .       | 400                 | 26   | 4                 | 8     | 50       | 18   | 20                  |
| Spain . . . . .       | 480                 | 71   | 3                 | 6     | 20       | 17   | 6                   |
| Portugal . . . . .    | 500                 | 49   | 3                 | 12    | 40       | 17   | 18                  |
| Sweden . . . . .      | 560                 | 62   | 11                | 22    | 500      | 28   | 112                 |
| Norway . . . . .      | 440                 | 78   | 14                | 13    | 500      | 40   | 144                 |
| Denmark . . . . .     | 560                 | 64   | 22                | 22    | 410      | 25   | 140                 |
| Holland . . . . .     | 560                 | 57   | 15                | 35    | 820      | 20   | 240                 |
| Belgium . . . . .     | 590                 | 65   | 15                | 27    | 1,050    | 20   | 142                 |
| Switzerland . . . .   | 440                 | 62   | 11                | 26    | 140      | ...  | 110                 |
| Roumania . . . . .    | 400                 | 82   | 9                 | 4     | 80       | ...  | 8                   |
| Servia . . . . .      | 400                 | 84   | 9                 | 4     | 80       | ...  | 8                   |
| Europe . . . . .      | 480                 | 61   | 9                 | 22    | 420      | 20   | 21                  |
| United States . . . . | 370                 | 150  | 20                | 53    | 170      | 39   | 162                 |
| Canada . . . . .      | 400                 | 90   | 22                | 45    | 600      | 40   | 72                  |
| Australia . . . . .   | 440                 | 276  | 21                | 77    | 310      | ...  | 134                 |
| General average . .   | 440                 | 72   | 11                | 28    | 380      | ...  | 64                  |

The quantities of food consumed by mankind in the various countries in 1887 were approximately as follows :—

|                        | Tons       |            |                   |           |            |                |
|------------------------|------------|------------|-------------------|-----------|------------|----------------|
|                        | Grain      | Meat       | Butter and Cheese | Sugar     | Potatoes   | Coffee and Tea |
| United Kingdom . . . . | 6,400,000  | 1,783,000  | 328,000           | 1,300,000 | 6,300,000  | 92,000         |
| France . . . . .       | 9,100,000  | 1,320,000  | 145,000           | 400,000   | 10,000,000 | 70,000         |
| Germany . . . . .      | 11,200,000 | 1,385,000  | 185,000           | 410,000   | 22,000,000 | 110,000        |
| Russia . . . . .       | 23,000,000 | 1,854,000  | 210,000           | 412,000   | 6,700,000  | 15,000         |
| Austria . . . . .      | 8,400,000  | 1,050,000  | 130,000           | 305,000   | 10,000,000 | 33,000         |
| Italy . . . . .        | 5,300,000  | 330,000    | 60,000            | 98,000    | 600,000    | 16,000         |
| Spain . . . . .        | 3,800,000  | 525,000    | 30,000            | 53,000    | 200,000    | 7,000          |
| Portugal . . . . .     | 900,000    | 94,000     | 7,000             | 24,000    | 100,000    | 3,000          |
| Sweden . . . . .       | 1,200,000  | 140,000    | 25,000            | 47,000    | 1,100,000  | 15,000         |
| Norway . . . . .       | 400,000    | 73,000     | 13,000            | 11,000    | 500,000    | 7,000          |
| Denmark . . . . .      | 500,000    | 57,000     | 20,000            | 21,000    | 300,000    | 9,000          |
| Holland . . . . .      | 1,100,000  | 105,000    | 30,000            | 63,000    | 1,400,000  | 27,000         |
| Belgium . . . . .      | 1,600,000  | 166,000    | 40,000            | 70,000    | 2,700,000  | 24,000         |
| Switzerland . . . . .  | 600,000    | 83,000     | 15,000            | 34,000    | 200,000    | 9,000          |
| Roumania . . . . .     | 800,000    | 210,000    | 20,000            | 10,000    | 300,000    | 1,000          |
| Servia . . . . .       | 300,000    | 75,000     | 10,000            | 4,000     | 100,000    | ...            |
| Europe . . . . .       | 74,600,000 | 9,250,000  | 1,268,000         | 3,262,000 | 62,500,000 | 438,000        |
| United States . . . .  | 10,000,000 | 4,100,000  | 560,000           | 1,440,000 | 3,800,000  | 280,000        |
| Canada . . . . .       | 900,000    | 200,000    | 50,000            | 100,000   | 1,300,000  | 10,000         |
| Australia . . . . .    | 700,000    | 420,000    | 36,000            | 110,000   | 500,000    | 16,000         |
| Total . . . . .        | 86,200,000 | 13,970,000 | 1,914,000         | 4,912,000 | 68,100,000 | 744,000        |

The annual value of food consumed in various countries is approximately as follows :—

|                          | Expenditure, Millions £ Sterling * |      |       |                   |          |             |        |          |       | Per Inhabitant    |
|--------------------------|------------------------------------|------|-------|-------------------|----------|-------------|--------|----------|-------|-------------------|
|                          | Grain                              | Meat | Sugar | Dairy and Poultry | Potatoes | Coffee, &c. | Liquor | Sundries | Total |                   |
| United Kingdom . . . . . | 46                                 | 87   | 23    | 61                | 19       | 9           | 79     | 48       | 372   | £ s. d.<br>9 12 6 |
| France . . . . .         | 77                                 | 66   | 6     | 59                | 22       | 7           | 92     | 32       | 361   | 9 8 0             |
| Germany . . . . .        | 68                                 | 69   | 6     | 69                | 56       | 11          | 81     | 40       | 400   | 8 8 0             |
| Russia . . . . .         | 97                                 | 60   | 6     | 60                | 11       | 2           | 42     | 82       | 360   | 4 12 0            |
| Austria . . . . .        | 52                                 | 44   | 5     | 41                | 22       | 3           | 40     | 28       | 235   | 6 1 0             |
| Italy . . . . .          | 39                                 | 17   | 2     | 19                | 1        | 2           | 41     | 23       | 144   | 4 16 0            |
| Spain . . . . .          | 28                                 | 26   | 1     | 14                | ...      | 1           | 30     | 12       | 112   | 6 10 0            |
| Portugal . . . . .       | 6                                  | 5    | ...   | 3                 | ...      | ...         | 6      | 3        | 24    | 5 10 0            |
| Sweden . . . . .         | 8                                  | 7    | 1     | 7                 | 2        | 2           | 7      | 3        | 37    | 7 13 0            |
| Norway . . . . .         | 3                                  | 3    | ...   | 3                 | 1        | 1           | 3      | 1        | 15    | 7 10 0            |
| Denmark . . . . .        | 4                                  | 3    | ...   | 4                 | 1        | 1           | 3      | 2        | 18    | 9 0 0             |
| Holland . . . . .        | 8                                  | 5    | 1     | 5                 | 3        | 3           | 6      | 5        | 36    | 8 0 0             |
| Belgium . . . . .        | 12                                 | 8    | 1     | 7                 | 6        | 3           | 14     | 5        | 56    | 9 7 0             |
| Switzerland . . . . .    | 4                                  | 5    | ...   | 3                 | ...      | 1           | 3      | 3        | 20    | 6 12 0            |
| Roumania . . . . .       | 4                                  | 8    | ...   | 6                 | ...      | ...         | 3      | 3        | 25    | 5 0 0             |
| Servia . . . . .         | 2                                  | 3    | ...   | 2                 | ...      | ...         | 1      | 1        | 10    | 5 0 0             |
| Europe . . . . .         | 458                                | 416  | 53    | 363               | 146      | 47          | 481    | 261      | 2,225 | 6 10 0            |
| United States . . . . .  | 48                                 | 123  | 21    | 115               | 16       | 24          | 66     | 42       | 455   | 7 12 0            |
| Canada . . . . .         | 6                                  | 6    | 2     | 7                 | 4        | 1           | 3      | 3        | 32    | 6 10 0            |
| Australia . . . . .      | 5                                  | 8    | 2     | 5                 | 1        | 1           | 3      | 3        | 28    | 8 5 0             |
| Total . . . . .          | 517                                | 553  | 78    | 490               | 167      | 73          | 553    | 309      | 2,740 | 7 0 0             |

The above represents the values in first hands, to which must be added 30 per cent. for distribution in retail. As regards liquor, the excise duties are not included, these being comprised under *Taxes*. Professor Keleti estimates the expenditure for food in Austria-Hungary at £9 per man, £7 per woman, and £5 per

child, or £7 per inhabitant, which would be 266 millions sterling, being 20 per cent. over the estimate in the above table: his calculation is probably at retail prices.

\* The blanks in the table stand for fractions, the amount of which is included at foot.

#### UNITED KINGDOM

The home production of wheat and meat is as follows :—

|                          | Wheat, Bushels | Beef, Tons | Mutton, Tons | Pork, Tons | Total Meat, Tons |
|--------------------------|----------------|------------|--------------|------------|------------------|
| England . . . . .        | 77,000,000     | 268,000    | 234,000      | 113,000    | 615,000          |
| Scotland . . . . .       | 2,000,000      | 58,000     | 88,000       | 8,000      | 154,000          |
| Ireland . . . . .        | 1,900,000      | 218,000    | 44,000       | 70,000     | 332,000          |
| United Kingdom . . . . . | 79,900,000     | 544,000    | 366,000      | 191,000    | 1,101,000        |

Food-supply has improved in late years, and the people of this country are the best fed in Europe. The consumption per inhabitant has been approximately as follows :—

|                   | Wheat | Meat | Sugar | Tea | Salt | Beer   | Rice | Eggs |
|-------------------|-------|------|-------|-----|------|--------|------|------|
|                   | Lbs.  | Lbs. | Lbs.  | Oz. | Lbs. | Galls. | Lbs. | No.  |
| 1811-30 . . . . . | 270   | 80   | 19    | 18  | 16   | 22     | 1    | 40   |
| 1831-50 . . . . . | 255   | 87   | 20    | 23  | 25   | 24     | 1    | 48   |
| 1851-70 . . . . . | 320   | 90   | 35    | 44  | 45   | 28     | 3    | 60   |
| 1871-80 . . . . . | 354   | 93   | 60    | 67  | 72   | 29     | 11   | 65   |
| 1881-88 . . . . . | 370   | 102  | 70    | 77  | 72   | 27     | 11   | 70   |
| 1889 . . . . .    | 354   | 109  | 75    | 78  | 72   | 27     | 11   | 76   |

The consumption of meat in Great Britain and Ireland differs considerably, viz. :—

|                   | Tons Consumed |         | Lbs. Meat per Inhab. |         |
|-------------------|---------------|---------|----------------------|---------|
|                   | Great Britain | Ireland | Great Britain        | Ireland |
| British . . . . . | 769,000       | ...     | 53                   | ...     |
| Irish . . . . .   | 237,000       | 95,000  | 16                   | 43      |
| Foreign . . . . . | 712,000       | 30,000  | 49                   | 13      |
| Total . . . . .   | 1,718,000     | 125,000 | 118                  | 56      |

The actual amount of salt consumed for food is probably no more than 36 lbs. per inhabitant, as one-half is supposed to be used in manufactures. The following table shows how our bread-supply and meat are provided :—

| Period            | Wheat, Million Bushels per Annum |          |       | Meat, Tons per Annum |          |           |
|-------------------|----------------------------------|----------|-------|----------------------|----------|-----------|
|                   | Native                           | Imported | Total | Native               | Imported | Total     |
| 1841-50 . . . . . | 108                              | 14       | 122   | 1,014,000            | ...      | 1,014,000 |
| 1851-60 . . . . . | 103                              | 47       | 150   | 1,047,000            | 44,000   | 1,091,000 |
| 1861-70 . . . . . | 102                              | 73       | 175   | 1,078,000            | 131,000  | 1,209,000 |
| 1871-80 . . . . . | 77                               | 114      | 191   | 1,091,000            | 288,000  | 1,379,000 |
| 1881-88 . . . . . | 72                               | 144      | 216   | 1,105,000            | 540,000  | 1,645,000 |
| 1889 . . . . .    | 70                               | 154      | 224   | 1,100,000            | 742,000  | 1,842,000 |

In 1889 Ireland exported to Great Britain the following cattle :—

|                 |                    |
|-----------------|--------------------|
| 717,000 cows =  | 193,000 tons meat. |
| 636,000 sheep = | 20,000 "           |
| 545,000 pigs =  | 24,000 "           |
| Total . . . . . | 237,000 "          |

The annual slaughter in the United Kingdom was approximately as follows :—

| Period            | Horned Cattle | Sheep      | Pigs      | Tons Meat |         |         |
|-------------------|---------------|------------|-----------|-----------|---------|---------|
|                   |               |            |           | Beef      | Mutton  | Pork    |
| 1831-40 . . . . . | 1,140,000     | 15,200,000 | 2,700,000 | 305,000   | 475,000 | 200,000 |
| 1841-50 . . . . . | 1,350,000     | 14,400,000 | 2,700,000 | 364,000   | 450,000 | 200,000 |
| 1851-60 . . . . . | 1,540,000     | 13,600,000 | 2,800,000 | 412,000   | 425,000 | 210,000 |
| 1861-70 . . . . . | 1,730,000     | 13,000,000 | 2,800,000 | 462,000   | 406,000 | 210,000 |
| 1871-80 . . . . . | 1,920,000     | 12,400,000 | 2,500,000 | 514,000   | 387,000 | 190,000 |
| 1881-88 . . . . . | 2,040,000     | 11,800,000 | 2,600,000 | 544,000   | 366,000 | 195,000 |

The weight and value of all kinds of meat imported in 1889 were as follows :—

|                       | Tons    | Value, £   | £ per Ton |
|-----------------------|---------|------------|-----------|
| Live cattle . . . . . | 300,000 | 10,400,000 | 35        |
| Bacon . . . . .       | 175,000 | 7,300,000  | 41        |
| Beef . . . . .        | 127,000 | 5,200,000  | 41        |
| Mutton . . . . .      | 61,000  | 2,600,000  | 42        |
| Hams . . . . .        | 50,000  | 2,500,000  | 50        |
| Pork . . . . .        | 19,000  | 700,000    | 36        |
| Lard . . . . .        | 60,000  | 2,200,000  | 36        |
| Poultry . . . . .     | 10,000  | 500,000    | 50        |
| Rabbits . . . . .     | 6,000   | 300,000    | 50        |
| Total . . . . .       | 808,000 | 31,700,000 | 39        |

As regards live cattle, the above is an estimate of their equivalent in dead meat, on the assumption that £35 sterling stands for a ton of meat. Deducting lard, poultry, and rabbits, the importation of meat was 742,000 tons.

Full-grown animals in England average as follows :—

|                  | Meat | Fat, &c. | Hide | Total, Lbs. |
|------------------|------|----------|------|-------------|
| Cattle . . . . . | 680  | 356      | 84   | 1,120       |
| Sheep . . . . .  | 91   | 43       | 18   | 152         |

Cows give from 70 to 160 lbs. tallow.

The importation of articles of food is shown in the following tables, that is, the quantities and values of what were retained for consumption.

|                         | 1860       | 1870       | 1880       | 1889       |
|-------------------------|------------|------------|------------|------------|
| Wheat, tons             | 1,270,000  | 1,550,000  | 2,760,000  | 3,850,000  |
| Sugar, ..               | 470,000    | 740,000    | 980,000    | 1,300,000  |
| Meat, ..                | 87,000     | 140,000    | 590,000    | 742,000    |
| Butter, ..              | 37,000     | 52,000     | 104,000    | 136,000    |
| Cheese, ..              | 26,000     | 46,000     | 79,000     | 82,000     |
| Rice, ..                | 18,000     | 90,000     | 290,000    | 180,000    |
| Tea & cof-<br>fee, tons | 63,000     | 73,000     | 90,000     | 96,000     |
| Potatoes, }<br>tons     | 28,000     | 39,000     | 490,000    | 90,000     |
| Eggs, mill.             | 168        | 431        | 747        | 1,130      |
| Fish, tons              | 22,000     | 38,000     | 67,000     | 95,000     |
| Fruit, ..               | 80,000     | 110,000    | 280,000    | 370,000    |
| Spirits, gall.          | 7,000,000  | 13,800,000 | 7,000,000  | 9,600,000  |
| Wine, ..                | 10,200,000 | 16,100,000 | 16,000,000 | 14,200,000 |

#### VALUES OF FOOD IMPORTS.

|                                   | 1860       | 1870       | 1880        | 1889        |
|-----------------------------------|------------|------------|-------------|-------------|
|                                   | £          | £          | £           | £           |
| Wheat . . . . .                   | 20,900,000 | 19,700,000 | 39,300,000  | 31,100,000  |
| Sugar . . . . .                   | 12,400,000 | 17,600,000 | 22,200,000  | 22,600,000  |
| Meat . . . . .                    | 4,400,000  | 7,700,000  | 26,600,000  | 31,600,000  |
| Butter . . . . .                  | 4,100,000  | 6,800,000  | 12,100,000  | 13,900,000  |
| Cheese . . . . .                  | 1,600,000  | 3,300,000  | 5,100,000   | 4,500,000   |
| Tea . . . . .                     | 5,900,000  | 9,000,000  | 8,800,000   | 8,400,000   |
| Coffee . . . . .                  | 1,200,000  | 800,000    | 1,300,000   | 1,100,000   |
| Rice . . . . .                    | 400,000    | 900,000    | 2,100,000   | 1,500,000   |
| Eggs . . . . .                    | 500,000    | 1,100,000  | 2,200,000   | 3,100,000   |
| Potatoes . . . . .                | 140,000    | 250,000    | 2,800,000   | 700,000     |
| Fish . . . . .                    | 400,000    | 800,000    | 1,700,000   | 2,600,000   |
| Fruit . . . . .                   | 1,900,000  | 2,200,000  | 5,500,000   | 6,100,000   |
| Spirits . . . . .                 | 1,300,000  | 2,800,000  | 1,500,000   | 1,700,000   |
| Wine . . . . .                    | 3,400,000  | 4,300,000  | 5,900,000   | 5,000,000   |
| Human food }<br>Oats, barley, &c. | 58,540,000 | 77,250,000 | 137,100,000 | 133,900,000 |
|                                   | 10,800,000 | 14,500,000 | 23,600,000  | 19,700,000  |
| Total . . . . .                   | 69,340,000 | 91,750,000 | 160,700,000 | 153,600,000 |

The weight of all food imports at the above dates was :—

|                | Human Food |                 | All Food   |                 |
|----------------|------------|-----------------|------------|-----------------|
|                | Tons       | Lbs. per Inhab. | Tons       | Lbs. per Inhab. |
| 1860 . . . . . | 2,202,000  | 170             | 3,560,000  | 280             |
| 1870 . . . . . | 3,062,000  | 218             | 5,270,000  | 380             |
| 1880 . . . . . | 5,901,000  | 380             | 9,840,000  | 630             |
| 1889 . . . . . | 7,160,000  | 420             | 10,910,000 | 640             |

The number of days in each year in which the population subsisted on native and on imported food was as follows :—

|                    | Wheat |      |      |      | Meat |      |      |      |
|--------------------|-------|------|------|------|------|------|------|------|
|                    | 1860  | 1870 | 1880 | 1889 | 1860 | 1870 | 1880 | 1889 |
| Native . . . . .   | 244   | 210  | 142  | 114  | 340  | 323  | 236  | 223  |
| Imported . . . . . | 122   | 155  | 224  | 251  | 26   | 42   | 130  | 142  |
| Total . . . . .    | 366   | 365  | 366  | 365  | 366  | 365  | 366  | 365  |

The number of people fed in those years on native and on imported food were :—

| Year           | Wheat      |            | Meat       |            |            |
|----------------|------------|------------|------------|------------|------------|
|                | Native     | Imported   | Native     | Imported   | Total      |
| 1860 . . . . . | 19,000,000 | 9,500,000  | 26,500,000 | 2,000,000  | 28,500,000 |
| 1870 . . . . . | 17,900,000 | 13,300,000 | 27,600,000 | 3,600,000  | 31,200,000 |
| 1880 . . . . . | 13,500,000 | 21,000,000 | 22,100,000 | 12,400,000 | 34,500,000 |
| 1889 . . . . . | 11,800,000 | 26,000,000 | 23,100,000 | 14,700,000 | 37,800,000 |

The importation of food from foreign countries has greatly diminished the expenditure of the nation in this regard, and thus enabled the masses to procure more food than before. Hence we find that, while the people are better fed, the annual outlay for the principal articles of food, per inhabitant, is much less than it has been for 30 years back. The more largely we import food the cheaper and more abundant the supply, which, moreover, accounts partly for the increasing span of life.

The following table shows approximately the annual expenditure on certain articles of food since 1830 :—

|         | Millions £ Sterling |      |               |       | Per Inhabitant    |
|---------|---------------------|------|---------------|-------|-------------------|
|         | Wheat               | Meat | Tea and Sugar | Total |                   |
| 1831-40 | 41                  | 40   | 8             | 89    | £ s. d.<br>3 12 0 |
| 1841-50 | 40                  | 42   | 9             | 91    | 3 7 0             |
| 1851-60 | 51                  | 50   | 15            | 116   | 4 2 0             |
| 1861-70 | 57                  | 59   | 26            | 142   | 4 15 0            |
| 1871-80 | 58                  | 83   | 32            | 173   | 5 5 0             |
| 1881-85 | 55                  | 102  | 30            | 187   | 5 4 0             |
| 1888    | 46                  | 80   | 31            | 157   | 4 5 0             |

If we consider collectively all the food, of whatever kind, for man and beast (except wines, liquors, and tobacco), the annual outlay for ten years ending 1885 averaged thus :—

|                          | Millions £ Sterling |          |       |
|--------------------------|---------------------|----------|-------|
|                          | Home-Grown          | Imported | Total |
| Grain . . . . .          | 68                  | 59       | 127   |
| Meat . . . . .           | 79                  | 25       | 104   |
| Dairy products . . . . . | 39                  | 16       | 55    |
| Sundries . . . . .       | 69                  | 18       | 87    |
| Tea, sugar, &c. . . . .  | ...                 | 40       | 40    |
| Total . . . . .          | 255                 | 158      | 413   |

The following table shows the net imports of grain for 130 years :—

| Period    | Tons per Annum | Lbs. per Inhabitant | Period  | Tons per Annum | Lbs. per Inhabitant |
|-----------|----------------|---------------------|---------|----------------|---------------------|
| 1760-90   | 25,000         | 5                   | 1851-60 | 1,950,000      | 154                 |
| 1791-1810 | 110,000        | 16                  | 1861-70 | 3,200,000      | 238                 |
| 1811-30   | 115,000        | 12                  | 1871-80 | 5,720,000      | 374                 |
| 1831-50   | 480,000        | 45                  | 1881-89 | 6,800,000      | 420                 |

The meat consumption of London (exclusive of tinned meats) was estimated at 100,000 tons in 1842, and 210,000 tons in 1882, being as 112 and 128 lbs. respectively per inhabitant.

French economists seem to over-estimate the production of pork, which they put at 140 lbs. yearly per pig. Adopting their figures for the past, and putting pigs in 1888 at 112 lbs., the production of meat was as follows :—

|                  | Tons    |         |           |           | Per Inhabitant, Lbs. |      |      |      |
|------------------|---------|---------|-----------|-----------|----------------------|------|------|------|
|                  | 1840    | 1860    | 1880      | 1888      | 1840                 | 1860 | 1880 | 1888 |
| Beef . . . . .   | 299,000 | 450,000 | 640,000   | 660,000   | 19                   | 27   | 37   | 37   |
| Mutton . . . . . | 82,000  | 114,000 | 210,000   | 250,000   | 5                    | 7    | 12   | 14   |
| Pork . . . . .   | 290,000 | 378,000 | 305,000   | 290,000   | 19                   | 23   | 18   | 16   |
| Total . . . . .  | 671,000 | 942,000 | 1,155,000 | 1,200,000 | 43                   | 57   | 67   | 67   |

## FRANCE

The production of wheat and meat has been as follows :—

| Year           | Tons      |           | Lbs. per Inhabitant |      |
|----------------|-----------|-----------|---------------------|------|
|                | Wheat     | Meat      | Wheat               | Meat |
| 1840 . . . . . | 4,900,000 | 670,000   | 326                 | 45   |
| 1860 . . . . . | 5,200,000 | 942,000   | 314                 | 60   |
| 1880 . . . . . | 7,200,000 | 1,200,000 | 440                 | 73   |
| 1888 . . . . . | 7,200,000 | 1,200,000 | 417                 | 70   |

The percentage of people fed on wheat, comparing Moreau's tables with our own time, appears as follows :—

| Year | Percentage Fed on |          | Year | Percentage Fed on |          |
|------|-------------------|----------|------|-------------------|----------|
|      | Wheat             | Rye, &c. |      | Wheat             | Rye, &c. |
| 1700 | 33                | 67       | 1818 | 45                | 55       |
| 1764 | 36                | 64       | 1839 | 60                | 40       |
| 1791 | 39                | 61       | 1888 | 86                | 14       |

The net annual importations of grain averaged approximately as follows :—

| Period            | Tons per Annum | Lbs. per Inhabitant |
|-------------------|----------------|---------------------|
| 1801-40 . . . . . | 14,000         | 1                   |
| 1841-60 . . . . . | 35,000         | 2                   |
| 1861-70 . . . . . | 79,000         | 4                   |
| 1871-80 . . . . . | 260,000        | 15                  |
| 1881-87 . . . . . | 1,460,000      | 84                  |

The weight and value of grain used for food in 1887 were approximately as follows :—

|                 | Tons      | Value, £   |
|-----------------|-----------|------------|
| Wheat . . . . . | 8,200,000 | 71,000,000 |
| Rye . . . . .   | 900,000   | 6,000,000  |
| Total . . . . . | 9,100,000 | 77,000,000 |

Mr. Neumann-Spallart estimated the meat-supply as follows :—

| Year           | Tons      |          |           | Lbs. per Inhabitant |
|----------------|-----------|----------|-----------|---------------------|
|                | Native    | Imported | Total     |                     |
| 1856 . . . . . | 835,000   | 38,000   | 873,000   | 54                  |
| 1867 . . . . . | 1,053,000 | 85,000   | 1,138,000 | 67                  |
| 1877 . . . . . | 1,200,000 | 117,000  | 1,317,000 | 78                  |

The average weight of animals in 1885 was nearly 50 per cent. greater than in 1847, viz:—

|                 | Weight in Lbs. |       |
|-----------------|----------------|-------|
|                 | 1847           | 1885  |
| Oxen . . . . .  | 700            | 1,030 |
| Cows . . . . .  | 500            | 740   |
| Sheep . . . . . | 50             | 80    |
| Goats . . . . . | 50             | 70    |
| Pigs . . . . .  | 200            | 224   |

In 1859 M. Lavergne compared the food consumption with what it was in 1789 thus:—

|                  | Consumption Lbs. per Head |      |
|------------------|---------------------------|------|
|                  | 1789                      | 1859 |
| Meat . . . . .   | 39                        | 61   |
| Wheat . . . . .  | 210                       | 330  |
| Rye, &c. . . . . | 280                       | 160  |

The food consumption of Paris, according to a statement published in 1838, was as follows:—

| Year | Population | Per Inhabitant |               |               |                 |
|------|------------|----------------|---------------|---------------|-----------------|
|      |            | Meat, Lbs.     | Wine, Bottles | Beer, Bottles | Brandy, Bottles |
| 1789 | 600,000    | 179            | 120           | 9             | 4               |
| 1817 | 714,000    | 150            | 114           | 11            | 6               |
| 1827 | 808,000    | 146            | 126           | 20            | 5               |
| 1837 | 842,000    | 128            | 111           | 13            | 11              |

In 1885 the consumption of food in French cities was as follows:—

| Cities                | Population | Tons    |         | Gallons, Millions |      | Lbs. per Head |      | Gallons per Head |      |
|-----------------------|------------|---------|---------|-------------------|------|---------------|------|------------------|------|
|                       |            | Bread   | Meat    | Wine              | Beer | Bread         | Meat | Wine             | Beer |
| Paris . . . . .       | 2,260,000  | 355,000 | 171,000 | 97.0              | 6.0  | 343           | 167  | 43               | 2.4  |
| Lyon . . . . .        | 350,000    | 55,000  | 25,000  | 1.4               | 0.6  | 348           | 176  | 42               | 1.8  |
| Marseilles . . . . .  | 270,000    | 58,000  | 18,000  | 1.1               | 0.6  | 464           | 143  | 43               | 2.0  |
| Bordeaux . . . . .    | 220,000    | 38,000  | 17,000  | 1.0               | 0.4  | 380           | 170  | 46               | 1.5  |
| Lille . . . . .       | 150,000    | 32,000  | 7,100   | 0.9               | 0.0  | 480           | 106  | 6                | 60.0 |
| Toulouse . . . . .    | 130,000    | 28,000  | 7,700   | 5.0               | 0.2  | 498           | 132  | 38               | 2.2  |
| Nantes . . . . .      | 120,000    | 34,000  | 5,600   | 4.0               | ...  | 627           | 104  | 33               | 0.7  |
| St. Etienne . . . . . | 110,000    | 18,000  | 5,700   | 4.0               | 0.4  | 348           | 110  | 41               | 1.3  |
| Havre . . . . .       | 110,000    | 20,000  | 5,500   | 0.9               | 0.4  | 411           | 114  | 8                | 4.0  |
| Rouen . . . . .       | 110,000    | 19,000  | 6,600   | 1.1               | 0.3  | 400           | 136  | 10               | 2.6  |
| Nice . . . . .        | 50,000     | 12,000  | 3,600   | 3.0               | 0.3  | 480           | 145  | 58               | 2.4  |
| Total . . . . .       | 3,880,000  | 669,000 | 272,800 | 119.4             | 18.2 | 385           | 154  | 31               | 5.0  |

Meat in the above table does not include live cattle introduced for consumption. Thus Paris also consumed 300,000 horned cattle, 1,900,000 sheep, and 250,000 pigs, equal to 130,000 tons of meat, which would bring up the total to 301,000 tons, say 295 lbs. per head.

There was, moreover, the following consumption of cider in certain cities, per head:—

|                 | Galls. |                  | Galls. |
|-----------------|--------|------------------|--------|
| Rouen . . . . . | 33.0   | Havre . . . . .  | 21.0   |
| Paris . . . . . | 3.5    | Nantes . . . . . | 3.5    |

The aggregate of 25 French cities, including those in the above table, showed as follows (pop. 4,780,000):—

|                         |             |                                |     |
|-------------------------|-------------|--------------------------------|-----|
| Bread, tons . . . . .   | 839,000     | Bread, lbs. per head . . . . . | 387 |
| Meat, " . . . . .       | 331,400     | Meat, " . . . . .              | 154 |
| Wine, gallons . . . . . | 178,000,000 | Wine, gallons " . . . . .      | 38  |
| Beer, " . . . . .       | 26,400,000  | Beer, " . . . . .              | 58  |

The average in the same cities in 1880 was: bread 449 lbs., meat 127, wine 35, beer 5 gallons per head. There has been, therefore, a decrease in bread, but an increase of meat and wine.

The consumption in Paris in 1880 was as follows:—

|                | Per Inhab. Lbs. |                                | Per Inhab. Lbs. |
|----------------|-----------------|--------------------------------|-----------------|
| Meat . . . . . | 187             | Butter and cheese . . . . .    | 18              |
| Fish . . . . . | 29              | Vegetables and fruit . . . . . | 660             |
| Fowl . . . . . | 24              | Coal . . . . .                 | 960             |

Also 127 eggs, 48 gallons wine, and 1½ gallon spirits.

The consumption of bread per inhabitant in Paris has declined as follows:—

| Year              | Lbs. | Year              | Lbs. |
|-------------------|------|-------------------|------|
| 1833-35 . . . . . | 392  | 1860-69 . . . . . | 361  |
| 1856-59 . . . . . | 345  | 1879 . . . . .    | 331  |

The consumption of game in Paris in 1888 was as follows:—

|                      | Native  | Imported  | Total     |
|----------------------|---------|-----------|-----------|
| Partridges . . . . . | 160,000 | 421,000   | 581,000   |
| Pheasants . . . . .  | 8,000   | 85,000    | 93,000    |
| Larks . . . . .      | 153,000 | 110,000   | 263,000   |
| Wild ducks . . . . . | 10,000  | 40,000    | 50,000    |
| Pigeons, &c. . . . . | 375,100 | 626,700   | 1,001,800 |
| Deer . . . . .       | 2,800   | 10,500    | 13,300    |
| Wild boars . . . . . | 300     | 1,400     | 1,700     |
| Total . . . . .      | 709,200 | 1,294,600 | 2,003,800 |

The urban population is much better fed than the rural, notwithstanding the fact that food is dearest in towns. The consumption of meat in French cities averages three times as much per head as in the rural departments.

The quantity of horse-flesh used for human food at Paris was only 400 tons in 1867, rising to 994 in 1872. The slaughter of horses for the city market was 4680 animals in 1874, and 9830 in 1883. The principal food imports into France since 1860 have been as follows:—

|                           | Annual Average of Value |            |            |
|---------------------------|-------------------------|------------|------------|
|                           | 1861-70                 | 1871-80    | 1881-87    |
| Grain . . . . .           | 6,300,000               | 15,800,000 | 14,300,000 |
| Cattle and meat . . . . . | 3,800,000               | 6,600,000  | 7,300,000  |
| Sugar . . . . .           | 4,800,000               | 4,200,000  | 3,700,000  |
| Wine . . . . .            | ...                     | 2,600,000  | 15,700,000 |

The meat-supply since 1850 has been approximately thus :—

| Period      | Tons Yearly |          |           | Pounds Per Inhab. |
|-------------|-------------|----------|-----------|-------------------|
|             | Native      | Imported | Total     |                   |
| 1851-60 . . | 840,000     | 40,000   | 880,000   | 50                |
| 1861-70 . . | 1,020,000   | 76,000   | 1,096,000 | 65                |
| 1871-80 . . | 1,100,000   | 110,000  | 1,210,000 | 74                |
| 1881-87 . . | 1,200,000   | 120,000  | 1,320,000 | 80                |

The consumption of coffee, sugar, wine, and beer per inhabitant was as follows, per annum :—

|                 | 1860-64 | 1870-74 | 1880-84 | 1887 |
|-----------------|---------|---------|---------|------|
| Coffee, oz. . . | 37      | 40      | 62      | 64   |
| Sugar, lbs. . . | 12      | 15      | 23      | 20   |
| Wine, galls. .  | 18      | 25      | 21      | 19   |
| Beer „ . . .    | 4       | 4       | 5       | 5    |

Professor Boch makes the consumption of sugar in 1860-64 only 8 lbs. per inhabitant yearly, but the French estimates of production and consumption make it 12 lbs.

#### GERMANY

The production of grain and meat, the former including what was used both for man and beast, has been approximately as follows :—

| Year | Tons       |           | Lbs. per Inhabitant |      |
|------|------------|-----------|---------------------|------|
|      | Grain      | Meat      | Grain               | Meat |
| 1816 | 5,000,000  | 600,000   | 440                 | 54   |
| 1837 | 7,500,000  | 760,000   | 560                 | 60   |
| 1852 | 11,200,000 | 890,000   | 750                 | 60   |
| 1875 | 14,300,000 | 1,280,000 | 740                 | 67   |
| 1887 | 16,000,000 | 1,375,000 | 745                 | 64   |

A statement published in Saxony in 1876 gave the meat consumption per head as follows :—

| Period  | Beef and Mutton |    | Pork | Total, Lbs. |
|---------|-----------------|----|------|-------------|
|         |                 |    |      |             |
| 1836-55 | 14              | 18 | 32   |             |
| 1856-65 | 18              | 26 | 44   |             |
| 1866-75 | 21              | 30 | 51   |             |
| 1875    | 26              | 34 | 60   |             |

The average in 1875 for all the towns of Saxony collectively was 68 lbs., for rural districts 47 lbs. per inhabitant. In 1870 the consumption in various cities was as follows :—

| Pounds per Inhabitant |                  |                 |  |  |
|-----------------------|------------------|-----------------|--|--|
| Berlin . . . 99       | Cologne . . 104  | Hamburg . . 92  |  |  |
| Bremen . . 113        | Dresden . . 104  | Leipzig . . 164 |  |  |
| Breslau . . 94        | Dusseldorf . 104 | Magdeburg . 102 |  |  |
| Coblenz . . 104       | Frankfort . 171  | Munich . . 166  |  |  |

The net imports of grain and meat into Germany were :—

| Year | Tons      |        | Lbs. per Inhabitant |      |
|------|-----------|--------|---------------------|------|
|      | Grain     | Meat   | Grain               | Meat |
| 1873 | 800,000   | 30,000 | 40                  | 2    |
| 1880 | 700,000   | ...    | 35                  | ...  |
| 1887 | 1,900,000 | 10,000 | 90                  | 1    |

The weight and value of grain used for food were in 1887 approximately as follows :—

|               | Tons       | Value, £   |
|---------------|------------|------------|
| Wheat . . .   | 3,000,000  | 21,000,000 |
| Rye . . .     | 6,000,000  | 34,000,000 |
| Oats, &c. . . | 1,200,000  | 7,000,000  |
| Total . . .   | 10,200,000 | 62,000,000 |

The consumption of potatoes is large, averaging 1020 lbs. yearly per inhabitant.

The consumption of grain according to Spallart in the years 1881-84 averaged thus :—

|              | Millions of Bushels |          |       | Lbs. per Inhabitant |
|--------------|---------------------|----------|-------|---------------------|
|              | Native              | Imported | Total |                     |
| Wheat . . .  | 81                  | 21       | 102   | 132                 |
| Rye . . .    | 193                 | 29       | 222   | 290                 |
| Barley . . . | 76                  | 14       | 90    | 120                 |
| Oats . . .   | 138                 | 11       | 149   | 200                 |
| Total . . .  | 488                 | 75       | 563   | 742                 |

The consumption of secondary articles was as follows :—

| Year | Consumption per Inhabitant |              |                    |              |               |
|------|----------------------------|--------------|--------------------|--------------|---------------|
|      | Sugar, Lbs.                | Coffee, Lbs. | Foreign Fish, Lbs. | Tobacco, Oz. | Beer, Gallons |
| 1873 | 14                         | 5.0          | 4                  | 72           | 18            |
| 1880 | 14                         | 4.8          | 4                  | 35           | 18            |
| 1887 | 18                         | 4.6          | 7                  | 50           | 18            |

The only articles of which Germany has a surplus for exportation are sugar and butter, viz. :—

| Year       | Tons Exported |         | Value, £  |           |
|------------|---------------|---------|-----------|-----------|
|            | Butter        | Sugar   | Butter    | Sugar     |
| 1873 . . . | 12,000        | 13,000  | 1,200,000 | 440,000   |
| 1880 . . . | 12,000        | 250,000 | 1,050,000 | 5,500,000 |
| 1887 . . . | 15,000        | 620,000 | 1,100,000 | 9,050,000 |

The net importation of wine averages 10 million gallons, and the exportation of beer 30 million gallons yearly.

The following table shows the consumption of imported food since 1836 :—

| Period  | Tons Yearly |        | Barrels Fish | Lbs. per Inhabitant |      |      |
|---------|-------------|--------|--------------|---------------------|------|------|
|         | Coffee      | Rice   |              | Coffee              | Rice | Fish |
| 1836-40 | 27,000      | 5,000  | 190,000      | 2.2                 | 0.4  | 2.4  |
| 1841-50 | 37,000      | 11,000 | 265,000      | 2.8                 | 0.8  | 3.1  |
| 1851-60 | 54,000      | 30,000 | 295,000      | 3.7                 | 2.1  | 3.1  |
| 1861-70 | 74,000      | 36,000 | 460,000      | 4.4                 | 2.2  | 4.2  |
| 1871-80 | 97,000      | 68,000 | 690,000      | 5.0                 | 3.5  | 5.3  |
| 1881-85 | 111,000     | 83,000 | 915,000      | 5.4                 | 4.0  | 6.6  |
| 1887    | 102,000     | 83,000 | 1,095,000    | 5.3                 | 3.8  | 8.0  |

#### RUSSIA.

This is a great food-producing country, with a constant surplus for exportation. The production of all kinds of grain and of meat has been approximately as follows :—

| Year       | Tons       |           | Lbs. per Inhab. |      |
|------------|------------|-----------|-----------------|------|
|            | Grain      | Meat      | Grain           | Meat |
| 1835 . . . | 26,000,000 | 1,430,000 | 1,210           | 67   |
| 1850 . . . | 31,000,000 | 1,670,000 | 1,270           | 67   |
| 1870 . . . | 36,000,000 | 1,760,000 | 1,220           | 60   |
| 1887 . . . | 47,500,000 | 1,885,000 | 1,260           | 51   |

Exports of grain and meat have been as follows, per annum :—

| Period         | Tons      |        | Value, £   |
|----------------|-----------|--------|------------|
|                | Grain     | Meat   |            |
| 1830-13 . . .  | 250,000   | ...    | 2,000,000  |
| 1834-40 . . .  | 700,000   | ...    | 4,200,000  |
| 1841-47 . . .  | 800,000   | ...    | 4,800,000  |
| 1861 . . . . . | 1,400,000 | 4,000  | 9,200,000  |
| 1870 . . . . . | 3,050,000 | 16,000 | 20,800,000 |
| 1887 . . . . . | 6,100,000 | 31,000 | 31,700,000 |

The exports of grain, taken from official returns, were :—

| Period        | Millions of Bushels Yearly |     |        |           |       | Value, £   |
|---------------|----------------------------|-----|--------|-----------|-------|------------|
|               | Wheat                      | Rye | Barley | Oats, &c. | Total |            |
| 1851-60 . . . | 20                         | 7   | 3      | 6         | 36    | 5,500,000  |
| 1861-70 . . . | 36                         | 10  | 4      | 9         | 59    | 10,100,000 |
| 1871-80 . . . | 59                         | 43  | 12     | 43        | 157   | 27,700,000 |
| 1881-87 . . . | 70                         | 40  | 24     | 60        | 194   | 29,000,000 |

It would seem that the home consumption has only kept pace with population. For human food, wheat and rye are mainly used. The consumption per head was as follows :—

| Year           | Pounds per Head |          |       |
|----------------|-----------------|----------|-------|
|                | Wheat           | Rye, &c. | Total |
| 1861 . . . . . | 124             | 556      | 680   |
| 1870 . . . . . | 118             | 552      | 670   |
| 1880 . . . . . | 122             | 538      | 660   |
| 1887 . . . . . | 110             | 530      | 640   |

The consumption of secondary articles was as follows :—

| Year           | Tons    |        |        |                    | Per Inhabitant |             |          |                    |
|----------------|---------|--------|--------|--------------------|----------------|-------------|----------|--------------------|
|                | Sugar   | Coffee | Tea    | Foreign Salt, Lbs. | Sugar, Lbs.    | Coffee, Oz. | Tea, Oz. | Foreign Salt, Lbs. |
| 1860 . . . . . | 146,000 | 6,000  | 4,000  | 150,000            | 6              | 3           | 2        | 6                  |
| 1870 . . . . . | 200,000 | 7,000  | 9,000  | 170,000            | 7              | 4           | 5        | 6                  |
| 1880 . . . . . | 250,000 | 8,000  | 18,000 | 150,000            | 8              | 4           | 9        | 5                  |
| 1887 . . . . . | 410,000 | 5,000  | 10,000 | 150,000            | 11             | 2           | 4        | 4                  |

Russia produces more sugar than she needs, and exports 60,000 tons. Her consumption of wine averages 30 million gallons, of which 25 millions are grown at home. The quantity and value of grain used for food in 1887 were as follows :—

|                   | Tons       | Value, £   |
|-------------------|------------|------------|
|                   |            |            |
| Wheat . . . . .   | 4,200,000  | 21,000,000 |
| Rye . . . . .     | 14,500,000 | 61,000,000 |
| Oats, &c. . . . . | 4,300,000  | 15,000,000 |
| Total . . . . .   | 23,000,000 | 97,000,000 |

#### AUSTRIA-HUNGARY.

The production of grain and meat was as follows :—

|                | Million Tons |           | Lbs. per Inhab. |      |
|----------------|--------------|-----------|-----------------|------|
|                | Grain        | Meat      | Grain           | Meat |
| 1836 . . . . . | 9,100,000    | 990,000   | 750             | 79   |
| 1850 . . . . . | 13,700,000   | 980,000   | 840             | 73   |
| 1870 . . . . . | 12,500,000   | 1,080,000 | 780             | 68   |
| 1887 . . . . . | 18,000,000   | 1,080,000 | 1,040           | 63   |

The average consumption of grain and meat has steadily decreased per head, but that of potatoes has increased, the last crop reaching 7,500,000 tons, or 3½ bushels per inhabitant.

The production and consumption of grain has been as follows :—

| Year           | Millions of Bushels |      |          |      |             |       |
|----------------|---------------------|------|----------|------|-------------|-------|
|                | Crop                | Seed | Exported | Food | Cattle, &c. | Total |
| 1835 . . . . . | 1,040               | 160  | 28       | 670  | 182         | 1,040 |
| 1850 . . . . . | 1,240               | 190  | 32       | 750  | 268         | 1,240 |
| 1870 . . . . . | 1,450               | 220  | 122      | 800  | 308         | 1,450 |
| 1887 . . . . . | 1,900               | 290  | 244      | 926  | 440         | 1,900 |

The production and consumption of wheat are shown approximately thus :—

| Year           | Millions of Bushels |      |          |      |       |
|----------------|---------------------|------|----------|------|-------|
|                | Crop                | Seed | Exported | Food | Total |
| 1861 . . . . . | 180                 | 30   | 29       | 121  | 180   |
| 1870 . . . . . | 217                 | 36   | 55       | 126  | 217   |
| 1880 . . . . . | 220                 | 37   | 35       | 148  | 220   |
| 1887 . . . . . | 270                 | 45   | 75       | 150  | 270   |

The quantities of wheat, rye, oats, &c., retained for home consumption have been approximately as follows :—

| Year           | Millions of Bushels |     |      |            |       | Bushels per Inhabitant |
|----------------|---------------------|-----|------|------------|-------|------------------------|
|                | Wheat               | Rye | Oats | Maize, &c. | Total |                        |
| 1861 . . . . . | 121                 | 454 | 442  | 43         | 1,060 | 18                     |
| 1870 . . . . . | 126                 | 475 | 450  | 57         | 1,108 | 17                     |
| 1880 . . . . . | 148                 | 505 | 475  | 112        | 1,240 | 16½                    |
| 1887 . . . . . | 150                 | 550 | 460  | 206        | 1,366 | 16                     |

The exports of grain, meat, and sugar were as follows :—

| Year           | Tons    |        |         | Value, £   |
|----------------|---------|--------|---------|------------|
|                | Grain   | Meat   | Sugar   |            |
| 1860 . . . . . | 400,000 | 15,000 | ...     | 3,400,000  |
| 1870 . . . . . | 620,000 | 20,000 | 64,000  | 7,900,000  |
| 1880 . . . . . | 900,000 | 72,000 | 240,000 | 20,100,000 |
| 1887 . . . . . | 800,000 | 40,000 | 220,000 | 12,200,000 |

The disposal approximately of all grain was as follows :—

| Year           | Millions of Bushels |      |          |             |       |
|----------------|---------------------|------|----------|-------------|-------|
|                | Crop                | Seed | Exported | Consumption | Total |
| 1870 . . . . . | 500                 | 70   | 25       | 405         | 500   |
| 1880 . . . . . | 600                 | 85   | 36       | 479         | 600   |
| 1887 . . . . . | 717                 | 102  | 32       | 583         | 717   |

The weight and value of grain consumed for food in 1887 were approximately as follows :—

|                       | Tons      | Value, £   |
|-----------------------|-----------|------------|
| Wheat . . . . .       | 4,300,000 | 30,000,000 |
| Rye . . . . .         | 3,300,000 | 18,000,000 |
| Other grain . . . . . | 800,000   | 4,000,000  |
|                       | <hr/>     | <hr/>      |
| Total . . . . .       | 8,400,000 | 52,000,000 |

The production and consumption of wine were as follows :—

|             | Millions of Gallons Yearly |          |          | Gallons per Inhab. |
|-------------|----------------------------|----------|----------|--------------------|
|             | Vintage                    | Exported | Consumed |                    |
| 1876-85 . . | 198                        | 8        | 190      | 5                  |
| 1887 . . .  | 212                        | 14       | 198      | 5                  |

The consumption of sugar and coffee was approximately as follows :—

| Year       | Tons    |        | Per Inhab.  |             |
|------------|---------|--------|-------------|-------------|
|            | Sugar   | Coffee | Sugar, Lbs. | Coffee, Oz. |
| 1860 . . . | 60,000  | 20,000 | 4           | 20          |
| 1870 . . . | 100,000 | 27,000 | 6           | 26          |
| 1880 . . . | 230,000 | 31,000 | 14          | 29          |
| 1887 . . . | 305,000 | 32,000 | 18          | 28          |

Austria consumes only 60 per cent. of the sugar she produces, exporting over 200,000 tons yearly.

The exports of food from Italy were as follows :—

|                        | Per Annum |         |         | Value, £  |            |            |
|------------------------|-----------|---------|---------|-----------|------------|------------|
|                        | 1861-70   | 1871-80 | 1881-87 | 1861-70   | 1871-80    | 1881-87    |
| Meat, tons . . .       | 16,000    | 38,000  | 30,000  | 800,000   | 1,900,000  | 1,520,000  |
| Rice " . . .           | 61,000    | 68,000  | 73,000  | 960,000   | 840,000    | 1,020,000  |
| Fruit " . . .          | 75,000    | 96,000  | 105,000 | 1,500,000 | 1,400,000  | 1,800,000  |
| Eggs, millions . .     | 71        | 320     | 480     | 110,000   | 680,000    | 1,300,000  |
| Oil, million gallons . | 13        | 17      | 16      | 3,100,000 | 4,300,000  | 3,200,000  |
| Wine " . . .           | 6         | 14      | 48      | 480,000   | 900,000    | 2,800,000  |
| Total . . .            | ...       | ...     | ...     | 6,950,000 | 10,020,000 | 11,640,000 |

The consumption of wine, grain, and meat was :—

|                      | Yearly per Inhabitant |         |         |
|----------------------|-----------------------|---------|---------|
|                      | 1861-70               | 1871-80 | 1881-87 |
| Wine, gallons. . . . | 16                    | 20      | 18      |
| Grain, lbs. . . . .  | 420                   | 424     | 455     |
| Meat, " . . . . .    | 23                    | 24      | 26      |

The weight and value of grain consumed for food in 1887 were approximately as follows :—

|                    | Tons      | Value, £   |
|--------------------|-----------|------------|
| Wheat . . . . .    | 3,000,000 | 24,000,000 |
| Rye . . . . .      | 400,000   | 3,000,000  |
| Maize, &c. . . . . | 1,900,000 | 12,000,000 |
| Total . . . . .    | 5,300,000 | 39,000,000 |

#### SPAIN

The production of grain and meat was apparently thus :—

| Year | Tons      |         | Lbs. per Inhabitant |      |
|------|-----------|---------|---------------------|------|
|      | Grain     | Meat    | Grain               | Meat |
| 1826 | 3,400,000 | 405,000 | 560                 | 77   |
| 1886 | 7,500,000 | 525,000 | 1,050               | 71   |

This is supposing official figures to be correct, but it is remarkable that in recent years Spain has largely imported grain, which would be apparently unnecessary if

#### ITALY

Notwithstanding her fertile soil, Italy produces an insufficient food-supply, except as regards wine and fruit. The production of grain and meat was approximately as follows :—

| Year | Tons      |         | Lbs. per Inhabitant |      |
|------|-----------|---------|---------------------|------|
|      | Grain     | Meat    | Grain               | Meat |
| 1828 | 2,900,000 | 330,000 | 380                 | 44   |
| 1840 | 3,200,000 | 300,000 | 385                 | 35   |
| 1874 | 5,100,000 | 300,000 | 403                 | 24   |
| 1886 | 5,600,000 | 360,000 | 426                 | 28   |

The net imports of sundry articles of food was as follows :—

|        | Per Annum, Tons |         |         | Lbs. per Inhabitant |         |         |
|--------|-----------------|---------|---------|---------------------|---------|---------|
|        | 1861-70         | 1871-80 | 1881-87 | 1861-70             | 1871-80 | 1881-87 |
| Grain  | 252,000         | 160,000 | 390,000 | 22                  | 14      | 30      |
| Sugar  | 61,000          | 78,000  | 98,000  | 5                   | 7       | 8       |
| Fish . | 25,000          | 39,000  | 43,000  | 2                   | 3½      | 3½      |
| Cheese | 5,000           | 7,000   | 10,000  | 7 oz.               | 9 oz.   | 12 oz.  |
| Coffee | 11,000          | 13,000  | 16,000  | 15 oz.              | 17 oz.  | 20 oz.  |

each inhabitant produced half a ton, as above. The net imports of grain have averaged yearly as follows :—

| Period            | Tons    | Lbs. per Inhab. |
|-------------------|---------|-----------------|
| 1880-82 . . . . . | 73,000  | 10              |
| 1883-85 . . . . . | 122,000 | 16              |
| 1886-87 . . . . . | 208,000 | 28              |

Before 1880 there was always a surplus of grain for exportation, viz. :—

| Period            | Tons Yearly | Value, £  |
|-------------------|-------------|-----------|
| 1863-68 . . . . . | 72,000      | 900,000   |
| 1872-75 . . . . . | 144,000     | 1,550,000 |
| 1876-79 . . . . . | 26,000      | 300,000   |

The imports of minor articles were as follows :—

|             | 1860      | 1872      | 1880      | 1887      |
|-------------|-----------|-----------|-----------|-----------|
| Cocoa, tons | 4,000     | 6,000     | 8,000     | 7,000     |
| Sugar "     | 32,000    | 35,000    | 44,000    | 53,000    |
| Fish "      | 20,000    | 34,000    | 28,000    | 46,000    |
| Value, £ "  | 2,000,000 | 2,000,000 | 2,200,000 | 2,900,000 |

The imports and exports of live cattle in recent years were equal. The food exports were as follows :—

|                    | 1860      | 1872      | 1880       | 1887       |
|--------------------|-----------|-----------|------------|------------|
| Wine, mill. galls. | 22        | 44        | 138        | 183        |
| Oil "              | 1         | 5         | 4          | 3          |
| Fruit, tons . . .  | ...       | 120,000   | 150,000    | 160,000    |
| Salt "             | ...       | 220,000   | 320,000    | 220,000    |
| Aggreg. value, £   | 3,400,000 | 9,600,000 | 12,400,000 | 13,800,000 |



## PORTUGAL

The production of grain and meat was as follows :—

| Year | Tons      |        | Lbs. per Inhabitant |      |
|------|-----------|--------|---------------------|------|
|      | Grain     | Meat   | Grain               | Meat |
| 1828 | 520,000   | 70,000 | 340                 | 46   |
| 1868 | 770,000   | 77,000 | 410                 | 41   |
| 1886 | 1,000,000 | 95,000 | 510                 | 49   |

There is a constant deficit of grain, but a small surplus of meat for exportation. The imported food averaged thus :—

|            | Tons Yearly |         | Lbs. per Inhabitant |         |
|------------|-------------|---------|---------------------|---------|
|            | 1872-75     | 1884-87 | 1872-75             | 1884-87 |
| Grain . .  | 42,000      | 135,000 | 22                  | 69      |
| Rice . .   | 8,500       | 14,000  | 4                   | 7       |
| Sugar . .  | 16,000      | 24,000  | 8                   | 12      |
| Coffee . . | 2,000       | 2,500   | 15 oz.              | 18 oz.  |
| Fish . .   | 16,000      | 22,000  | 8 lbs.              | 11 lbs. |

Exports of food averaged as follows :—

|                     | Yearly     |            |
|---------------------|------------|------------|
|                     | 1872-75    | 1884-87    |
| Wine, gallons . . . | 11,200,000 | 31,400,000 |
| Oil . . .           | 900,000    | 230,000    |
| Fruit, tons . . .   | 440,000    | 130,000    |
| Meat . . .          | 4,000      | 1,300      |
| Salt . . .          | 230,000    | 120,000    |

The consumption of food per inhabitant is about 500 lbs. grain, 48 lbs. meat, 11 lbs. fish, 12 lbs. sugar, and 14 gallons of wine.

The weight and value of grain consumed for food in 1887 were :—

|                   | Tons    | Value, £  |
|-------------------|---------|-----------|
| Wheat . . .       | 300,000 | 2,400,000 |
| Rye . . .         | 300,000 | 1,800,000 |
| Other grain . . . | 300,000 | 1,700,000 |
| Total . . .       | 900,000 | 5,900,000 |

## SWEDEN

The production of grain and meat was as follows :—

| Year | Tons      |         | Lbs. per Inhabitant |      |
|------|-----------|---------|---------------------|------|
|      | Grain     | Meat    | Grain               | Meat |
| 1837 | 350,000   | 106,001 | 280                 | 78   |
| 1886 | 2,510,000 | 140,000 | 1,100               | 62   |

There is a surplus of grain, the net exports averaging as follows per annum :—

| Period        | Tons    |
|---------------|---------|
| 1860-64 . . . | 205,000 |
| 1876-80 . . . | 290,000 |
| 1882-86 . . . | 140,000 |

The meat-supply is sufficient and no more, the export of live cattle being equivalent to 10,000 tons of meat yearly, which is just the quantity of pork ordinarily imported. There is a constant surplus of butter, the export of which has increased of late years, the annual average showing :—

| Period        | Tons   |
|---------------|--------|
| 1876-80 . . . | 4,000  |
| 1883-86 . . . | 10,500 |

The consumption of imported articles shows thus :—

|            | Tons Yearly |         |         | Lbs. per Inhabitant |         |         |
|------------|-------------|---------|---------|---------------------|---------|---------|
|            | 1860-62     | 1870-72 | 1884-86 | 1860-62             | 1870-72 | 1884-86 |
| Coffee . . | 7,000       | 8,500   | 15,000  | 4                   | 4       | 7       |
| Rice . .   | 1,400       | 2,200   | 9,200   | 1                   | 1       | 4       |
| Sugar . .  | 18,000      | 21,000  | 47,000  | 10                  | 11      | 22      |
| Salt . .   | 40,000      | 55,000  | 64,000  | 22                  | 30      | 28      |

The weight and value of grain used for food in 1887 were approximately as follows :—

|                   | Tons      | Value, £  |
|-------------------|-----------|-----------|
| Wheat . . .       | 300,000   | 2,100,000 |
| Rye . . .         | 700,000   | 4,600,000 |
| Other grain . . . | 200,000   | 1,200,000 |
| Total . . .       | 1,200,000 | 7,900,000 |

## NORWAY

The production of grain and meat was as follows :—

| Year       | Tons    |        | Lbs. per Inhabitant |      |
|------------|---------|--------|---------------------|------|
|            | Grain   | Meat   | Grain               | Meat |
| 1835 . . . | 170,000 | 44,000 | 320                 | 80   |
| 1855 . . . | 370,000 | 64,000 | 540                 | 95   |
| 1875 . . . | 400,000 | 67,000 | 470                 | 78   |

The net importation of grain has been as follows :—

| Period        | Tons Yearly | Lbs. per Inhabitant |
|---------------|-------------|---------------------|
| 1861-70 . . . | 145,000     | 200                 |
| 1871-80 . . . | 205,000     | 245                 |
| 1881-87 . . . | 220,000     | 240                 |

The only food exported is fish, the average showing thus :—

| Period        | Tons Yearly | Value, £  |
|---------------|-------------|-----------|
| 1861-70 . . . | 124,000     | ...       |
| 1871-80 . . . | 123,000     | 1,900,000 |
| 1881-87 . . . | 135,000     | 1,950,000 |

The consumption of some articles of importation was :—

|            | Tons Yearly |         | Lbs. per Inhabitant |         |
|------------|-------------|---------|---------------------|---------|
|            | 1860-62     | 1885-87 | 1860-62             | 1885-87 |
| Coffee . . | 5,000       | 7,300   | 7                   | 9       |
| Sugar . .  | 5,500       | 11,000  | 7                   | 13      |
| Meat . .   | 400         | 6,000   | ...                 | 7       |
| Salt . .   | 69,000      | 80,000  | 84                  | 92      |

Potatoes are much used, the consumption averaging 500 lbs. per inhabitant, all home-grown.

The weight and value of grain consumed in 1887 were approximately :—

|                   | Tons    | Value, £  |
|-------------------|---------|-----------|
| Wheat . . .       | 100,000 | 800,000   |
| Rye . . .         | 200,000 | 1,300,000 |
| Other grain . . . | 100,000 | 600,000   |
| Total . . .       | 400,000 | 2,700,000 |

## DENMARK.

The production of grain and meat was as follows :—

| Year       | Tons      |         | Lbs. per Inhab. |      |
|------------|-----------|---------|-----------------|------|
|            | Grain     | Meat    | Grain           | Meat |
| 1866 . . . | 1,750,000 | 98,000  | 2,280           | 127  |
| 1886 . . . | 2,150,000 | 115,000 | 2,400           | 128  |

The net exports of grain and meat averaged thus :—

| Period            | Tons Yearly |        |
|-------------------|-------------|--------|
|                   | Grain       | Meat   |
| 1865-70 . . . . . | 263,000     | 17,000 |
| 1875-80 . . . . . | 185,000     | 38,000 |
| 1883-87 . . . . . | ...         | 58,000 |

In the last period of five years there was an average importation of 10,000 tons grain yearly over and above exports. Instead of growing more than her needs, Denmark has now to rely partly on imported grain. Butter is largely exported, viz. :—

| Year           | Tons   |
|----------------|--------|
| 1874 . . . . . | 13,000 |
| 1887 . . . . . | 24,000 |

So far back as 1830 Denmark exported 5000 tons of butter and 9000 tons of cheese.

The consumption of imported articles was as follows :—

|              | Tons Yearly |         | Lbs. per Inhab. |         |
|--------------|-------------|---------|-----------------|---------|
|              | 1865-67     | 1885-87 | 1865-67         | 1885-87 |
| Coffee . . . | 6,300       | 8,500   | 9               | 9       |
| Sugar . . .  | 16,400      | 21,000  | 22              | 22      |
| Rice . . .   | 4,000       | 14,000  | 5               | 14      |
| Salt . . .   | 14,500      | 25,000  | 19              | 25      |

The consumption of potatoes averages 410 lbs. per inhabitant.

The weight and value of grain used for food in 1887 were approximately thus :—

|                 | Tons    | Value, £  |
|-----------------|---------|-----------|
| Wheat . . . . . | 200,000 | 1,600,000 |
| Rye . . . . .   | 400,000 | 2,400,000 |

## HOLLAND

The production of grain and meat was approximately as follows :—

| Year       | Tons      |         | Lbs. per Inhabitant |      |
|------------|-----------|---------|---------------------|------|
|            | Grain     | Meat    | Grain               | Meat |
| 1828 . . . | 400,000   | 96,000  | 290                 | 70   |
| 1860 . . . | 600,000   | 104,000 | 360                 | 62   |
| 1884 . . . | 1,000,000 | 125,000 | 550                 | 69   |

Holland has never grown enough grain for her requirements, the net imports averaging yearly as follows :—

|                   | Tons    | Value, £  |
|-------------------|---------|-----------|
| 1861-70 . . . . . | 180,000 | 2,400,000 |
| 1871-80 . . . . . | 370,000 | 3,400,000 |
| 1881-87 . . . . . | 460,000 | 4,400,000 |

The other food imports show as follows, net, per annum :—

|              | Tons    |         | Lbs. per Inhabitant |         |
|--------------|---------|---------|---------------------|---------|
|              | 1861-63 | 1885-87 | 1861-63             | 1885-87 |
| Coffee . . . | 13,000  | 27,000  | 9                   | 15      |
| Sugar . . .  | 17,000  | 18,000  | 12                  | 10      |
| Rice . . .   | 24,000  | 75,000  | 17                  | 40      |
| Lard . . .   | ...     | 62,000  | ...                 | 34      |

Holland produces about 45,000 tons of beet-sugar per annum, so that the consumption of sugar is about 63,000 tons, or 35 lbs. per inhabitant. The consumption of lard is supposed to be in great measure for making better or oleo-margarine.

The exports of food are as follows :—

|              | Tons Yearly |         | Value, £  |           |
|--------------|-------------|---------|-----------|-----------|
|              | 1861-63     | 1885-87 | 1861-63   | 1885-87   |
| Meat . . .   | 14,000      | 20,000  | 700,000   | 1,050,000 |
| Butter . . . | 16,000      | 71,000  | 1,050,000 | 4,500,000 |
| Cheese . . . | 28,000      | 32,000  | 800,000   | 900,000   |

The consumption of potatoes is 820 lbs. per inhabitant yearly.

The weight and value of grain used for food in 1887 were approximately thus :—

|                       | Tons      | Value, £  |
|-----------------------|-----------|-----------|
| Wheat . . . . .       | 500,000   | 4,000,000 |
| Rye . . . . .         | 400,000   | 2,800,000 |
| Other grain . . . . . | 200,000   | 1,200,000 |
| Total . . . . .       | 1,100,000 | 8,000,000 |

## BELGIUM

The production of grain and meat was approximately thus :—

| Year       | Tons      |         | Lbs. per Inhabitant |      |
|------------|-----------|---------|---------------------|------|
|            | Grain     | Meat    | Grain               | Meat |
| 1828 . . . | 820,000   | 70,000  | 530                 | 45   |
| 1856 . . . | 1,720,000 | 90,000  | 970                 | 51   |
| 1866 . . . | 1,750,000 | 106,000 | 890                 | 54   |
| 1886 . . . | 1,850,000 | 110,000 | 750                 | 43   |

The net imports of grain have averaged thus :—

| Period            | Tons Yearly | Lbs. per Inhabitant |
|-------------------|-------------|---------------------|
| 1861-70 . . . . . | 270,000     | 140                 |
| 1871-80 . . . . . | 860,000     | 380                 |
| 1881-87 . . . . . | 1,230,000   | 505                 |

It appears that 40 per cent. of the grain consumed is imported from other countries.

The imports of meat averaged thus :—

| Period            | Tons Yearly | Lbs. per Inhabitant |
|-------------------|-------------|---------------------|
| 1861-70 . . . . . | 12,000      | 7                   |
| 1871-80 . . . . . | 61,000      | 27                  |
| 1881-87 . . . . . | 56,000      | 22                  |

Minor articles of import are as follows :—

|              | Quantity Yearly |           | Per Inhabitant |         |
|--------------|-----------------|-----------|----------------|---------|
|              | 1860-62         | 1885-87   | 1860-62        | 1885-87 |
| Coffee, tons | 20,000          | 24,000    | 12 lbs.        | 9 lbs.  |
| Wine, galls. | 2,600,000       | 8,700,000 | 0.6            | 1.5     |

Butter and sugar are exported, the averages showing thus :—

|                    | 1860-62 | 1870-72 | 1885-87 |
|--------------------|---------|---------|---------|
| Butter, tons . . . | ...     | 4,500   | 4,200   |
| Sugar „ . . .      | 1,700   | 56,000  | 62,000  |

The production of beet-sugar is 130,000 tons yearly, the consumption about 70,000 tons, or 27 lbs. per inhabitant. Potatoes are largely used, the average being 1050 lbs. yearly per inhabitant.

The weight and value of grain used for food in 1887 were approximately thus:—

|                     | Tons      | Value, £   |
|---------------------|-----------|------------|
| Wheat . . . .       | 800,000   | 6,800,000  |
| Rye . . . . .       | 600,000   | 4,200,000  |
| Other grain . . . . | 200,000   | 1,200,000  |
| Total . . . . .     | 1,600,000 | 12,200,000 |

## SWITZERLAND

The consumption of grain and meat in the years 1883-87 averaged as follows:—

|                 | Tons    |           |         | Lbs. per Inhabitant |           |       |
|-----------------|---------|-----------|---------|---------------------|-----------|-------|
|                 | Native  | Im-ported | Total   | Native              | Im-ported | Total |
| Grain . . . . . | 450,000 | 390,000   | 840,000 | 330                 | 300       | 630   |
| Meat . . . . .  | 68,000  | 15,000    | 83,000  | 51                  | 11        | 62    |

The importation of grain is more than treble what it was before 1855, viz. :—

| Period          | Tons per Annum | Lbs. per Inhabitant |
|-----------------|----------------|---------------------|
| 1851-55 . . . . | 120,000        | 103                 |
| 1876-80 . . . . | 320,000        | 231                 |
| 1883-87 . . . . | 390,000        | 300                 |

Three-fourths of the imported grain is wheat, the remainder maize and oats.

Other imported articles in the same years averaged:—

|                    | Quantity   | Lbs. per Inhab. |
|--------------------|------------|-----------------|
| Coffee, tons . . . | 9,200      | 7               |
| Sugar, „ . . . .   | 34,000     | 26              |
| Rice „ . . . . .   | 6,800      | 5               |
| Wine, gallons . .  | 12,000,000 | galls. 4        |

Cheese and condensed milk are exported, the average being:—

|                  | Tons Yearly | Value, £  |
|------------------|-------------|-----------|
| Cheese . . . . . | 26,000      | 1,600,000 |
| Milk . . . . .   | 13,000      | 480,000   |

The consumption of wine averaged 14 gallons yearly per inhabitant.

## GREECE

The consumption of grain and meat averaged thus:—

|                 | Tons    |           |         | Lbs. per Inhabitant |           |       |
|-----------------|---------|-----------|---------|---------------------|-----------|-------|
|                 | Native  | Im-ported | Total   | Native              | Im-ported | Total |
| Grain . . . . . | 450,000 | 130,000   | 580,000 | 560                 | 170       | 730   |
| Meat . . . . .  | 43,000  | 4,000     | 47,000  | 50                  | 5         | 55    |

## UNITED STATES

The production of the principal articles of food was:—

| Year           | Tons       |           |         |        |           |         |         |
|----------------|------------|-----------|---------|--------|-----------|---------|---------|
|                | Grain      | Meat      | Sugar   | Rice   | Potatoes  | Butter  | Cheese  |
| 1840 . . . . . | 15,400,000 | 2,050,000 | 70,000  | 36,000 | 2,700,000 | ...     | ...     |
| 1850 . . . . . | 21,700,000 | 2,390,000 | 110,000 | 96,000 | 2,600,000 | 140,000 | 74,000  |
| 1860 . . . . . | 31,000,000 | 2,890,000 | 120,000 | 83,000 | 2,800,000 | 205,000 | 47,000  |
| 1870 . . . . . | 34,700,000 | 2,480,000 | 74,000  | 33,000 | 3,600,000 | 230,000 | 68,000  |
| 1880 . . . . . | 67,500,000 | 4,120,000 | 110,000 | 50,000 | 4,200,000 | 350,000 | 120,000 |
| 1886 . . . . . | 71,100,000 | 4,750,000 | 110,000 | 50,000 | 4,200,000 | 430,000 | 170,000 |

The ordinary consumption of sugar is 4000 tons, and of coffee 800 tons yearly, being respectively as 5 lbs. and 1 lb. per inhabitant. The only food exports are:—

|                  | Quantity  | Value, £  |
|------------------|-----------|-----------|
| Fruit, tons. . . | 140,000   | 1,520,000 |
| Oil, gallons . . | 2,100,000 | 210,000   |
| Wine, „ . . . .  | 1,500,000 | 50,000    |

The consumption of wine averages 18 gallons per inhabitant.

## ROUMANIA

The production of grain and meat is approximately thus:—

|                 | Tons      | Lbs. per Inhabitant |
|-----------------|-----------|---------------------|
| Grain . . . . . | 3,000,000 | 1,250               |
| Meat . . . . .  | 280,000   | 110                 |

The average export of grain in the years 1882-86 was:—

|                  | Tons Yearly | Value, £  |
|------------------|-------------|-----------|
| Wheat . . . . .  | 360,000     | 2,500,000 |
| Barley . . . . . | 240,000     | 850,000   |
| Rye . . . . .    | 85,000      | 400,000   |
| Maize . . . . .  | 640,000     | 2,600,000 |
| Total . . . . .  | 1,325,000   | 6,350,000 |

The exportation of cattle is not known, but may be estimated as equal to one-fourth of the meat product, say 70,000 tons yearly. This would leave the consumption thus:—

|                 | Tons      | Lbs. per Inhabitant |
|-----------------|-----------|---------------------|
| Grain . . . . . | 1,680,000 | 650                 |
| Meat . . . . .  | 210,000   | 82                  |

These ratios seem very high, but they are based on the tables of the *Statistique Agricole*. The consumption of sugar is only 4 lbs., and of coffee 8 oz. yearly per inhabitant.

## SERVIA

The production of grain and meat is approximately thus:—

|                 | Tons    | Lbs. per Inhabitant |
|-----------------|---------|---------------------|
| Grain . . . . . | 370,000 | 420                 |
| Meat . . . . .  | 100,000 | 112                 |

The export of grain, says Spallart, averages 40,000 tons; the meat surplus is probably 25,000 tons per annum.

## EGYPT

The average food exports in the years 1883-87 were:—

|                 | Value, £  | Tons, Approximately |
|-----------------|-----------|---------------------|
| Grain . . . . . | 1,010,000 | 200,000             |
| Sugar . . . . . | 460,000   | 33,000              |

The imports and exports of rice are about equal.

Some of the above articles were produced in excess of requirements for home use, the quantities and values exported being thus :—

| Period            | Tons Yearly |         |                   | Value, £   |            |                   |
|-------------------|-------------|---------|-------------------|------------|------------|-------------------|
|                   | Grain       | Meat    | Butter and Cheese | Grain      | Meat       | Butter and Cheese |
| 1821-30 . . . . . | 150,000     | 10,000  | 1,000             | 1,200,000  | 300,000    | 40,000            |
| 1831-40 . . . . . | 160,000     | 14,000  | 1,000             | 1,060,000  | 420,000    | 40,000            |
| 1841-50 . . . . . | 370,000     | 40,000  | 6,000             | 3,120,000  | 1,040,000  | 210,000           |
| 1851-60 . . . . . | 710,000     | 60,000  | 8,000             | 6,100,000  | 1,800,000  | 300,000           |
| 1861-70 . . . . . | 1,200,000   | 100,000 | 40,000            | 9,400,000  | 3,300,000  | 1,550,000         |
| 1871-80 . . . . . | 3,700,000   | 390,000 | 60,000            | 27,100,000 | 12,600,000 | 2,800,000         |
| 1881-87 . . . . . | 5,020,000   | 510,000 | 72,000            | 38,100,000 | 20,200,000 | 3,900,000         |

The disposal of the grain crops since 1840 was approximately as follows :—

| Period            | Millions of Bushels Yearly |      |          |          |       |
|-------------------|----------------------------|------|----------|----------|-------|
|                   | Crop                       | Seed | Exported | Home Use | Total |
| 1841-50 . . . . . | 740                        | 74   | 15       | 652      | 740   |
| 1851-60 . . . . . | 1,050                      | 105  | 29       | 916      | 1,050 |
| 1861-70 . . . . . | 1,210                      | 121  | 48       | 1,041    | 1,210 |
| 1871-80 . . . . . | 1,980                      | 198  | 148      | 1,634    | 1,980 |
| 1881-87 . . . . . | 2,700                      | 270  | 200      | 2,230    | 2,700 |

The disposal of wheat crop was as follows approximately :—

| Period            | Millions of Bushels Yearly |      |          |          |       |
|-------------------|----------------------------|------|----------|----------|-------|
|                   | Crop                       | Seed | Exported | Home Use | Total |
| 1841-50 . . . . . | 93                         | 9    | 10       | 74       | 93    |
| 1851-60 . . . . . | 137                        | 14   | 24       | 99       | 137   |
| 1861-70 . . . . . | 194                        | 20   | 38       | 136      | 194   |
| 1871-80 . . . . . | 338                        | 34   | 85       | 219      | 338   |
| 1881-87 . . . . . | 440                        | 44   | 134      | 262      | 440   |

The disposal of the maize crop was approximately thus :—

| Period            | Millions of Bushels Yearly |      |          |          |       |
|-------------------|----------------------------|------|----------|----------|-------|
|                   | Crop                       | Seed | Exported | Home Use | Total |
| 1841-50 . . . . . | 485                        | 48   | 5        | 432      | 485   |
| 1851-60 . . . . . | 715                        | 72   | 5        | 638      | 715   |
| 1861-70 . . . . . | 965                        | 97   | 10       | 858      | 965   |
| 1871-80 . . . . . | 1,400                      | 140  | 54       | 1,206    | 1,400 |
| 1881-87 . . . . . | 1,602                      | 160  | 53       | 1,389    | 1,602 |

The disposal of oats, rye, barley, buckwheat, &c., was as follows :—

| Period            | Millions of Bushels Yearly |      |          |          |       |
|-------------------|----------------------------|------|----------|----------|-------|
|                   | Crop                       | Seed | Exported | Home Use | Total |
| 1841-50 . . . . . | 162                        | 16   | ...      | 146      | 162   |
| 1851-60 . . . . . | 198                        | 20   | ...      | 178      | 198   |
| 1861-70 . . . . . | 51                         | 5    | ...      | 46       | 51    |
| 1871-80 . . . . . | 242                        | 24   | 9        | 209      | 242   |
| 1881-87 . . . . . | 658                        | 66   | 13       | 579      | 658   |

The consumption of food compared with population was as follows :—

| Year           | Lbs. per Inhabitant |             |      |       |          |                   |
|----------------|---------------------|-------------|------|-------|----------|-------------------|
|                | Wheat               | Other Grain | Meat | Sugar | Potatoes | Butter and Cheese |
| 1840 . . . . . | 240                 | 1,400       | 260  | 19    | 360      | ...               |
| 1850 . . . . . | 220                 | 1,510       | 224  | 20    | 265      | 20                |
| 1860 . . . . . | 260                 | 1,540       | 202  | 34    | 200      | 18                |
| 1870 . . . . . | 244                 | 1,620       | 140  | 41    | 202      | 14                |
| 1880 . . . . . | 320                 | 1,870       | 157  | 40    | 190      | 18                |
| 1887 . . . . . | 250                 | 1,610       | 155  | 53    | 170      | 20                |

Native sugar only forms 7 per cent. of what is consumed. The importation of coffee and tea has been as follows :—

|                  | Tons Yearly |         |         | Lbs. per Inhabitant |         |         |
|------------------|-------------|---------|---------|---------------------|---------|---------|
|                  | 1861-63     | 1871-73 | 1885-87 | 1861-63             | 1871-73 | 1885-87 |
| Coffee . . . . . | 58,000      | 134,000 | 250,000 | 4.0                 | 7.4     | 9.3     |
| Tea . . . . .    | 11,000      | 27,000  | 36,000  | 0.8                 | 1.5     | 1.4     |

The meat product of the United States was approximately as follows :—

| Year           | Tons      |         |           |           | Lbs. per Inhabitant |
|----------------|-----------|---------|-----------|-----------|---------------------|
|                | Beef      | Mutton  | Pork      | Total     |                     |
| 1840 . . . . . | 662,000   | 172,000 | 1,286,000 | 2,120,000 | 280                 |
| 1850 . . . . . | 790,000   | 193,000 | 1,477,000 | 2,460,000 | 240                 |
| 1860 . . . . . | 1,140,000 | 200,000 | 1,630,000 | 2,970,000 | 215                 |
| 1870 . . . . . | 1,060,000 | 253,000 | 1,230,000 | 2,540,000 | 190                 |
| 1880 . . . . . | 1,590,000 | 312,000 | 2,338,000 | 4,240,000 | 190                 |
| 1888 . . . . . | 2,190,000 | 390,000 | 2,190,000 | 4,750,000 | 178                 |

It may be seen that the rapid increase of population causes the surplus of meat to diminish. As soon as the production falls to 120 lbs. per inhabitant, there will be no meat to export.

The Americans are the best fed people in the world, and contribute in a great measure to the abundance and cheapness of food in other countries, their share of production being shown thus :—

|                         | Tons Grain Grown Yearly |             |             | Tons of Meat Produced Yearly |            |            |
|-------------------------|-------------------------|-------------|-------------|------------------------------|------------|------------|
|                         | 1841-50                 | 1861-70     | 1881-87     | 1841-50                      | 1861-70    | 1881-87    |
| United States . . . . . | 18,500,000              | 30,300,000  | 67,700,000  | 2,200,000                    | 2,680,000  | 4,400,000  |
| Europe . . . . .        | 90,500,000              | 111,000,000 | 132,000,000 | 6,380,000                    | 6,950,000  | 7,740,000  |
| Colonies, &c. . . . .   | 9,200,000               | 15,700,000  | 22,500,000  | 220,000                      | 390,000    | 920,000    |
| Total . . . . .         | 117,200,000             | 157,000,000 | 222,200,000 | 8,800,000                    | 10,020,000 | 13,060,000 |

It appears, therefore, that the United States produce 30 per cent. of the grain, and 33 per cent. of the meat of the world.

## CANADA

The production of grain and meat was approximately as follows :—

| Year | Tons Yearly |         | Lbs. per Inhabitant |      |
|------|-------------|---------|---------------------|------|
|      | Grain       | Meat    | Grain               | Meat |
| 1852 | 1,120,000   | 140,000 | 1,020               | 128  |
| 1873 | 1,850,000   | 220,000 | 1,030               | 126  |
| 1887 | 3,720,000   | 260,000 | 1,680               | 116  |

There has been of late years a surplus of grain and other articles, the net exports averaging yearly as follows :—

|                  | 1875-78 | 1882-84 | 1885-87 |
|------------------|---------|---------|---------|
| Grain, tons . .  | 175,000 | 405,000 | 410,000 |
| Meat „ . .       | 21,000  | 42,000  | 57,000  |
| Butter „ . .     | 5,500   | 4,800   | 3,100   |
| Cheese „ . .     | 16,500  | 31,000  | 39,000  |
| Fish „ . .       | 64,000  | 77,000  | 71,000  |
| Potatoes „ . .   | 21,000  | 58,000  | 39,000  |
| Eggs, millions . | 53      | 142     | 152     |

The consumption of imported food was thus :—

|           | Tons Yearly |         | Lbs. per Inhabitant |         |
|-----------|-------------|---------|---------------------|---------|
|           | 1875-77     | 1885-87 | 1875-77             | 1885-87 |
| Sugar . . | 68,000      | 102,000 | 37.0                | 45.0    |
| Tea . .   | 6,000       | 9,000   | 3.4                 | 4.1     |
| Salt . .  | 72,000      | 87,000  | 39.0                | 38.0    |

The ordinary consumption of wheat is 350 lbs. per inhabitant, and of meat 90 lbs., per annum.

## AUSTRALIA

The production of grain and meat was approximately thus :—

| Period      | Tons Yearly |         | Lbs. per Inhabitant |      |
|-------------|-------------|---------|---------------------|------|
|             | Grain       | Meat    | Grain               | Meat |
| 1831-40 . . | 60,000      | 40,000  | 440                 | 300  |
| 1851-60 . . | 250,000     | 140,000 | 500                 | 300  |
| 1861-87 . . | 1,550,000   | 450,000 | 1,100               | 300  |

Food exports have averaged yearly as follows :—

|                 | 1875-77 | 1885-87 |
|-----------------|---------|---------|
| Grain, tons . . | 125,000 | 150,000 |
| Meat, „ . .     | 9,000   | 34,000  |

According to Mr. Coghlan, Government statist, the consumption of food averages as follows :—

|                     | Lbs. Yearly per Inhabitant |      |          |       |     |      |         |
|---------------------|----------------------------|------|----------|-------|-----|------|---------|
|                     | Wheat                      | Rice | Potatoes | Sugar | Tea | Meat | Tobacco |
| New South Wales . . | 405                        | 12   | 215      | 94    | 8.2 | 249  | 3.4     |
| Victoria . .        | 384                        | 15   | 232      | 100   | 7.2 | 265  | 2.7     |
| New Zealand . .     | ...                        | 9    | 412      | 78    | 6.7 | ...  | 2.0     |
| Tasmania . .        | 372                        | 9    | 389      | 86    | 6.4 | ...  | 1.8     |
| South Australia . . | ...                        | 5    | 195      | 87    | 6.4 | ...  | 2.1     |
| Queensland . .      | 366                        | 24   | 250      | 59    | 8.7 | 370  | 3.5     |
| Australasia . .     | 374                        | 13   | 279      | 89    | 7.5 | 276  | 2.8     |

## Gallons Yearly per 100 Inhabitants

|                     | Wine | Beer  | Spirits | Equivalent in Alcohol |
|---------------------|------|-------|---------|-----------------------|
| New South Wales . . | 80   | 1,170 | 110     | 290                   |
| Victoria . .        | 110  | 1,940 | 120     | 410                   |
| New Zealand . .     | 20   | 770   | 80      | 180                   |
| Tasmania . .        | 20   | 970   | 60      | 190                   |
| South Australia . . | 160  | 1,410 | 50      | 280                   |
| Queensland . .      | 60   | 980   | 180     | 320                   |
| Australasia . .     | 80   | 1,230 | 100     | 290                   |

The consumption of imported articles was as follows :—

|           | Tons Yearly |         | Lbs. per Inhabitant |         |
|-----------|-------------|---------|---------------------|---------|
|           | 1875-77     | 1885-87 | 1875-77             | 1885-87 |
| Tea . .   | 8,200       | 11,500  | 7.5                 | 8.1     |
| Sugar . . | 82,000      | 110,000 | 75.0                | 77.0    |

The sugar was not imported wholly from abroad, Queensland supplying 5 per cent. in the first, and 36 per cent. in the second period.

## ARGENTINA

The production of grain and meat was approximately thus :—

| Period      | Tons      |         | Lbs. per Inhabitant |      |
|-------------|-----------|---------|---------------------|------|
|             | Grain     | Meat    | Grain               | Meat |
| 1831-40 . . | 50,000    | 50,000  | 200                 | 200  |
| 1851-60 . . | 120,000   | 100,000 | 280                 | 220  |
| 1861-87 . . | 850,000   | 300,000 | 600                 | 220  |
| 1889 . .    | 1,510,000 | 320,000 | 910                 | 200  |

The surplus food for exportation was as follows :—

| Year     | Tons    |        |
|----------|---------|--------|
|          | Grain   | Meat   |
| 1873 . . | 2,300   | 35,000 |
| 1883 . . | 108,400 | 39,000 |
| 1889 . . | 350,000 | 60,000 |

The Republic grows 80,000 tons sugar and 6 million gallons of wine, which is about half the quantity consumed of the former and one-fifth of the latter.

## FORESTS

Forests cover about 10 per cent. of the earth's landed area, and 25 per cent. of Europe. The highest yield is in the United Kingdom, namely, 60 cubic feet of timber per acre, whereas in Brazil it is about one cubic foot. The terms used in measurement are :—

|                       |                                  |
|-----------------------|----------------------------------|
| Load, 50 cubic feet.  | Klafter, 2 tons or 200 fagots.   |
| Stere, 35 cubic feet. | Cord, 2½ tons or 125 cubic feet. |

The ordinary cutting in Europe (except Russia) is 5 acres per 100 of forest. An acre of forest, if cut down, would produce about 1000 cubic feet of timber.

The annual felling of timber is hardly half what it might be, without reducing the forest resources of the world. The average shown above is only 17 cubic feet per acre, the ordinary yield available being from 30 to 40 cubic feet. It appears, however, that forests within easy reach are sufficiently developed, while those more remote of Canada, Brazil, and Gran Chaco have not yet been brought into much use.

The forests of the world may be summed up approximately thus :—

|                             | Millions of Acres | Product, Million Cubic Feet | Cubic Feet per Acre | Value of Product, £ |
|-----------------------------|-------------------|-----------------------------|---------------------|---------------------|
| Russia . . . . .            | 426               | 6,200                       | 15                  | 40,800,000          |
| United States . . . . .     | 466               | 9,300                       | 20                  | 112,000,000         |
| Brazil . . . . .            | 135               | 150                         | 1                   | 1,000,000           |
| Canada . . . . .            | 64                | 650                         | 5                   | 8,200,000           |
| Sweden and Norway . . . . . | 61                | 900                         | 15                  | 12,000,000          |
| Austria-Hungary . . . . .   | 46                | 2,000                       | 45                  | 18,000,000          |
| Gran Chaco . . . . .        | 37                | 40                          | 1                   | 500,000             |
| Germany . . . . .           | 32                | 1,300                       | 40                  | 13,000,000          |
| France . . . . .            | 21                | 1,100                       | 50                  | 10,000,000          |
| Italy . . . . .             | 10                | 440                         | 44                  | 4,000,000           |
| Algeria . . . . .           | 6                 | 120                         | 20                  | 1,000,000           |
| Switzerland . . . . .       | 2                 | 140                         | 70                  | 1,200,000           |
| United Kingdom . . . . .    | 2                 | 120                         | 60                  | 2,000,000           |
| <b>Total . . . . .</b>      | <b>1,308</b>      | <b>22,460</b>               | <b>17</b>           | <b>223,700,000</b>  |

The following table shows the average yield of firewood per acre of forest, according to the age of the trees :—

| Age of Trees, Years | Cubic Feet | Age of Trees, Years | Cubic Feet | Age of Trees, Years | Cubic Feet |
|---------------------|------------|---------------------|------------|---------------------|------------|
| 10                  | 700        | 50                  | 6,200      | 150                 | 12,800     |
| 20                  | 1,800      | 60                  | 7,500      | 200                 | 13,400     |
| 30                  | 3,300      | 80                  | 9,200      | 250                 | 12,000     |
| 40                  | 4,900      | 100                 | 10,000     | 300                 | 11,000     |

The following tables refer to the principal kinds of forest trees :—

|                    | Density | Cohesion | Strength |
|--------------------|---------|----------|----------|
| Acacia . . . . .   | 0.717   | 7.93     | ...      |
| Alder . . . . .    | 0.601   | 4.54     | ...      |
| Ash . . . . .      | 0.697   | 6.78     | 983      |
| Aspen . . . . .    | 0.602   | 7.20     | ...      |
| Beech . . . . .    | 0.823   | 3.57     | ...      |
| Birch . . . . .    | 0.812   | 4.30     | 672      |
| Fir . . . . .      | 0.493   | 4.18     | 585      |
| Maple . . . . .    | 0.674   | 3.58     | ...      |
| Oak . . . . .      | 0.808   | 6.49     | 1,000    |
| Pine . . . . .     | 0.559   | 2.48     | 565      |
| Poplar . . . . .   | 0.477   | 1.97     | 538      |
| Sycamore . . . . . | 0.692   | 6.16     | 744      |

The following scale serves to ascertain the age of trees :—

| Age, Years    | Inches Diameter |       |     |        |     |
|---------------|-----------------|-------|-----|--------|-----|
|               | Oak             | Larch | Elm | Spruce | Yew |
| 10 . . . . .  | 5               | 4     | 1   | 4      | 1   |
| 20 . . . . .  | 10              | 9     | 5   | 8      | 2   |
| 30 . . . . .  | 14              | 14    | 10  | 12     | 3   |
| 50 . . . . .  | 23              | 24    | 23  | 19     | 4   |
| 70 . . . . .  | 32              | 33    | 36  | 24     | 6   |
| 100 . . . . . | 41              | 40    | 50  | 27     | 9   |
| 150 . . . . . | 54              | 50    | 61  | 36     | 14  |
| 200 . . . . . | 64              | 58    | 71  | 44     | 20  |
| 250 . . . . . | 74              | 67    | 83  | 52     | 25  |
| 300 . . . . . | 84              | 75    | 94  | 60     | 30  |

Eucalyptus or Australian gum-tree sometimes grows 24 feet in three months; bamboo, 2 feet in twenty-four hours.

The maximum age to which trees of different kinds arrive is shown as follows :—

|                   | Years |                    | Years |                  | Years |
|-------------------|-------|--------------------|-------|------------------|-------|
| Palm . . . . .    | 250   | Lemon . . . . .    | 640   | Spruce . . . . . | 1,200 |
| Elm . . . . .     | 355   | Plane . . . . .    | 720   | Oak . . . . .    | 1,600 |
| Cypress . . . . . | 388   | Cedar . . . . .    | 800   | Olive . . . . .  | 2,000 |
| Ivy . . . . .     | 448   | Chestnut . . . . . | 860   | Yew . . . . .    | 2,880 |
| Maple . . . . .   | 516   | Walnut . . . . .   | 900   | Baobab . . . . . | 5,100 |
| Larch . . . . .   | 576   | Lime . . . . .     | 1,076 | Dragon . . . . . | 5,900 |

The Crown forests of various countries are as follows :—

|                             | Area, Acres | Product, £ | Pence per Acre |
|-----------------------------|-------------|------------|----------------|
| Russia . . . . .            | 180,000,000 | 10,000,000 | 13             |
| India . . . . .             | 35,500,000  | ...        | ...            |
| Sweden and Norway . . . . . | 10,300,000  | 1,500,000  | 35             |
| Germany . . . . .           | 9,400,000   | 3,700,000  | 95             |
| Austria . . . . .           | 7,500,000   | 1,500,000  | 48             |
| France . . . . .            | 2,110,000   | 1,700,000  | 180            |
| Italy . . . . .             | 500,000     | 200,000    | 96             |
| Belgium . . . . .           | 100,000     | 40,000     | 96             |

Besides the foregoing, there are communal forests, the area of which is not easily ascertained.

The following table shows approximately the consumption of all kinds of timber and firewood in the various countries, and the quantities of timber imported or exported.

|                               | Millions of Cubic Ft. Consumed Yearly |               |               | Cubic Ft. Consumed per Inhab. | Millions of Cubic Ft. |            |
|-------------------------------|---------------------------------------|---------------|---------------|-------------------------------|-----------------------|------------|
|                               | Firewood                              | Building &c.  | Total         |                               | Imported              | Exported   |
| U. Kingdom . . . . .          | 60                                    | 470           | 530           | 14                            | 390                   | ...        |
| France . . . . .              | 800                                   | 500           | 1,300         | 35                            | 200                   | ...        |
| Germany . . . . .             | 700                                   | 600           | 1,300         | 28                            | ...                   | ...        |
| Russia . . . . .              | 4,500                                 | 1,600         | 6,100         | 70                            | ...                   | 120        |
| Austria . . . . .             | 1,200                                 | 700           | 1,900         | 50                            | ...                   | 100        |
| Italy . . . . .               | 240                                   | 240           | 480           | 18                            | 40                    | ...        |
| Spain and Portugal . . . . .  | 110                                   | 150           | 260           | 13                            | 60                    | ...        |
| Belgium and Holland . . . . . | 20                                    | 90            | 110           | 12                            | 40                    | ...        |
| Sweden and Norway . . . . .   | 320                                   | 300           | 620           | 92                            | ...                   | 200        |
| United States . . . . .       | 3,000                                 | 6,000         | 9,000         | 150                           | ...                   | 160        |
| Canada . . . . .              | 300                                   | 200           | 500           | 100                           | ...                   | 150        |
| <b>Total . . . . .</b>        | <b>11,250</b>                         | <b>10,850</b> | <b>22,100</b> | <b>40</b>                     | <b>730</b>            | <b>730</b> |

#### UNITED KINGDOM

The consumption of timber has been as follows :—

| Year | Millions of Cubic Ft. |          |       | Cubic Ft. per Inhabitant | Per Load (50 Cubic Ft.) |       |
|------|-----------------------|----------|-------|--------------------------|-------------------------|-------|
|      | British               | Imported | Total |                          | Duty                    | Price |
| 1790 | 106                   | 11       | 117   | 8                        | 1                       | 1     |
| 1803 | 110                   | 12       | 122   | 8                        | 25                      | 70    |
| 1811 | 110                   | 14       | 124   | 7                        | 55                      | 90    |
| 1820 | 115                   | 22       | 137   | 7                        | 65                      | 185   |
| 1830 | 115                   | 28       | 143   | 6                        | 55                      | 160   |
| 1840 | 115                   | 41       | 156   | 6                        | 55                      | 150   |
| 1850 | 120                   | 85       | 205   | 8                        | 7                       | 150   |
| 1860 | 120                   | 145      | 265   | 9                        | 4                       | 70    |
| 1870 | 130                   | 252      | 382   | 12                       | ...                     | 68    |
| 1880 | 140                   | 290      | 430   | 12                       | ...                     | 65    |
| 1889 | 140                   | 392      | 532   | 14                       | ...                     | 50    |

The most remarkable planters in the United Kingdom are:—

| Planter          | Locality  | No. of Trees | Area, Acres |
|------------------|-----------|--------------|-------------|
| Duke of Athol    | Dunkeld   | 28,000,000   | 16,600      |
| Earl of Seafield | Inverness | 60,000,000   | 40,000      |
| Lord Powerscourt | Wicklow   | 3,000,000    | 1,000       |

The last-mentioned began in 1869, and his outlay has averaged 66s. per acre; he expects after 1894 to get a return of 8s. per acre, and that in 1915 the plantation will be worth £50 an acre.

The largest forests in England are New Forest, 67,000 acres, and Dean Forest, 23,000.

#### FRANCE

France has been steadily increasing her forests in the last forty years, their area being now 7 million acres more than in 1848. In that interval no less than 9 million acres of waste mountain lands have been planted, the increase of urban population causing a great demand for firewood, the consumption of which averages 23 cubic feet per inhabitant. In 1868 the area and product of forests was as follows:—

|         | Acres      | Product, £ |
|---------|------------|------------|
| State   | 2,110,000  | 1,720,000  |
| Private | 15,950,000 | 8,580,000  |
| Total   | 18,060,000 | 10,300,000 |

The product was made up approximately thus:—

|                                 |             |
|---------------------------------|-------------|
| 800 million cubic feet firewood | £ 4,000,000 |
| 300 „ „ „ timber                | 6,300,000   |

Paris requires one million acres for her supply of firewood, as she consumes the equivalent of 50,000 acres yearly, say 1000 acres each week. France is obliged to import 200 million cubic feet of timber yearly, her forests being insufficient for her requirements. The Government has planted largely in Algeria: at Lake Fetzara, on an area of 130,000 acres, 12,700,000 Australian gum-trees.

#### GERMANY

The forest area is as follows:—

|              | Acres      |
|--------------|------------|
| Prussia      | 17,800,000 |
| Bavaria      | 5,900,000  |
| Other States | 8,600,000  |
| Total        | 32,300,000 |

German forests produce 40 cubic feet per acre, those belonging to the Crown forming 30 per cent. of the total. In Prussia the average yield is only 30 cubic feet, but in Bavaria it rises to 45 feet per acre. The consumption of firewood for the whole of Germany averages 15 cubic feet per inhabitant. The value of product is:—

|                                 |             |
|---------------------------------|-------------|
| 700 million cubic feet firewood | £ 3,000,000 |
| 600 „ „ „ timber                | 10,000,000  |

The forest area has been reduced by two million acres in Prussia since the breaking up of the nobles' estates in 1850-59.

#### RUSSIA

Forests are steadily diminishing with the increase of population, and especially since the emancipation of the serfs. No less than 101 million acres of forest have been cleared since 1872 according to official returns, being at the rate of 7 million acres yearly. In 1860 the Crown forests covered 333 million acres, and in 1878 according to Strebinski they comprised only 180 million acres; but of course the emancipation transferred (see *Lands*) several millions to the serfs.

The Czar has 27,000 wood-police, who cut each 150 fagots, or  $1\frac{1}{2}$  ton of wood (mostly firewood) daily; say 450 tons per policeman yearly, the product per man being valued at £45 sterling. These men, for example, felled 670 million cubic feet in 1872, and 540 million in 1878; we have no later dates. The foregoing applies merely to 30 million acres of forest, the personal property of the Czar, besides which the Crown or Exchequer owns 150 million acres, the yield of which may be estimated at 2000 million cubic feet. The product of Crown forests averages only 1s. per acre yearly, that of private or communal forests 30d., viz.:—

|                      | Million Acres | Product, £. |
|----------------------|---------------|-------------|
| Crown forests        | 180           | 10,000,000  |
| Private and communal | 246           | 30,800,000  |
|                      | 426           | 40,800,000  |

Bushen estimated the product of Russian forests in 1864 at £24,000,000 sterling.

The consumption of firewood is estimated at one ton or 50 cubic feet per inhabitant, a ton being composed of 100 fagots, and worth about a silver rouble or 3s. per ton. At St. Petersburg, according to Simmonds, the consumption is much greater, reaching 3,000,000 tons yearly, or nearly 200 cubic feet per inhabitant. In 1882 the value of all wood and timber was approximately:—

|                            | Tons        | Value, £   |
|----------------------------|-------------|------------|
| Firewood                   | 90,000,000  | 13,600,000 |
| Exported by land and water |             | 5,600,000  |
| Used for building, &c.     | 34,000,000  | 21,600,000 |
| Total                      | 124,000,000 | 40,800,000 |

In 1878 the forests were held approximately thus:—

|             | Million Acres |
|-------------|---------------|
| Crown       | 180           |
| Nobles, &c. | 284           |
| Peasants    | 21            |
| Total       | 485           |

In 1881 the total area was estimated at 426 million acres.

#### AUSTRIA-HUNGARY

In Austria-Hungary nearly one-fourth of the forests belongs either to the Crown or the Church, the clergy of Hungary holding 1,500,000 acres.

The yield varies from one to two stères; average 45 cubic feet per acre. Value of product approximately as follows:—

|                                  |             |
|----------------------------------|-------------|
| 1200 million cubic feet firewood | £ 4,000,000 |
| 800 „ „ „ timber                 | 14,000,000  |

About one-eighth of the timber is exported.

The forest area of Austria is 46,100,000 acres, viz.:—

| Acres           | Acres      |
|-----------------|------------|
| Hungary         | 13,420,000 |
| Transylvania    | 6,550,000  |
| Galitzia        | 5,730,000  |
| Bohemia         | 3,240,000  |
| Tyrol           | 2,200,000  |
| Other provinces | 14,960,000 |

#### ITALY

Italian forests show an average product of 44 cubic feet per acre, more than half of which goes in firewood, the rest to the carpenters, viz.:—

|                                 |             |
|---------------------------------|-------------|
| 240 million cubic feet firewood | £ 1,000,000 |
| 200 „ „ „ timber                | 4,000,000   |

The price of forest land averages £13 per acre.

The consumption of firewood is 8 cubic feet per inhabitant. The supply of timber is short, Italy having to import 40 million cubic feet yearly.

## SWEDEN AND NORWAY

Sweden and Norway produce about 900 million cubic feet, the felling of which employs 40,000 woodcutters. One-third is used for firewood, the rest made into timber for building, &c., of which 200 million cubic feet are exported. Of the total production, two-thirds correspond to Sweden, one-third to Norway.

## BELGIUM

The total forest area is 1,220,000 acres, including 80,000 that belong to the State, and 340,000 to Communes, the rest being private estates. Annual product 70 millions cubic feet, which yields about 7s. an acre.

## UNITED STATES

The value of timber and firewood consumed yearly is shown approximately as follows:—

|                            | Value, £   |             |
|----------------------------|------------|-------------|
|                            | 1870       | 1880        |
| Firewood . . . .           | 15,000,000 | 20,000,000  |
| Fences . . . . .           | 30,000,000 | 40,000,000  |
| Sleepers, furniture, &c. . | 28,000,000 | 48,000,000  |
| Export . . . . .           | 4,000,000  | 4,000,000   |
| Total . . . . .            | 77,000,000 | 112,000,000 |

About 30,000 acres of timber are felled daily, the saw-mills of Maine consuming 50 million feet, those of Michigan 80 million feet monthly. In 1880 the Union counted 25,700 sawmills, with 141,600 hands, whose wages reached £6,700,000 yearly, turning out 18,000 million linear feet of boards, valued at £48,000,000 sterling. The consumption of wood for manufactures is enormous. Even trifling articles of use enter largely into the annual consumption. For example, the Harbour Springs factory turns out 8,000,000 wooden toothpicks daily. Minneapolis requires 2,000,000 barrels yearly for its flour-mills.

The forest area is distributed as follows:—

| States              | Acres      | States           | Acres       |
|---------------------|------------|------------------|-------------|
| New England . . . . | 19,000,000 | Southern . . . . | 233,000,000 |
| Middle . . . . .    | 18,000,000 | West . . . . .   | 196,000,000 |

Making up a total of 466 million acres.

## CANADA

The annual production averages 70 million logs, equal to 560 million cubic feet, and 190,000 masts. The total value is £8,200,000, home use £4,000,000, exportation £4,200,000.

## INDIA

Excluding Bengal and Upper Burmah, there are 45 million acres of forest (see p. 56).

## AUSTRALIA

According to Simmonds, the forest area is:—

|                           | Acres      |
|---------------------------|------------|
| New South Wales . . . .   | 3,760,000  |
| Tasmania . . . . .        | 4,000,000  |
| Western Australia . . . . | 19,200,000 |
| Victoria . . . . .        | 25,600,000 |
| New Zealand . . . . .     | 12,100,000 |

Total . . . . . 64,660,000

He adds that in New Zealand it is being rapidly diminished.

## FORTIFICATIONS

Louis Philippe spent 16 millions sterling on forts, especially the *enceinte* of Paris. Lord Palmerston spent 7½ millions on the coast fortifications begun by him in 1860. The German Government has spent 2½ millions in military works around Strasburg. The site occupied by

the Paris fortifications is 3900 acres, and was valued in 1840 at £140 an acre; it is now about to be sold for £700 an acre, on the levelling of the forts.

## FREIGHT

The carrying trade of the world has been prodigiously developed since the introduction of railways and steam-boats. Down to the year 1850, when the Continent of Europe had only 7600 miles of railway, the ordinary cost of land-carriage for goods was £3 a ton per 100 miles, or six times what it is at present. Freight by sea then averaged over 40s. a ton, or more than double what it is now. The following table shows approximately the tonnage borne by rail and shipping at various dates:—

| Year           | Millions of Tons |          |       |
|----------------|------------------|----------|-------|
|                | Rail             | Shipping | Total |
| 1830 . . . . . | 3                | 24       | 27    |
| 1840 . . . . . | 16               | 30       | 46    |
| 1850 . . . . . | 97               | 37       | 134   |
| 1860 . . . . . | 193              | 48       | 241   |
| 1870 . . . . . | 602              | 64       | 666   |
| 1875 . . . . . | 715              | 80       | 795   |
| 1880 . . . . . | 893              | 112      | 1,005 |
| 1887 . . . . . | 1,358            | 139      | 1,497 |

The saving to the people of Prussia alone, in having their merchandise carried by rail, was estimated in 1878 at 120 millions sterling per annum; this would imply that the saving in 1887 for all nations (per annum) was as follows:—

|                       | Tons  | Millions £ Saved |
|-----------------------|-------|------------------|
| Europe . . . . .      | 752   | 1,128            |
| United States . . . . | 552   | 828              |
| Colonies . . . . .    | 54    | 81               |
| Total . . . . .       | 1,358 | 2,037            |

This saving may be considered approximately correct, and is equal to 80 per cent. of the total annual expenditure for food (see *Food*) by the nations comprised above. Nevertheless, the cost of railway carriage for goods is by no means uniform; the averages in 1885 showed thus:—

## Cost per 100 Miles, Pence per Ton

|                     |    |                   |     |                    |     |
|---------------------|----|-------------------|-----|--------------------|-----|
| U. States . . . . . | 63 | Italy . . . . .   | 108 | G. Britain . . . . | 135 |
| Belgium . . . . .   | 70 | Austria . . . . . | 111 | France . . . . .   | 134 |
| Germany . . . . .   | 84 | Holland . . . . . | 118 | Sweden . . . . .   | 160 |

In 1888 the railways of the United Kingdom carried about 260 million tons of merchandise, the average haulage being supposed to be 30 miles: the freight charged was £38,800,000, equal to 120d. per 100 miles. This is precisely the rate charged on the London and North-Western line for carrying meat from Liverpool to London.

American railways have reduced their charges more than 50 per cent. in twenty years, viz.:—

## Railways of United States, Charge per Ton 100 Miles

| Year           | £ s. d. | Year           | £ s. d. |
|----------------|---------|----------------|---------|
| 1865 . . . . . | 0 17 2  | 1880 . . . . . | 0 7 4   |
| 1870 . . . . . | 0 11 9  | 1885 . . . . . | 0 5 4   |

The cost of sending a ton of grain from Chicago to Liverpool *via* New York was as follows:—

| Year           | Chicago to New York |                   | New York to Liverpool | Chicago to Liverpool, Water-Route |
|----------------|---------------------|-------------------|-----------------------|-----------------------------------|
|                | By Water            | By Rail           |                       |                                   |
| 1868 . . . . . | £ s. d.<br>2 2 0    | £ s. d.<br>3 10 0 | £ s. d.<br>1 3 0      | £ s. d.<br>3 5 0                  |
| 1873 . . . . . | 1 12 0              | 2 16 0            | 1 15 0                | 3 7 0                             |
| 1880 . . . . . | 1 1 0               | 1 12 0            | 1 0 0                 | 2 1 0                             |
| 1884 . . . . . | 0 12 0              | 1 1 0             | 0 12 0                | 1 4 0                             |



The above charge for 1884 was equal to 7d. per bushel, and even lower rates have prevailed since then. The charge from Chicago to Liverpool fell 63 per cent. in the above interval of sixteen years. In 1888 the charges from Chicago to European ports per ton were as follows :—

| Chicago to        | Shillings per Ton |       |
|-------------------|-------------------|-------|
|                   | Bacon             | Flour |
| Liverpool . . . . | 37                | 31    |
| London . . . . .  | 35                | 32    |
| Hamburg . . . . . | 44                | 37    |
| Antwerp . . . . . | 43                | 36    |

The freights current for ocean routes in 1888 were :—

| Route                     | Shillings per Ton | Miles  | Pence per 1000 Miles |
|---------------------------|-------------------|--------|----------------------|
| London to Singapore . .   | 25                | 8,400  | 36                   |
| London to Australia . .   | 27                | 11,000 | 32                   |
| London to San Francisco . | 30                | 14,000 | 26                   |
| London to Cape Town . .   | 40                | 6,000  | 80                   |
| Newcastle to Bombay . .   | 22                | 6,500  | 40                   |
| Antwerp to Rio Janeiro .  | 36                | 5,400  | 80                   |
| China to New York . . .   | 45                | 14,000 | 39                   |

This gives a general average of 37d. per thousand miles of ocean freight, against 90s. by railway; that is, the latter costs thirty times the former. The President of Civil Engineers in his inaugural speech for 1890 stated that in 1870 it cost £25 to send a ton of merchandise from London to Sydney, which now costs only 30s., a fall of 94 per cent. He added that in 1820 the conveyance of cotton bales from Liverpool to Manchester, thirty miles, cost 40s. a ton, which is now done at 7s., a fall of 82 per cent. With reference to the Manchester ship-canal, it was stated in 1889 that the railway charges between Manchester and Liverpool were still excessive, the freight on a ton of merchandise being as follows :—

|                             |              |
|-----------------------------|--------------|
| Liverpool to Bombay . . .   | 10 shillings |
| Liverpool to Manchester . . | 12 „         |

The countries which import fruit are the following :—

|                       | Tons   |         |         | Value, £  |           |           |
|-----------------------|--------|---------|---------|-----------|-----------|-----------|
|                       | 1860   | 1880    | 1887    | 1860      | 1880      | 1887      |
| United Kingdom . . .  | 79,000 | 107,000 | 320,000 | 1,800,000 | 3,300,000 | 6,200,000 |
| France . . . . .      | ...    | 32,000  | 195,000 | ...       | 3,900,000 | 3,000,000 |
| United States . . . . | 13,000 | 40,000  | 67,000  | 800,000   | 2,700,000 | 4,300,000 |

The countries which export fruit are the following :—

|                    | Tons   |        |         | Value, £  |           |           |
|--------------------|--------|--------|---------|-----------|-----------|-----------|
|                    | 1862   | 1875   | 1887    | 1862      | 1875      | 1887      |
| Italy . . . . .    | 48,000 | 99,000 | 240,000 | 1,200,000 | 1,600,000 | 2,200,000 |
| Spain . . . . .    | 34,000 | 72,000 | 160,000 | 700,000   | 1,500,000 | 2,200,000 |
| Portugal . . . . . | ...    | 24,000 | 17,000  | ...       | 160,000   | 140,000   |
| Greece . . . . .   | 42,000 | 87,000 | 107,000 | 540,000   | 1,470,000 | 1,900,000 |

The price of fruit in most countries has fallen notably in the last thirty years, which is due to the great increase of production, and to improved facilities for bringing fruit to ports for shipment.

Mr. Loring, ex-Commissioner of Agriculture, valued the fruit crop of the United States in 1880 at £42,000,000 sterling, and the annual consumption of fruit at 12s. English, per inhabitant of the Union, and 24s. in New York. The *Royal Agricultural Journal* of England states the acreage under fruit-trees in the United King-

The ordinary expense of carrying goods in 1884 in all countries was estimated thus :—

Shillings per Ton, 1000 Miles

|                   |    |                    |     |
|-------------------|----|--------------------|-----|
| By sea . . . . .  | 5  | By railway . . . . | 100 |
| „ canal . . . . . | 20 | „ highroad . . . . | 300 |

There is not much difference between the freight paid by waggon on highroads in France and that charged by caravans across Central Africa. Thus, a camel-load of 600 lbs. from Berber to Suakim (280 miles) costs 25s., which is equal to 33s. a ton per 100 miles, 10 per cent. over the ordinary charge by waggon in Europe. The effects of freight on prices are shown by the fact that Athens imports wheat from Odessa because land-carriage in the interior of Greece is £10 a ton per 100 miles, and consequently it is cheaper to consume Russian wheat.

Brazilian railways still charge enormous freights—coffee, for example, paying 550d. per 100 miles, or nine times as much as in the United States. Even freight by water in Brazil is dear, the Brazilian steamers charging £16 a ton from Montevideo to Matto Grosso, the distance being 2500 miles.

In Australia the construction of railways has been attended with the following reduction of freight charges :—

Haulage of One Ton Ten Miles

| Year           | Pence |
|----------------|-------|
| 1864 . . . . . | 75    |
| 1872 . . . . . | 36    |
| 1878 . . . . . | 24    |
| 1887 . . . . . | 18    |

During the gold fever extravagant sums were paid for freight, the ordinary charge in 1851 from Melbourne to Bendigo being £150 per ton.

## FRUIT

The degrees of sugar in various fruits are :—

|                      |     |                    |      |
|----------------------|-----|--------------------|------|
| Peach . . . . .      | 1.6 | Apple . . . . .    | 7.9  |
| Raspberry . . . . .  | 4.0 | Mulberry . . . . . | 9.2  |
| Strawberry . . . . . | 5.7 | Pear . . . . .     | 9.4  |
| Currant . . . . .    | 6.1 | Cherry . . . . .   | 10.8 |
| Gooseberry . . . . . | 7.2 | Grape . . . . .    | 14.9 |

dom, and the importation of apples from abroad, to be thus :—

| Fruit Acreage  |         | Apples Imported |        |
|----------------|---------|-----------------|--------|
| Year           | Acres   | Year            | Tons   |
| 1839 . . . . . | 90,000  | 1839 . . . . .  | 1,800  |
| 1872 . . . . . | 172,000 | 1869 . . . . .  | 12,300 |
| 1889 . . . . . | 214,000 | 1888 . . . . .  | 95,000 |

The annual consumption of fruit and vegetables in London and Paris is stated by the *Farming World* thus:—

|               | Fruit, Lbs. per Inhab. |       |             | Vegetables, Lbs. per Inhab. |       |
|---------------|------------------------|-------|-------------|-----------------------------|-------|
|               | London                 | Paris |             | London                      | Paris |
| Apples . .    | 65                     | 145   | Carrots . . | 7                           | 37    |
| Cherries . .  | 2                      | 20    | Celery . .  | 1                           | 6     |
| Pears . .     | 40                     | 170   | Onions . .  | 34                          | 5     |
| Plums . .     | 17                     | 183   | Peas . .    | 3                           | 7     |
| Raspberries . | 1                      | 2     | Potatoes .  | 173                         | 49    |
| Strawberries  | 4                      | 13    | Tomatoes .  | 57                          | 17    |

*Almonds.*—The exportation from Italy was as follows:—

| Year       | Tons   | Value, £ | Value per Ton, £ |
|------------|--------|----------|------------------|
| 1862 . . . | 2,500  | 190,000  | 76               |
| 1870 . . . | 3,100  | 240,000  | 78               |
| 1887 . . . | 11,100 | 600,000  | 54               |

And from Spain as follows:—

| Year       | Tons  | Value, £ | Value per Ton, £ |
|------------|-------|----------|------------------|
| 1872 . . . | 3,800 | 180,000  | 47               |
| 1882 . . . | 4,100 | 180,000  | 44               |
| 1887 . . . | 4,400 | 220,000  | 50               |

The almond flourishes between 27 and 45° N. lat., and requires a medium annual temperature of 58° F. In France the yield averages 12 lbs., in California 20 lbs. per tree. The fruit usually sells at £100 per ton. The crop in California averages a value of £100 sterling per acre.

*Apple.*—The apple crop in Great Britain averages 85,000 tons, valued at £10 per ton; about 12 million gallons of cider are made yearly. The production of cider in France averages 230 million gallons. Apples in France are worth £5 per ton, ordinary crop 1,600,000 tons. The orchards of Great Britain cover 180,000 acres: a ton of ordinary good apples will produce from 100 to 200 gallons of cider. Great Britain imports 900,000 barrels of apples yearly from the United States and Canada.

The imports show thus:—

|                | Tons   |
|----------------|--------|
| 1839 . . . . . | 1,800  |
| 1869 . . . . . | 12,300 |
| 1888 . . . . . | 95,000 |

The annual consumption in the United Kingdom averages 11 lbs. per inhabitant.

*Banana.*—The most prolific of all fruits of the earth, being 44 times more productive than potatoes, and 131 times more than wheat.

*Chestnuts* form an important item of food in France and Italy. Returns for 1886–88 were:—

|             | France     | Italy      |
|-------------|------------|------------|
| Acres . . . | 1,220,000  | 1,010,000  |
| Bushels . . | 19,000,000 | 14,000,000 |

The yield of a good tree averages two bushels. The French crop is valued at £1,600,000, the Italian at £1,200,000 sterling; the average yield in France is 15, in Italy 14 bushels per acre. Italy exports 500,000 bushels.

*Currents.*—The exportation from Greece shows:—

| Period        | Annual Average |           | Value per Ton, £ |
|---------------|----------------|-----------|------------------|
|               | Tons           | Value, £  |                  |
| 1867–70 . . . | 52,000         | 600,000   | 12               |
| 1871–75 . . . | 67,000         | 1,200,000 | 18               |
| 1880 . . . .  | 54,000         | 840,000   | 16               |
| 1889 . . . .  | 56,000         | 900,000   | 16               |

Greece produces annually 100,000 tons, the home consumption averaging 40,000 tons.

Imports into the United Kingdom were as follows:—

| Period        | Annual Average |           | Value per Ton, £ |
|---------------|----------------|-----------|------------------|
|               | Tons           | Value, £  |                  |
| 1866–70 . . . | 45,000         | 910,000   | 20               |
| 1871–80 . . . | 54,000         | 1,450,000 | 27               |
| 1881–88 . . . | 53,000         | 1,420,000 | 27               |

*Date-Palm*

|             | Number of Trees | Yield of Sugar, Tons |
|-------------|-----------------|----------------------|
| India . . . | 13,000,000      | 26,000               |
| Egypt . . . | 4,500,000       | ...                  |

*Figs.*—The exportation by Greece and Portugal is as follows:—

| Greece     |       |          | Portugal   |        |          |
|------------|-------|----------|------------|--------|----------|
| Year       | Tons  | Value, £ | Year       | Tons   | Value, £ |
| 1867 . . . | 7,000 | 65,000   | 1877 . . . | 5,000  | 52,000   |
| 1888 . . . | 8,000 | 90,000   | 1887 . . . | 13,000 | 110,000  |

*Oranges and Lemons* flourish in Italy, Spain, and Portugal. The orange was introduced into Europe by the Moors in the eleventh century, and first brought to England by Sir Walter Raleigh in the sixteenth. It was first planted in Australia, near Sydney, in 1788, and has thrived there. The cost of clearing and planting an orange-farm in New South Wales is £30 per acre, and the product begins in the fourth year, rising as follows:—

|                |              |                |              |
|----------------|--------------|----------------|--------------|
| 4th year . . . | £10 per acre | 6th year . . . | £25 per acre |
| 5th " . . .    | 15 " "       | 7th " . . .    | 40 " "       |

Sometimes the product reaches £100 per acre, a single tree often giving from 1500 to 2000 oranges, worth 4s. per hundred. In Italy the ordinary yield is 250 lemons and 300 oranges per tree, but a single tree will often give in Sicily as many as 3000. The average in Seville is 600, in Paraguay 700 oranges per tree.

The island of St. Michael, Azores, has 210 acres mostly under oranges, of which it exports 250 millions yearly.

The number of trees and fruit in Italy are:—

|              | Trees     | Millions Fruit Yearly |
|--------------|-----------|-----------------------|
| Orange . . . | 5,400,000 | 1,600                 |
| Lemon . . .  | 4,800,000 | 1,200                 |

Italy exports about 2500 millions oranges and lemons yearly, Spain 1400 millions, Portugal 80 millions, worth £40,000; Paraguay 60 millions, worth £20,000. The Argentine provinces also grow largely, and export 7 millions yearly to Bolivia, value £2000. Dundee consumes yearly 6000 chests of bitter oranges, and exports 1500 tons of marmalade. In Sicily it is found that 1000 lemons give 17 gallons of juice.

The number approximately of oranges imported into the United Kingdom has been:—

| Year         | Millions | Per Inhabitant | Price, Shillings per 1000 |
|--------------|----------|----------------|---------------------------|
| 1854 . . . . | 244      | 9              | 30                        |
| 1861 . . . . | 390      | 13             | 36                        |
| 1871 . . . . | 712      | 23             | 26                        |
| 1881 . . . . | 1,152    | 33             | 23                        |
| 1889 . . . . | 1,760    | 46             | 20                        |

The consumption of oranges per inhabitant represents 1s. yearly or about 2s. by retail.

The weight, value, and approximate number of oranges and lemons exported in 1888 by Italy and Spain were :—

|                 | Tons    | Millions of Fruit | Value, £  | £ per Ton |
|-----------------|---------|-------------------|-----------|-----------|
| Italy . . . . . | 165,000 | 2,470             | 1,200,000 | 7.3       |
| Spain . . . . . | 95,000  | 1,430             | 800,000   | 8.4       |

A box contains 226, a chest 340 oranges.

*Reisms.*—The exportation from Spain was as follows :—

| Period            | Tons   | Value, £ | Value per Ton, £ |
|-------------------|--------|----------|------------------|
| 1872-80 . . . . . | 37,000 | 100,000  | 30               |
| 1881-87 . . . . . | 36,500 | 900,000  | 25               |

Imports into the United Kingdom have been yearly thus :—

| Period            | Tons   | Value, £ | Value per Ton, £ |
|-------------------|--------|----------|------------------|
| 1866-70 . . . . . | 20,000 | 640,000  | 32               |
| 1871-80 . . . . . | 25,000 | 880,000  | 35               |

## FUEL

The annual consumption is approximately as follows :—

|                              | Millions   |                      | Per Inhabitant |                      |
|------------------------------|------------|----------------------|----------------|----------------------|
|                              | Coal, Tons | Firewood, Cubic Feet | Coal, Cwts.    | Firewood, Cubic Feet |
| United Kingdom . . . . .     | 140        | 60                   | 74             | 2                    |
| France . . . . .             | 27         | 800                  | 14             | 21                   |
| Germany . . . . .            | 55         | 700                  | 24             | 15                   |
| Russia . . . . .             | 9          | 4,000                | 2              | 45                   |
| Austria . . . . .            | 16         | 1,200                | 9              | 32                   |
| Italy . . . . .              | 3          | 240                  | 2              | 8                    |
| Spain and Portugal . . . . . | 2          | 110                  | 2              | 6                    |
| Belgium . . . . .            | 12         | ...                  | 44             | ...                  |
| Holland . . . . .            | 3          | 20                   | 14             | 5                    |
| Sweden and Norway . . . . .  | 2          | 320                  | 5              | 45                   |
| Europe . . . . .             | 269        | 7,450                | 17             | 20                   |
| United States . . . . .      | 155        | 3,000                | 28             | 50                   |
| Canada . . . . .             | 2          | 140                  | 9              | 28                   |
| Total . . . . .              | 426        | 10,590               | 18             | 24                   |

Pounds of water evaporated by 1 lb. of fuel as follows :—

|                 |     |                            |      |
|-----------------|-----|----------------------------|------|
| Straw . . . . . | 1.9 | Coke or charcoal . . . . . | 6.4  |
| Wood . . . . .  | 3.1 | Coal . . . . .             | 7.9  |
| Peat . . . . .  | 3.8 | Petroleum . . . . .        | 14.6 |

To make a ton of charcoal will be required of wood as follows :—

|                    | <i>Tons</i> |                 | <i>Tons</i> |                 | <i>Tons</i> |
|--------------------|-------------|-----------------|-------------|-----------------|-------------|
| Oak . . . . .      | 4.4         | Beech . . . . . | 5.1         | Birch . . . . . | 5.9         |
| Chestnut . . . . . | 4.5         | Elm . . . . .   | 5.2         | Pine . . . . .  | 6.0         |

For heating power 12 lbs. charcoal are equal to 10 lbs. coal or 13 lbs. coke. It is much used in America, France, and Italy. The ironworks of the United States consume 600,000 tons charcoal yearly, the yield of 50,000 acres, the average being 12 tons per acre. At Noirmoutiers, in France, 200 furnaces are constantly at work making charcoal from seaweed, 20 tons of fresh weed or 4 tons of dry producing 1 ton of charcoal, value 10s. In Ireland

it is often made from peat. The heating power of peat varies as follows :—

|                                |     |                         |    |
|--------------------------------|-----|-------------------------|----|
| Bog of Allen, Ireland. . . . . | 100 | Passy, France . . . . . | 52 |
| Hartz Mountains . . . . .      | 61  | Ham, „ . . . . .        | 49 |
| Königsbrunn . . . . .          | 57  | Troyes, „ . . . . .     | 32 |

The production in France is declining, not exceeding 300,000 tons per annum. Some years ago an estimate was made of the area and contents of peat bogs in the United Kingdom, and the value of the peat at 6d. per ton, viz. :—

|                          | Acres     | Millions of Tons | Value at 6d. per Ton, £ |
|--------------------------|-----------|------------------|-------------------------|
| Ireland . . . . .        | 2,831,000 | 33,972           | 850,000,000             |
| Great Britain . . . . .  | 3,505,000 | 42,060           | 1,050,000,000           |
| United Kingdom . . . . . | 6,336,000 | 76,032           | 1,900,000,000           |

The average depth of peat is 12 feet, equal to a yield per acre of 12,000 tons of dried turf.

## FURNITURE

Insurance agents say that furniture usually represents a value equal to half that of the house in which it is, including carriages, clothing, jewellery, and works of art. On this basis the value at various dates of furniture in the United Kingdom would be thus :—

| Year           | Millions £ | Per House, £ | Per Inhab., £ |
|----------------|------------|--------------|---------------|
| 1802 . . . . . | 190        | 70           | 12            |
| 1830 . . . . . | 270        | 75           | 13            |
| 1850 . . . . . | 440        | 95           | 16            |
| 1860 . . . . . | 580        | 118          | 20            |
| 1870 . . . . . | 740        | 131          | 24            |
| 1880 . . . . . | 1,030      | 158          | 29            |
| 1888 . . . . . | 1,320      | 186          | 34            |

In 1880 this value was approximately distributed among five classes of householders, as follows :—

| Class           | Houses, Thousands | Furniture, Millions £ | Average, £ |            |
|-----------------|-------------------|-----------------------|------------|------------|
|                 |                   |                       | Per House  | Per Inhab. |
| 1st . . . . .   | 23                | 136                   | 5,900      | 1,080      |
| 2nd . . . . .   | 261               | 274                   | 1,050      | 190        |
| 3rd . . . . .   | 563               | 172                   | 307        | 55         |
| 4th . . . . .   | 1,423             | 186                   | 130        | 23         |
| 5th . . . . .   | 4,175             | 262                   | ...        | 6,211      |
| Total . . . . . | 6,445             | 1,030                 | 158        | 29         |

The above does not include churches and other public buildings.

In 1883 Professor Leone Levi found 79,000 cabinet-makers in the United Kingdom, whose wages reached £4,600,000. The output of furniture represents a value of nearly 40 millions sterling per annum, almost wholly for home use. The export of furniture has been :—

|                |         |                |         |
|----------------|---------|----------------|---------|
| 1855 . . . . . | 180,000 | 1875 . . . . . | 390,000 |
| 1865 . . . . . | 290,000 | 1888 . . . . . | 750,000 |

The annual expenditure on furniture in the United Kingdom is about £1 sterling per inhabitant.

## G.

## GAMES

**Billiards.**—At billiards the greatest "break" on record is 2413, scored by W. J. Peall, November 5, 1886, at the Aquarium, London. The same player made the greatest number of spot hazards in succession, 633, in the year 1888.

**Bull-Fighting.**—In 1866 the balance-sheet of ninety-nine bull-rings then in Spain contained the following items:—

|                      | No.   | Cost, £ | Average, £ |
|----------------------|-------|---------|------------|
| Bulls killed . . .   | 2,375 | 61,000  | 26         |
| Horses killed . . .  | 3,561 | 70,000  | 20         |
| Bull-rings, rent . . | 99    | 130,000 | 1,310      |
| Total . . .          | ...   | 261,000 | ...        |

The number of bull-rings in 1878 was still the same. The above does not include the pay of Matadores, Bandilleros, &c.

## GAS

The following table shows the cost of street lighting in 1880 in various cities:—

|                   | Cost per Annum, £ | Price per 1000 Feet, Pence | Cost per Inhab., Pence | Candle-Power |
|-------------------|-------------------|----------------------------|------------------------|--------------|
| London . . .      | 460,000           | 45                         | 30                     | 12           |
| Paris . . .       | 620,000           | 68                         | 70                     | 13           |
| Rome . . .        | 24,000            | ...                        | 20                     | ...          |
| Vienna . . .      | 43,000            | 45                         | 10                     | 15           |
| Berlin . . .      | 53,000            | 51                         | 13                     | 16           |
| New York . . .    | ...               | 120                        | ...                    | 16           |
| San Francisco . . | 59,000            | ...                        | 67                     | ...          |
| Glasgow . . .     | ...               | 48                         | ...                    | 28           |
| Bucharest . . .   | 20,000            | ...                        | 24                     | ...          |
| Palermo . . .     | 20,000            | ...                        | 23                     | ...          |
| Liverpool . . .   | ...               | 42                         | ...                    | 22           |
| Turin . . .       | 18,000            | ...                        | 20                     | ...          |
| Florence . . .    | 14,000            | ...                        | 22                     | ...          |
| Manchester . . .  | ...               | 36                         | ...                    | 22           |
| Buda-Pesth . . .  | 16,000            | ...                        | 12                     | ...          |

The consumption in London and Paris was as follows:—

|                    | London |        |        | Paris |       |        |
|--------------------|--------|--------|--------|-------|-------|--------|
|                    | 1860   | 1880   | 1888   | 1860  | 1880  | 1889   |
| Millions cubic ft. | 8,200  | 18,100 | 24,700 | 2,660 | 8,470 | 11,010 |
| Per inhab. " "     | 2,930  | 4,750  | 5,400  | 1,610 | 3,940 | 4,800  |

Paris has 49,000 street lamps, the other French towns 190,000. London has 71,100.

The following table shows various analyses of gas:—

|                     | London | Paris | Bonn  | Gas from Wood | From Peat | From Rock-Oil | From Petroleum |
|---------------------|--------|-------|-------|---------------|-----------|---------------|----------------|
| Hydrogen . . .      | 46.0   | 50.2  | 39.8  | 31.8          | 27.5      | 3.1           | 32.7           |
| Gas de marais . .   | 39.5   | 32.8  | 43.1  | 35.3          | 42.7      | 64.8          | 45.7           |
| Oxide of carbon . . | 7.5    | 12.9  | 4.7   | 25.6          | 20.3      | 6.7           | ...            |
| Various . . .       | 7.0    | 4.1   | 12.4  | 7.3           | 9.5       | 25.4          | 21.6           |
| Total . . .         | 100.0  | 100.0 | 100.0 | 100.0         | 100.0     | 100.0         | 100.0          |

The consumption in the United Kingdom in 1880 was as follows:—

|                            | London | Other Towns | Total  |
|----------------------------|--------|-------------|--------|
| Millions cubic feet . . .  | 18,100 | 53,500      | 71,600 |
| Per inhabitant, cubic feet | 4.750  | 3.100       | 3.400  |

The average expenditure for gas is 21s. per inhabitant per annum in London, and 10s. in other towns. A ton of coal gives 9000 cubic feet of gas.

The London Gas Company showed in 1880 as follows:—Capital, £13,026,000; receipts, £3,993,000; expenses, £2,610,000; net earnings, £1,383,000.

In 1888 London consumed as follows:—

|                      | Millions of Cubic Feet |
|----------------------|------------------------|
| Private lights . . . | 23,300                 |
| Public lights . . .  | 1,400                  |
| Total . . .          | 24,700                 |

The paid-up capital of London gas companies in 1888 was £14,100,000, including £3,000,000 loan capital.

The statistics of gas companies in the United Kingdom, including those belonging to municipal bodies, are as follows:—

|                         | 1885       | 1888       |
|-------------------------|------------|------------|
| Capital, £ . . .        | 55,100,000 | 59,100,000 |
| Tons coal used . . .    | 8,400,000  | 9,300,000  |
| Millions cubic feet gas | 85,600     | 94,700     |
| Number of consumers     | 2,100,000  | 2,200,000  |

|                         | Joint-Stock | Municipal  | Total      |
|-------------------------|-------------|------------|------------|
| Capital, £ . . .        | 37,750,000  | 21,350,000 | 59,100,000 |
| Tons coal used . . .    | 6,100,000   | 3,200,000  | 9,300,000  |
| Millions cubic feet gas | 62,300,000  | 32,400,000 | 94,700,000 |
| Number of consumers     | 1,100,000   | 1,100,000  | 2,200,000  |
| Receipts, £ . . .       | 10,500,000  | 4,800,000  | 15,300,000 |
| Expenditure, £ . . .    | 7,100,000   | 3,400,000  | 10,500,000 |
| Net profit, £ . . .     | 3,400,000   | 1,400,000  | 4,800,000  |

The consumption in London on one day of thick fog, 14th January 1889, reached 105 million cubic feet, representing a cost of £18,000. The largest gasometer in England is that of Liverpool, which can hold 3,100,000 cubic feet.

The balance-sheet of the Paris Gas Company for 1889 showed thus:—

|                               |              |
|-------------------------------|--------------|
| Consumption, cubic feet . . . | 11,010,000   |
| Paid for coal, £ . . .        | 840,000      |
| Total expenditure, £ . . .    | 2,600,000    |
| Receipts, £ . . .             | 4,200,000    |
| Net profit, £ . . .           | 1,600,000    |
| Dividend . . .                | 31 per cent. |

## GEOLOGY

Professor Philips in 1836 published the following table of strata, and number of organic forms to each stratum :—

|                         | <i>Feet Thick</i> | <i>Organic Forms per 100 Feet</i> |
|-------------------------|-------------------|-----------------------------------|
| Tertiary . . . . .      | 2,000             | 141                               |
| Cretaceous . . . . .    | 1,100             | 71                                |
| Oolitic . . . . .       | 2,500             | 46                                |
| Saliferous . . . . .    | 2,000             | 8                                 |
| Carboniferous . . . . . | 10,000            | 5                                 |
| Primary . . . . .       | 20,000            | 2                                 |

## FOSSIL REMAINS

|                        |       |                              |       |
|------------------------|-------|------------------------------|-------|
| Mammals . . . . .      | 144   | Terrestrial plants . . . . . | 500   |
| Reptiles . . . . .     | 71    | animals . . . . .            | 330   |
| Fishes . . . . .       | 183   | Marine plants . . . . .      | 40    |
| Insects . . . . .      | 74    | animals . . . . .            | 6,065 |
| Cochifera . . . . .    | 2,026 | Fresh-water plants . . . . . | 40    |
| Gasteropoda . . . . .  | 880   | animals . . . . .            | 260   |
| Kephalopoda . . . . .  | 788   |                              |       |
| Crustacea, &c. . . . . | 1,970 | Total . . . . .              | 7,235 |

Total . . . 6,136

The distribution of France is as follows :—

|                             | <i>Acres</i> | <i>Ratio</i> |
|-----------------------------|--------------|--------------|
| Tertiary . . . . .          | 38,900,000   | 30           |
| Jurassic . . . . .          | 25,900,000   | 20           |
| Primitive . . . . .         | 24,000,000   | 18           |
| Cretaceous . . . . .        | 15,400,000   | 11           |
| Transitional . . . . .      | 13,000,000   | 10           |
| Triassic . . . . .          | 6,500,000    | 5            |
| Porphyry and coal . . . . . | 1,300,000    | 1            |
| Volcanic, &c. . . . .       | 4,600,000    | 5            |
| Total . . . . .             | 129,600,000  | 100          |

The experiments of Schubler and Schleiden give the power of absorbing water in an area of 50 square inches as follows, per 1000 grains of soil :—

|                           | Grains Absorbed in |          |          |          |
|---------------------------|--------------------|----------|----------|----------|
|                           | 12 Hours           | 24 Hours | 48 Hours | 72 Hours |
| Gypsum . . . . .          | 1                  | 1        | 1        | 1        |
| Limestone sand . . . . .  | 2                  | 3        | 3        | 3        |
| Loam clay . . . . .       | 21                 | 26       | 28       | 28       |
| Muddy . . . . .           | 25                 | 30       | 34       | 35       |
| Calcareous clay . . . . . | 26                 | 31       | 35       | 35       |
| Field . . . . .           | 16                 | 22       | 23       | 23       |
| Saty marl . . . . .       | 24                 | 29       | 32       | 33       |
| Garden mould . . . . .    | 35                 | 45       | 50       | 52       |
| Humus . . . . .           | 80                 | 97       | 110      | 120      |

## GEOLOGICAL SURVEYS

Various geological surveys of countries have been made, viz. :—

| Country                   | One in  | Inches to 100 Miles | Country            | One in  | Inches to 100 Miles |
|---------------------------|---------|---------------------|--------------------|---------|---------------------|
| U. Kingdom                | 63,000  | 100                 | Spain . . . . .    | 50,000  | 127                 |
| France . . . . .          | 80,000  | 79                  | Portugal . . . . . | 100,000 | 63                  |
| Prussia . . . . .         | 25,000  | 253                 | Sweden . . . . .   | 200,000 | 32                  |
| Austrian Empire . . . . . | 75,000  | 84                  | Holland . . . . .  | 200,000 | 32                  |
| Russia . . . . .          | 420,000 | 15                  | Belgium . . . . .  | 20,000  | 320                 |
| Italy . . . . .           | 100,000 | 63                  | Finland . . . . .  | 200,000 | 32                  |

## GIANTS

| Name                       | Place               | Height, Feet | Period          |
|----------------------------|---------------------|--------------|-----------------|
| Goliath . . . . .          | Palestine . . . . . | 11.0         | B.C. 1063       |
| Galbara . . . . .          | Rome . . . . .      | 10.0         | Claudius Caesar |
| Funnam . . . . .           | Scotland . . . . .  | 11.5         | Eugene II.      |
| De Vallemont . . . . .     | Rouen . . . . .     | 17.0         | 14th century    |
| Count Bucart . . . . .     | Dauphiny . . . . .  | 22.6         | 16th "          |
| Theutobochus . . . . .     | " . . . . .         | 25.5         | 16th "          |
| Unknown . . . . .          | Palermo . . . . .   | 30.0         | 15th "          |
| John Middleton . . . . .   | England . . . . .   | 9.3          | A.D. 1578       |
| Frederic's Swede . . . . . | Sweden . . . . .    | 8.4          | ...             |
| Cujanus . . . . .          | Finland . . . . .   | 7.9          | ...             |
| Gilly . . . . .            | Tyrol . . . . .     | 8.1          | ...             |
| Patrick Cotter . . . . .   | Cork . . . . .      | 8.7          | 1806            |
| Chang Gow . . . . .        | Pekin . . . . .     | 7.8          | 1880            |

## GLASS

Consumption in United Kingdom as follows :—

|                | <i>Tons</i> |
|----------------|-------------|
| 1801 . . . . . | 16,300      |
| 1833 . . . . . | 18,200      |

In 1834 M'Culloch estimated that the glass factories of the United Kingdom employed 50,000 men, and produced thus :—

|                    |           |
|--------------------|-----------|
| England . . . . .  | 1,850,000 |
| Scotland . . . . . | 100,000   |
| Ireland . . . . .  | 50,000    |

Total . . . 2,000,000

In 1880 the consumption of plate glass in Great Britain amounted to six million square feet, of which one-sixth was imported, the rest native manufacture. The imports and exports of all kinds of glass showed thus :—

| Year           | Imports, £ | Exports, £ |
|----------------|------------|------------|
| 1874 . . . . . | 1,600,000  | 1,200,000  |
| 1880 . . . . . | 1,800,000  | 920,000    |
| 1888 . . . . . | 1,900,000  | 1,100,000  |

The total glass manufactures of the United Kingdom may be estimated at about three millions sterling per annum.

## GLOVES

Great Britain imports annually (1887-89) no less than 19 million pair, valued at £1,900,000. France makes 30 million, and exports about two-thirds, the industry representing a yearly value of £3,000,000. Austria exported 100 tons of gloves in 1885, being twenty times the quantity exported in 1860; there are numerous factories at Prague, which city turns out five million pair yearly, valued at £400,000. Italy exports approximately 20 million pair, the value being stated at £1,800,000; and, according to Mr. Simmonds, the factories in the United States produce gloves to the value of nearly £4,000,000 sterling, besides which the Americans in 1887 consumed £830,000 worth of European gloves.

## GOATS

The numbers in the various countries mentioned under *Cattle* will be found at p. 110. There are also 720,000 in Turkey, 2,790,000 in South Africa, and 19,000,000 in India.

An ordinary goat gives a quart of milk daily, and lives ten years. The Turkish breed known as Angora produces a fine hair worth 2s. per lb., say 2 lbs. per goat per annum. One-third of the goats in South Africa are of Angora or mixed breed, the first having been introduced from Smyrna in 1860.

## GOLD AND SILVER

The quantity of precious metals at remote dates of antiquity has been often discussed. The following facts are worthy of note:—

| Date      |                                                                                              | £          |
|-----------|----------------------------------------------------------------------------------------------|------------|
| B.C. 520. | Cyrus's booty from Asia                                                                      | 8,000,000  |
| B.C. 323. | Alexander's from Persia was 351,000 talents, equal to                                        | 81,000,000 |
| B.C. 44.  | Julius Caesar seized in the Roman treasury 500 tons gold and 700 tons silver, together worth | 75,000,000 |

According to Jacob, the Roman Empire in time of Augustus, A.D. 14, possessed 358 millions sterling of gold and silver. Jacob, Tooke, Newmarch, &c., estimated the stock of precious metals in the world at various dates, the result of their views being contained in the following table, with later information added:—

| A.D.       | Tons  |         | Millions £ |        |       |
|------------|-------|---------|------------|--------|-------|
|            | Gold  | Silver  | Gold       | Silver | Total |
| 1600 . . . | 830   | 23,000  | 116        | 276    | 392   |
| 1700 . . . | 1,310 | 45,000  | 183        | 450    | 633   |
| 1800 . . . | 2,730 | 88,000  | 382        | 760    | 1,142 |
| 1850 . . . | 3,620 | 113,000 | 507        | 976    | 1,483 |
| 1880 . . . | 7,800 | 145,000 | 1,092      | 1,090  | 2,182 |
| 1888 . . . | 8,600 | 160,000 | 1,204      | 1,010  | 2,214 |
| 1890 . . . | 8,820 | 165,000 | 1,235      | 1,213  | 2,448 |

But for the sudden rise of 15 per cent. in the price of silver in 1890, the stock of that metal, at prices of 1889, would stand for no more than 1040 millions sterling.

Several eminent statisticians have published estimates of the production of precious metals since Columbus discovered the New World.

Soetbeer's table of the production of gold and silver is as follows:—

| Period    | Tons   |         | Value, Million £ |        |       | Annual Average of Total, £ |
|-----------|--------|---------|------------------|--------|-------|----------------------------|
|           | Gold   | Silver  | Gold             | Silver | Total |                            |
| 1493-1520 | 162    | 1,316   | 23               | 14     | 37    | 1,300,000                  |
| 1521-1600 | 593    | 21,519  | 83               | 258    | 341   | 4,300,000                  |
| 1601-1700 | 911    | 37,234  | 128              | 372    | 500   | 5,000,000                  |
| 1701-40   | 638    | 15,736  | 90               | 140    | 230   | 5,700,000                  |
| 1741-80   | 906    | 23,718  | 127              | 213    | 340   | 8,500,000                  |
| 1781-1800 | 356    | 17,581  | 50               | 151    | 201   | 10,500,000                 |
| 1801-20   | 292    | 14,350  | 41               | 125    | 166   | 8,300,000                  |
| 1821-30   | 142    | 4,606   | 20               | 37     | 57    | 5,700,000                  |
| 1831-40   | 203    | 5,965   | 28               | 52     | 80    | 8,000,000                  |
| 1841-50   | 548    | 7,804   | 77               | 67     | 144   | 14,400,000                 |
| 1851-60   | 2,018  | 8,956   | 282              | 78     | 360   | 36,000,000                 |
| 1861-70   | 1,885  | 12,201  | 264              | 105    | 369   | 36,900,000                 |
| 1871-80   | 1,715  | 22,347  | 241              | 178    | 419   | 41,900,000                 |
| 1881-88   | 1,067  | 21,960  | 148              | 154    | 302   | 37,700,000                 |
| 396 years | 11,436 | 215,293 | 1,602            | 1,944  | 3,546 | 9,000,000                  |

He estimated the total stock of gold and silver in Europe in 1492 at no more than £33,400,000, and accounted for the stock and production down to 1829 as follows:—

| Period            | Production, £ | Consumption     |              |             | Balance     |
|-------------------|---------------|-----------------|--------------|-------------|-------------|
|                   |               | India and China | Manufactures | Mint        |             |
| 1492-1600 . . . . | 141,600,000   | 14,000,000      | 28,000,000   | 5,000,000   | 94,600,000  |
| 1601-1700 . . . . | 337,000,000   | 33,000,000      | 60,000,000   | 77,000,000  | 167,000,000 |
| 1701-1809 . . . . | 880,000,000   | 352,000,000     | 352,000,000  | 93,000,000  | 83,000,000  |
| 1810-29 . . . .   | 103,000,000   | 40,000,000      | 112,000,000  | 18,000,000  | ...         |
| Total . . . .     | 1,461,600,000 | 439,000,000     | 552,000,000  | 193,000,000 | ...         |

The consumption in 337 years amounted to 1184 millions sterling, being 277 millions less than the production.

The values were as follows:—

| Period    | Tons Gold     |                 |        |           |         |        |
|-----------|---------------|-----------------|--------|-----------|---------|--------|
|           | United States | Spanish America | Russia | Australia | Various | Total  |
| 1493-1850 | 30            | 3,045           | 310    | ...       | 1,366   | 4,751  |
| 1851-60   | 830           | 50              | 256    | 772       | 110     | 2,018  |
| 1861-70   | 713           | 60              | 271    | 741       | 100     | 1,885  |
| 1871-80   | 620           | 105             | 380    | 525       | 85      | 1,715  |
| 1881-88   | 373           | 60              | 280    | 260       | 94      | 1,067  |
| 396 years | 2,566         | 3,320           | 1,497  | 2,298     | 1,755   | 11,436 |

| Period    | Value, Millions £ |                 |        |           |         |       |
|-----------|-------------------|-----------------|--------|-----------|---------|-------|
|           | United States     | Spanish America | Russia | Australia | Various | Total |
| 1493-1850 | 4                 | 429             | 43     | ...       | 191     | 667   |
| 1851-60   | 116               | 7               | 36     | 108       | 15      | 282   |
| 1861-70   | 100               | 8               | 38     | 104       | 14      | 264   |
| 1871-80   | 87                | 15              | 53     | 74        | 12      | 241   |
| 1881-88   | 52                | 8               | 39     | 36        | 13      | 148   |
| 396 years | 359               | 467             | 209    | 322       | 245     | 1,602 |

| Period    | Tons Silver   |        |               |         |         |         |
|-----------|---------------|--------|---------------|---------|---------|---------|
|           | United States | Mexico | South America | Germany | Various | Total   |
| 1493-1850 | ...           | 63,480 | 61,500        | 5,800   | 19,049  | 149,829 |
| 1851-60   | 7             | 4,570  | 2,045         | 550     | 1,784   | 8,956   |
| 1861-70   | 2,375         | 4,970  | 2,105         | 790     | 1,961   | 12,201  |
| 1871-80   | 7,750         | 6,360  | 3,620         | 1,530   | 3,087   | 22,347  |
| 1881-88   | 8,860         | 5,800  | 2,800         | 2,100   | 2,400   | 21,960  |
| 396 years | 18,992        | 85,180 | 72,070        | 10,770  | 28,281  | 215,293 |

| Period    | Value, Millions £ |        |               |         |         |       |
|-----------|-------------------|--------|---------------|---------|---------|-------|
|           | United States     | Mexico | South America | Germany | Various | Total |
| 1493-1850 | ...               | 606    | 586           | 55      | 182     | 1,429 |
| 1851-60   | ...               | 40     | 18            | 5       | 15      | 78    |
| 1861-70   | 20                | 43     | 18            | 7       | 17      | 105   |
| 1871-80   | 62                | 51     | 29            | 12      | 24      | 178   |
| 1881-88   | 62                | 41     | 20            | 15      | 16      | 154   |
| 396 years | 144               | 781    | 671           | 94      | 254     | 1,944 |

The value of gold is taken at £140,000 per ton, that of silver at the current market price.

Jacob estimated the production of precious metals from 1492 (date of the discovery of America) to 1829 as follows:—

| Period    | America       | Old World   | Total         | Annual Average |
|-----------|---------------|-------------|---------------|----------------|
| 1492-1545 | 17,200,000    | 5,400,000   | 22,600,000    | 420,000        |
| 1546-1600 | 111,400,000   | 7,600,000   | 119,000,000   | 2,200,000      |
| 1601-1700 | 307,000,000   | 30,000,000  | 337,000,000   | 3,370,000      |
| 1701-1809 | 786,000,000   | 94,000,000  | 880,000,000   | 8,150,000      |
| 1810-29   | 84,000,000    | 19,000,000  | 103,000,000   | 5,150,000      |
| 337 years | 1,395,600,000 | 156,000,000 | 1,451,600,000 | 4,400,000      |

Messedaglia's table of precious metals for 383 years is as follows from 1493 to 1875 :—

|                           | Tons Produced |         | Value, Mill. £ Stg. |        |       |
|---------------------------|---------------|---------|---------------------|--------|-------|
|                           | Gold          | Silver  | Gold                | Silver | Total |
| Russia . . . . .          | 1,033         | 2,400   | 142                 | 22     | 164   |
| Germany . . . . .         | ...           | 7,900   | ...                 | 70     | 70    |
| Austria . . . . .         | 460           | 7,800   | 64                  | 70     | 134   |
| Europe . . . . .          | 1,493         | 18,100  | 206                 | 162    | 368   |
| Africa . . . . .          | 732           | ...     | 101                 | ...    | 101   |
| Australia . . . . .       | 1,812         | ...     | 250                 | ...    | 250   |
| United States . . . . .   | 2,026         | 5,300   | 280                 | 47     | 327   |
| Mexico . . . . .          | 265           | 76,200  | 36                  | 677    | 713   |
| Peru . . . . .            | 164           | 31,200  | 22                  | 280    | 302   |
| Chile . . . . .           | 27            | 2,600   | 4                   | 23     | 27    |
| Brazil . . . . .          | 1,037         | ...     | 143                 | ...    | 143   |
| Potosi . . . . .          | 291           | 37,700  | 40                  | 336    | 376   |
| Columbia . . . . .        | 1,214         | ...     | 168                 | ...    | 168   |
| Spanish America . . . . . | 2,998         | 147,700 | 413                 | 1,316  | 1,729 |
| Various . . . . .         | 392           | 9,400   | 52                  | 79     | 131   |
| Total . . . . .           | 9,453         | 180,500 | 1,302               | 1,604  | 2,906 |

Tooke's table comparing the production of precious metals in 1848 with 1800 was as follows :—

|                            | Gold      |            | Silver    |           |
|----------------------------|-----------|------------|-----------|-----------|
|                            | 1800      | 1848       | 1800      | 1848      |
| Russia . . . . .           | 100,000   | 4,100,000  | 200,000   | 200,000   |
| Rest of Europe } . . . . . | 150,000   | 360,000    | 1,320,000 | 560,000   |
| Africa . . . . .           | 280,000   | 550,000    | ...       | ...       |
| India, etc. . . . .        | 830,000   | 3,000,000  | 1,000,000 | 100,000   |
| Old World . . . . .        | 1,360,000 | 8,010,000  | 2,520,000 | 860,000   |
| Mexico . . . . .           | 220,000   | 500,000    | 4,080,000 | 4,800,000 |
| N. Grenada . . . . .       | 650,000   | 680,000    | 40,000    | ...       |
| Peru . . . . .             | 100,000   | 100,000    | 1,330,000 | 1,250,000 |
| Bolivia . . . . .          | 70,000    | 60,000     | 460,000   | 980,000   |
| Chile . . . . .            | 380,000   | 140,000    | 290,000   | 180,000   |
| Brazil . . . . .           | 510,000   | 340,000    | ...       | ...       |
| U. States . . . . .        | ...       | 240,000    | ...       | ...       |
| America . . . . .          | 1,930,000 | 2,060,000  | 6,200,000 | 7,210,000 |
| The world . . . . .        | 3,290,000 | 10,070,000 | 8,720,000 | 8,070,000 |

He estimated the production in Russia and Siberia as follows :—

| Period              | Gold       | Silver     | Total      | Annual Product |
|---------------------|------------|------------|------------|----------------|
| 1704-1809 . . . . . | 17,100,000 | 9,760,000  | 26,860,000 | 250,000        |
| 1810-24 . . . . .   | 2,200,000  | 1,680,000  | 3,880,000  | 260,000        |
| 1825-47 . . . . .   | 31,000,000 | 3,940,000  | 34,940,000 | 1,520,000      |
| 1848-50 . . . . .   | 10,100,000 | 480,000    | 10,580,000 | 3,530,000      |
| 1851-54 . . . . .   | 12,300,000 | 610,000    | 12,910,000 | 3,230,000      |
| 150 years . . . . . | 72,700,000 | 16,470,000 | 89,170,000 | 590,000        |

He estimated the production in the rest of Asia as follows :—

| Period              | Gold        | Silver     | Total       | Annual Average |
|---------------------|-------------|------------|-------------|----------------|
| 1492-1809 . . . . . | 127,000,000 | 16,900,000 | 143,900,000 | 460,000        |
| 1810-24 . . . . .   | 12,040,000  | 1,600,000  | 13,640,000  | 920,000        |
| 1825-47 . . . . .   | 37,000,000  | 8,200,000  | 45,200,000  | 1,970,000      |
| 1848-50 . . . . .   | 8,000,000   | 2,900,000  | 10,900,000  | 3,670,000      |
| 1851-54 . . . . .   | 14,400,000  | 3,920,000  | 18,320,000  | 4,580,000      |
| 362 years . . . . . | 198,440,000 | 33,520,000 | 231,960,000 | 640,000        |

It is worthy of remark, as shown in Soetbeer's table on the preceding page, that from 1851 to 1888 the annual production of precious metals averaged from 37 to 41 millions sterling. At present it is close on 40 millions, and there is no indication of any future decline.

The production of silver in the last ten years, according to the United States Mint Report, was as follows :—

| Year               | Ounces Fine Silver |                 |             | Price, Average Pence per Oz. |
|--------------------|--------------------|-----------------|-------------|------------------------------|
|                    | United States      | Other Countries | The World   |                              |
| 1880               | 30,300,000         | 44,500,000      | 74,800,000  | 52                           |
| 1881               | 33,300,000         | 45,600,000      | 78,900,000  | 52                           |
| 1882               | 36,200,000         | 50,300,000      | 86,500,000  | 54                           |
| 1883               | 35,700,000         | 53,400,000      | 89,100,000  | 51                           |
| 1884               | 37,800,000         | 43,800,000      | 81,600,000  | 50½                          |
| 1885               | 39,900,000         | 51,700,000      | 91,600,000  | 48½                          |
| 1886               | 39,400,000         | 53,800,000      | 93,200,000  | 45½                          |
| 1887               | 41,300,000         | 54,900,000      | 96,200,000  | 45                           |
| 1888               | 45,800,000         | 64,200,000      | 110,000,000 | 43                           |
| 1889               | 50,000,000         | 76,000,000      | 126,000,000 | 42½                          |
| 10 years . . . . . | 389,700,000        | 538,200,000     | 927,900,000 | 48½                          |

The production of gold in eight years ending December 1888 was as follows :—

| Year              | Ounces Fine Gold |           |            |            | Value of Product, £ |
|-------------------|------------------|-----------|------------|------------|---------------------|
|                   | United States    | Australia | Russia     | Total      |                     |
| 1881 . . . . .    | 1,880,000        | 1,250,000 | 2,030,000  | 5,160,000  | 21,000,000          |
| 1882 . . . . .    | 1,600,000        | 1,150,000 | 1,820,000  | 4,570,000  | 17,600,000          |
| 1883 . . . . .    | 1,450,000        | 1,050,000 | 1,900,000  | 4,400,000  | 16,900,000          |
| 1884 . . . . .    | 1,490,000        | 1,000,000 | 1,900,000  | 4,390,000  | 16,900,000          |
| 1885 . . . . .    | 1,540,000        | 1,100,000 | 1,850,000  | 4,490,000  | 17,300,000          |
| 1886 . . . . .    | 1,880,000        | 1,040,000 | 1,840,000  | 4,760,000  | 18,300,000          |
| 1887 . . . . .    | 1,600,000        | 1,150,000 | 1,860,000  | 4,610,000  | 17,800,000          |
| 1888 . . . . .    | 1,600,000        | 1,500,000 | 1,850,000  | 4,950,000  | 19,200,000          |
| 8 years . . . . . | 13,040,000       | 9,240,000 | 15,050,000 | 37,330,000 | 145,000,000         |

The production of precious metals in the United States is officially estimated as follows:—

| Period         | Gold, Oz.  | Silver, Oz. | Value, £    |
|----------------|------------|-------------|-------------|
| 1845-50 . . .  | 5,200,000  | 300,000     | 21,000,000  |
| 1851-60 . . .  | 28,500,000 | 500,000     | 114,000,000 |
| 1861-70 . . .  | 24,700,000 | 80,000,000  | 120,000,000 |
| 1871-80 . . .  | 20,500,000 | 310,000,000 | 163,000,000 |
| 1881-88 . . .  | 13,100,000 | 310,000,000 | 129,000,000 |
| 44 years . . . | 92,000,000 | 700,800,000 | 547,000,000 |

In the above table, however, silver is valued at 60d. per oz.—much above the market price. The gold produced from 1851 to 1888 amounts to 2486 tons, the silver to 20,300 tons, which latter is about 5 per cent. over Soetbeer's estimate. The relative quantities of the two metals, as shown above, and the price of silver per oz., as well as its value in exchange for gold, are given in the following table, which shows conclusively that it is a fallacy to suppose that the world is being flooded with silver. If the production were, as compared with gold,

to be of the same magnitude as in the eighteenth century, we should require double the present quantity to be produced yearly. It appears, meantime, that silver is relatively much less used in manufactures than gold, the annual consumption under this head being 45 per cent. of the gold produced, and 27 per cent. of silver:—

| Period        | Tons of Silver to 1 of Gold | Price of Silver, Pence per Oz. | Ounces of Silver for 1 of Gold |
|---------------|-----------------------------|--------------------------------|--------------------------------|
| 1600-20 . . . | 27.7                        | 77.0                           | 12.1                           |
| 1700-20 . . . | 34.3                        | 62.0                           | 15.1                           |
| 1800-20 . . . | 32.2                        | 61.0                           | 15.3                           |
| 1821-40 . . . | 33.1                        | 60.0                           | 15.6                           |
| 1841-60 . . . | 31.0                        | 60.0                           | 15.6                           |
| 1861-70 . . . | 22.6                        | 60.0                           | 15.6                           |
| 1871-80 . . . | 18.6                        | 56.0                           | 16.7                           |
| 1881-82 . . . | 18.4                        | 53.0                           | 17.6                           |
| 1883-84 . . . | 18.5                        | 50.7                           | 18.4                           |
| 1885-86 . . . | 18.6                        | 47.0                           | 19.9                           |
| 1887-88 . . . | 18.6                        | 44.0                           | 21.2                           |
| 1890 . . .    | 18.7                        | 51.0                           | 18.3                           |

The uses to which the precious metals were put in fifty years down to 1888 are stated by Soetbeer to be:—

| Period         | Gold, Tons |              |          |       | Silver, Tons |              |          |        |
|----------------|------------|--------------|----------|-------|--------------|--------------|----------|--------|
|                | Coinage    | Manufactures | The East | Total | Coinage      | Manufactures | The East | Total  |
| 1831-40 . . .  | 50         | 180          | 10       | 240   | 2,700        | 2,000        | 2,200    | 6,900  |
| 1841-50 . . .  | 350        | 200          | 28       | 578   | 4,800        | 2,200        | 2,400    | 9,400  |
| 1851-60 . . .  | 1,633      | 280          | 100      | 2,013 | ...          | 2,700        | 11,300   | 14,000 |
| 1861-70 . . .  | 1,008      | 570          | 300      | 1,878 | ...          | 3,100        | 12,300   | 15,400 |
| 1871-80 . . .  | 849        | 840          | 120      | 1,809 | 1,200        | 4,500        | 10,800   | 16,500 |
| 50 years . . . | 3,890      | 2,070        | 558      | 6,518 | 8,700        | 14,500       | 39,000   | 62,200 |

The stock of silver is relatively much lower now, as compared with gold, than in the early years of the present century, when there were 33 tons of silver in the world for 1 ton of gold. If the price of silver were ruled by ratio it would have been as follows:—

| Period        | Ratio of Silver to Stock of Gold | Pence per Oz. |
|---------------|----------------------------------|---------------|
| 1821-40 . . . | 33.1                             | 60            |
| 1881-88 . . . | 18.6                             | 107           |

If the foregoing estimates be correct, there has been a dearth of both gold and silver, the production falling short of the consumption, viz.:—

|                   | 1851-80    |              |
|-------------------|------------|--------------|
|                   | Gold, Tons | Silver, Tons |
| Production . . .  | 6,358      | 57,273       |
| Consumption . . . | 6,518      | 62,200       |
| Deficit . . .     | 160        | 4,927        |

The deficit was probably met by melting down old plate. The current of bullion (coined or uncoined) between nations since 1861 was as follows:—

| Period        | Gold, Millions £ Sterling Imported |        |               |         |       |
|---------------|------------------------------------|--------|---------------|---------|-------|
|               | Great Britain                      | France | United States | Various | Total |
| 1861-70 . . . | 171                                | 189    | 31            | 121     | 512   |
| 1871-80 . . . | 180                                | 151    | 42            | 131     | 504   |
| 1881-88 . . . | 96                                 | 63     | 64            | 144     | 367   |
| Total . . .   | 447                                | 403    | 137           | 396     | 1,383 |

| Period        | Gold Exported, Millions £ |        |               |           |         |       |
|---------------|---------------------------|--------|---------------|-----------|---------|-------|
|               | Great Britain             | France | United States | Australia | Various | Total |
| 1861-70 . . . | 112                       | 119    | 113           | 108       | 60      | 512   |
| 1871-80 . . . | 172                       | 90     | 74            | 76        | 92      | 504   |
| 1881-88 . . . | 96                        | 67     | 35            | 34        | 135     | 367   |
| Total . . .   | 380                       | 276    | 222           | 218       | 287     | 1,383 |

| Period        | Silver Imported, Millions £ |        |               |          |         |       |
|---------------|-----------------------------|--------|---------------|----------|---------|-------|
|               | Great Britain               | France | United States | The East | Various | Total |
| 1861-70 . . . | 93                          | 92     | 12            | 233      | 44      | 474   |
| 1871-80 . . . | 132                         | 111    | 18            | 126      | 40      | 427   |
| 1881-88 . . . | 66                          | 62     | 23            | 116      | 36      | 303   |
| Total . . .   | 291                         | 265    | 53            | 475      | 120     | 1,204 |

| Period        | Silver Exported, Millions £ |        |               |                 |         |       |
|---------------|-----------------------------|--------|---------------|-----------------|---------|-------|
|               | Great Britain               | France | United States | Spanish America | Various | Total |
| 1861-70 . . . | 91                          | 78     | 22            | 74              | 209     | 474   |
| 1871-80 . . . | 119                         | 48     | 73            | 68              | 119     | 427   |
| 1881-88 . . . | 68                          | 49     | 41            | 37              | 108     | 303   |
| Total . . .   | 278                         | 175    | 136           | 179             | 436     | 1,204 |



| Period          | Gold and Silver, Millions £ Imported |        |               |          |         |       |
|-----------------|--------------------------------------|--------|---------------|----------|---------|-------|
|                 | Great Britain                        | France | United States | The East | Various | Total |
| 1861-70 . . . . | 264                                  | 281    | 43            | 233      | 165     | 986   |
| 1871-80 . . . . | 312                                  | 262    | 60            | 126      | 171     | 931   |
| 1881-88 . . . . | 162                                  | 125    | 87            | 128      | 168     | 670   |
| Total . . . .   | 738                                  | 668    | 190           | 487      | 504     | 2,587 |

| Period          | Gold and Silver Exported, Millions £ |        |               |           |                 |         |
|-----------------|--------------------------------------|--------|---------------|-----------|-----------------|---------|
|                 | Great Britain                        | France | United States | Australia | Spanish America | Various |
| 1861-70 . . . . | 203                                  | 197    | 135           | 108       | 81              | 262     |
| 1871-80 . . . . | 291                                  | 138    | 147           | 76        | 75              | 204     |
| 1881-88 . . . . | 164                                  | 116    | 76            | 34        | 41              | 239     |
| Total . . . .   | 658                                  | 451    | 358           | 218       | 197             | 705     |

The current of bullion in the last eight years is more clearly shown as follows :—

| 1881-88           | Imports, Millions £ |        |       | Exports, Millions £ |        |       |
|-------------------|---------------------|--------|-------|---------------------|--------|-------|
|                   | Gold                | Silver | Total | Gold                | Silver | Total |
| U. Kingdom . . .  | 96                  | 66     | 162   | 96                  | 68     | 164   |
| France . . . . .  | 63                  | 62     | 125   | 67                  | 49     | 116   |
| United States . . | 64                  | 23     | 87    | 35                  | 41     | 76    |
| Spanish America . | 20                  | ...    | 20    | 4                   | 37     | 41    |
| The East . . . .  | 12                  | 116    | 128   | 2                   | 19     | 21    |
| Australia . . . . | 2                   | ...    | 2     | 34                  | ...    | 34    |
| Various . . . . . | 110                 | 36     | 146   | 129                 | 89     | 218   |
| Total . . . . .   | 367                 | 303    | 670   | 367                 | 303    | 670   |

Since 1881 Great Britain appears to have neither increased nor diminished her stock of gold, but to have exported a small quantity of silver. France has lost gold and gained silver: the United States has done exactly the reverse. India has absorbed both gold and silver.

The total current to and from the United States for sixty-eight years is stated thus :—

| Period             | Millions £ Sterling |         |
|--------------------|---------------------|---------|
|                    | Imports             | Exports |
| 1861-70 . . . . .  | 36                  | 3       |
| 1871-80 . . . . .  | 34                  | 93      |
| 1881-88 . . . . .  | 190                 | 358     |
| 68 years . . . . . | 260                 | 454     |

According to Mr. O'Connor, India received in thirty years (1860-89) and retained no less than :—

|                  |               |
|------------------|---------------|
| Gold . . . . .   | £ 113,200,000 |
| Silver . . . . . | 227,000,000   |
| Total . . . . .  | 340,200,000   |

To which he adds 102 millions for the preceding twenty-five years, making altogether 442 millions sterling in fifty-five years. He considers that the gold has been practically withdrawn from circulation, to be hoarded or converted into ornaments. Another writer says that in 250 years ending 1830 India absorbed 55,000 tons of

silver, worth 490 millions sterling. Official tables give the net imports as follows :—

| Period           | Millions £ Sterling |        |       |
|------------------|---------------------|--------|-------|
|                  | Gold                | Silver | Total |
| 1850-59 . . . .  | 18                  | 52     | 70    |
| 1860-69 . . . .  | 59                  | 101    | 160   |
| 1870-79 . . . .  | 18                  | 50     | 68    |
| 1880-86 . . . .  | 28                  | 50     | 78    |
| 37 years . . . . | 123                 | 253    | 376   |

Mr. N. Spallart summed up the production and consumption of precious metals in fifty years down to 1880 as follows :—

|                   | Value, Millions £ Sterling |        |       |
|-------------------|----------------------------|--------|-------|
|                   | Gold                       | Silver | Total |
| Coinage . . . . . | 543                        | 38     | 581   |
| The East . . . .  | 78                         | 351    | 429   |
| Manufactures . .  | 294                        | 131    | 425   |
| Total . . . . .   | 915                        | 520    | 1,435 |
| Production . . .  | 915                        | 520    | 1,435 |

In the above, "coinage" does not include what was minted in the East.

The weight of precious metals used in forty years in the various mints (including re-coinage) from 1850 to December 1889 was :—

|                      | Tons  |        | Aggregate Value, Millions £ |
|----------------------|-------|--------|-----------------------------|
|                      | Gold  | Silver |                             |
| Great Britain . . .  | 1,301 | 2,620  | 207                         |
| France . . . . .     | 2,159 | 5,135  | 349                         |
| Germany . . . . .    | 894   | 6,420  | 183                         |
| Russia . . . . .     | 1,102 | 2,580  | 178                         |
| Austria . . . . .    | 137   | 5,360  | 67                          |
| Italy . . . . .      | 123   | 2,530  | 40                          |
| Spain and Portugal . | 220   | 1,480  | 43                          |
| Scandinavia . . . .  | 35    | 230    | 7                           |
| Holland . . . . .    | 48    | 3,290  | 37                          |
| Belgium . . . . .    | 170   | 2,060  | 42                          |
| Europe . . . . .     | 6,189 | 31,705 | 1,153                       |
| United States . . .  | 2,096 | 11,460 | 397                         |
| Australia . . . . .  | 644   | ...    | 90                          |
| India . . . . .      | 15    | 29,270 | 265                         |
| Japan . . . . .      | 110   | 1,100  | 25                          |
| Spanish America . .  | 140   | 7,700  | 90                          |
| Total . . . . .      | 9,194 | 81,235 | 2,020                       |

The total is made up of 1227 millions sterling of gold, and 793 millions of silver money. The stocks of coined and uncoined bullion appear to have been at various dates approximately as follows :—

| A.D.           | Gold, Millions £ |          |       | Silver, Millions £ |          |       |
|----------------|------------------|----------|-------|--------------------|----------|-------|
|                | Coined           | Uncoined | Total | Coined             | Uncoined | Total |
| 1600 . . . . . | 29               | 87       | 116   | 102                | 174      | 276   |
| 1700 . . . . . | 75               | 108      | 183   | 225                | 225      | 450   |
| 1800 . . . . . | 126              | 256      | 382   | 360                | 400      | 760   |
| 1848 . . . . . | 157              | 343      | 500   | 388                | 580      | 968   |
| 1880 . . . . . | 735              | 357      | 1,092 | 556                | 534      | 1,090 |
| 1890 . . . . . | 790              | 445      | 1,235 | 642                | 571      | 1,213 |

The above table will be clearer if given in tons, viz. :—

| A. D.          | Gold, Tons |          |       | Coined,<br>Ratio per<br>Cent. | Silver, Tons |          |         | Coined,<br>Ratio per<br>Cent. |
|----------------|------------|----------|-------|-------------------------------|--------------|----------|---------|-------------------------------|
|                | Coined     | Uncoined | Total |                               | Coined       | Uncoined | Total   |                               |
| 1600 . . . . . | 208        | 622      | 830   | 25                            | 8,500        | 14,500   | 23,000  | 37                            |
| 1700 . . . . . | 537        | 773      | 1,310 | 41                            | 22,500       | 22,500   | 45,000  | 50                            |
| 1800 . . . . . | 908        | 1,822    | 2,730 | 33                            | 42,000       | 46,000   | 88,000  | 48                            |
| 1848 . . . . . | 1,125      | 2,450    | 3,575 | 32                            | 45,200       | 67,800   | 113,000 | 40                            |
| 1880 . . . . . | 5,250      | 2,550    | 7,800 | 67                            | 73,700       | 71,300   | 145,000 | 51                            |
| 1890 . . . . . | 5,640      | 3,180    | 8,820 | 64                            | 88,100       | 76,900   | 165,000 | 53                            |

It appears that coinage now absorbs nearly two-thirds of the total stock of gold, and more than half the silver, whereas forty years ago it took only 32 per cent. of gold, and 40 per cent. of silver.

The actual bulk of gold and silver coin in various countries, according to Spallart, in 1885 was as follows :—

|                              | Tons      |                | Aggregate<br>Value,<br>Millions £<br>Sterling |
|------------------------------|-----------|----------------|-----------------------------------------------|
|                              | Gold Coin | Silver<br>Coin |                                               |
| Great Britain . . . . .      | 915       | 2,420          | 144                                           |
| France . . . . .             | 1,335     | 16,500         | 328                                           |
| Germany . . . . .            | 915       | 4,950          | 167                                           |
| Russia . . . . .             | 293       | 1,540          | 53                                            |
| Austria . . . . .            | 60        | 2,100          | 27                                            |
| Italy . . . . .              | 165       | 1,210          | 33                                            |
| Spain . . . . .              | 143       | 2,640          | 43                                            |
| Portugal . . . . .           | 67        | 220            | 11                                            |
| Scandinavia . . . . .        | 52        | 220            | 9                                             |
| Switzerland . . . . .        | 22        | 330            | 6                                             |
| Holland . . . . .            | 37        | 1,430          | 18                                            |
| Belgium . . . . .            | 82        | 1,210          | 22                                            |
| Roumania . . . . .           | 8         | 330            | 4                                             |
| Turkey, &c. . . . .          | 113       | 990            | 24                                            |
| Europe . . . . .             | 4,207     | 36,090         | 889                                           |
| United States . . . . .      | 1,058     | 9,570          | 228                                           |
| Australia . . . . .          | 165       | 220            | 24                                            |
| Japan . . . . .              | 143       | 990            | 28                                            |
| China . . . . .              | ...       | 16,500         | 150                                           |
| Java . . . . .               | ...       | 1,980          | 18                                            |
| India . . . . .              | ...       | 17,600         | 160                                           |
| Singapore . . . . .          | ...       | 2,640          | 24                                            |
| Cape Colony . . . . .        | 52        | ...            | 7                                             |
| Cuba . . . . .               | 30        | ...            | 4                                             |
| Canada . . . . .             | 23        | 110            | 4                                             |
| Algeria . . . . .            | 15        | 330            | 5                                             |
| Spanish America, &c. . . . . | 232       | 2,070          | 50                                            |
| The world . . . . .          | 5,925     | 88,100         | 1,591                                         |

The total value is made up of 790 millions sterling in gold coin and silver money nominally representing 801 millions, but worth only 642 millions.

In 1886 Spallart estimated the annual consumption for manufactures as follows :—

|                             | Gold, Oz. | Silver, Oz. | Per 1000 Population |             |
|-----------------------------|-----------|-------------|---------------------|-------------|
|                             |           |             | Gold, Oz.           | Silver, Oz. |
| U. States . . . . .         | 683,000   | 4,020,000   | 12                  | 70          |
| G. Britain . . . . .        | 600,000   | 2,520,000   | 16                  | 66          |
| France . . . . .            | 595,000   | 2,600,000   | 15                  | 65          |
| Germany . . . . .           | 420,000   | 2,870,000   | 9                   | 60          |
| Switzerland . . . . .       | 370,000   | 840,000     | 125                 | 285         |
| Austria . . . . .           | 84,000    | 1,120,000   | 2                   | 28          |
| Italy . . . . .             | 155,000   | 665,000     | 5                   | 22          |
| Russia . . . . .            | 85,000    | 1,100,000   | 1                   | 12          |
| Holland & Belgium . . . . . | 102,000   | 840,000     | 10                  | 84          |
| Various . . . . .           | 56,000    | 1,445,000   | ...                 | ...         |
| Total . . . . .             | 3,150,000 | 18,020,000  | ...                 | ...         |

The total makes up 90 tons gold and 515 tons silver yearly, which is in harmony with Soetbeer's estimate.

Besides the consumption for manufactures, gold coin loses 1 per cent. of its weight in fifty years, silver 1 per cent. in ten years. This means a yearly loss of 1½ tons of gold, and 88 tons of silver.

The following table shows the amount of gold and silver plate stamped yearly in the United Kingdom and France :—

| Date              | United Kingdom,<br>Oz. Yearly |           | Date           | France, Oz.<br>Yearly |           |
|-------------------|-------------------------------|-----------|----------------|-----------------------|-----------|
|                   | Gold                          | Silver    |                | Gold                  | Silver    |
| 1801-20 . . . . . | 6,080                         | 1,072,000 | 1830 . . . . . | 101,000               | 1,740,000 |
| 1821-40 . . . . . | 6,640                         | 1,130,000 | 1840 . . . . . | 164,000               | 2,390,000 |
| 1841-50 . . . . . | 7,333                         | 1,007,000 | 1850 . . . . . | 169,000               | 1,840,000 |
| 1851-60 . . . . . | 38,415                        | 930,000   | 1860 . . . . . | 288,000               | 2,290,000 |
| 1861-70 . . . . . | 29,204                        | 875,000   | 1870 . . . . . | 380,000               | 2,380,000 |
| 1871-80 . . . . . | 42,190                        | 790,000   | 1878 . . . . . | 409,000               | 2,460,000 |

## GRAIN

The average yield per acre in various countries, mostly from 1880 to 1887, was in bushels as follows :—

|                         | Wheat | Barley | Oats | Rye | Maize | General<br>Average |
|-------------------------|-------|--------|------|-----|-------|--------------------|
| U. Kingdom . . . . .    | 28    | 33     | 37   | ... | ...   | 30                 |
| France . . . . .        | 18    | 20     | 26   | 16  | 19    | 19                 |
| Germany . . . . .       | 22    | 20     | 18   | 16  | ...   | 18                 |
| Russia . . . . .        | 8     | 9      | 15   | 10  | 15    | 10                 |
| Austria . . . . .       | 16    | 18     | 22   | 16  | 20    | 18                 |
| Hungary . . . . .       | 18    | 19     | 22   | 15  | 18    | 18                 |
| Italy . . . . .         | 12    | 15     | 19   | ... | 20    | 14                 |
| Spain . . . . .         | 12    | 18     | 20   | 18  | 18    | 15                 |
| Portugal . . . . .      | 12    | 15     | 15   | ... | ...   | 14                 |
| Sweden . . . . .        | 22    | 26     | 30   | 25  | ...   | 30                 |
| Norway . . . . .        | 21    | 27     | 36   | 24  | ...   | 33                 |
| Denmark . . . . .       | 36    | 30     | 33   | 25  | ...   | 30                 |
| Finland . . . . .       | 15    | 17     | 23   | 15  | ...   | 17                 |
| Holland . . . . .       | 27    | 40     | 42   | 21  | ...   | 28                 |
| Belgium . . . . .       | 25    | 33     | 36   | 20  | ...   | 28                 |
| Switzerland . . . . .   | 16    | ...    | 12   | 12  | ...   | 15                 |
| Roumania . . . . .      | 16    | ...    | 20   | ... | 30    | 18                 |
| Greece . . . . .        | 10    | 12     | ...  | ... | 15    | 12                 |
| Turkey . . . . .        | 10    | 12     | ...  | ... | 15    | 12                 |
| Europe . . . . .        | 14    | 17     | 22   | 14  | 20    | ...                |
| United States . . . . . | 12    | 22     | 26   | 11  | 23    | 21                 |
| Canada . . . . .        | 16    | 27     | 48   | ... | 63    | 22                 |
| Australia . . . . .     | 12    | 20     | 28   | ... | 30    | 15                 |
| Cape Colony . . . . .   | 10    | 15     | 10   | ... | 10    | 11                 |
| India . . . . .         | 10    | ...    | ...  | ... | ...   | 10                 |
| Egypt . . . . .         | 13    | 14     | ...  | ... | 18    | 16                 |
| Algeria . . . . .       | 13    | 15     | ...  | ... | ...   | 14                 |
| Argentina . . . . .     | 10    | ...    | ...  | ... | 20    | 15                 |

Tables showing the acreage and production of the various kinds of grain will be found under *Agriculture*, p. 8. For consumption, see *Food*.

In the manufacture of grain it is found that 100 lbs. of wheat produce 82 lbs. of flour, and 100 lbs. of barley 78 of malt.

**GRAVITY, SPECIFIC****A.—COMPARED WITH WATER**

| <i>Liquids</i>     | <i>Timber</i>  | <i>Metals</i>     |
|--------------------|----------------|-------------------|
| Water . . . 100    | Cork . . . 24  | Zinc . . . 719    |
| Sea-water . . 103  | Poplar . . 38  | Cast iron . . 721 |
| Dead Sea . . 124   | Fir . . . 55   | Tin . . . 729     |
| Alcohol . . . 84   | Cedar . . 61   | Bar iron . . 779  |
| Olive-oil . . 92   | Pear . . . 66  | Steel . . . 783   |
| Turpentine . . 99  | Walnut . . 67  | Copper . . . 869  |
| Wine . . . 100     | Cherry . . 72  | Brass . . . 840   |
| Urine . . . 101    | Maple . . 75   | Silver . . 1,051  |
| Cider . . . 102    | Apple . . 79   | Lead . . . 1,135  |
| Beer . . . 102     | Ash . . . 84   | Mercury . . 1,357 |
| Woman's milk . 102 | Beech . . 85   | Gold . . . 1,926  |
| Cow's . . . 103    | Mahogany . 106 | Platina . . 1,950 |
| Goat's . . . 104   | Oak . . . 117  |                   |
| Porter . . . 104   | Ebony . . 133  |                   |

A gallon of wine or water weighs 10 lbs.

**PRECIOUS STONES**

|                   |                 |                  |
|-------------------|-----------------|------------------|
| Emerald . . . 277 | Diamond . . 353 | Garnet . . . 406 |
| Crystal . . . 265 | Topaz . . . 401 | Ruby . . . 428   |

**SUNDRIES**

|                  |                 |                   |
|------------------|-----------------|-------------------|
| Indigo . . . 77  | Peat . . . 133  | Porcelain . . 226 |
| Ice . . . 92     | Opium . . . 134 | Stone . . . 252   |
| Gunpowder . . 93 | Honey . . . 145 | Marble . . . 270  |
| Butter . . . 94  | Ivory . . . 183 | Granite . . . 278 |
| Clay . . . 120   | Brick . . . 200 | Chalk . . . 279   |
| Coal . . . 130   | Sulphur . . 203 | Glass . . . 289   |

**B.—WEIGHT IN CUBIC FEET**

|                    | Lbs. per Cubic Feet | Cubic Feet per Ton |
|--------------------|---------------------|--------------------|
| Cork . . . . .     | 15                  | 150.0              |
| Cedar . . . . .    | 36                  | 62.0               |
| Beech . . . . .    | 51                  | 44.0               |
| Butter . . . . .   | 56                  | 40.0               |
| Ice . . . . .      | 57                  | 39.0               |
| Water . . . . .    | 62                  | 36.0               |
| Mahogany . . . . . | 66                  | 34.0               |
| Oak . . . . .      | 70                  | 32.0               |
| Clay . . . . .     | 72                  | 31.0               |
| Coal . . . . .     | 80                  | 28.0               |
| Peat . . . . .     | 80                  | 28.0               |
| Brick . . . . .    | 120                 | 19.0               |
| Stone . . . . .    | 150                 | 15.0               |
| Granite . . . . .  | 166                 | 13.5               |
| Glass . . . . .    | 172                 | 13.0               |
| Iron . . . . .     | 470                 | 4.8                |
| Copper . . . . .   | 520                 | 4.3                |
| Silver . . . . .   | 630                 | 3.6                |
| Lead . . . . .     | 680                 | 3.3                |
| Gold . . . . .     | 1,155               | 2.0                |

**GYPSES**

The number in Europe reaches 712,000, viz. :—

|                            |                         |
|----------------------------|-------------------------|
| Great Britain . . . 18,000 | Austria . . . 197,000   |
| Russia . . . 15,000        | Roumania . . . 193,000  |
| Scandinavia . . . 7,000    | Turkey . . . 200,000    |
| Spain . . . 40,000         | Germany, &c. . . 42,000 |

**H.****HATS**

In 1835 M'Culloch estimated the value of hats made yearly in the United Kingdom at £2,400,000. In 1882 there were 12,000,000 men's hats made, worth £4,000,000. The hat industry flourished in New England in the eighteenth century; more than 10,000 beaver hats were made in 1731, and some exported, but in 1732 Great Britain prohibited the exportation.

**HAY AND STRAW**

The production is approximately as follows :—

|                           | Hay, Tons   | Straw, Tons | Collective Value, £ |
|---------------------------|-------------|-------------|---------------------|
| Great Britain . . .       | 8,500,000   | 6,500,000   | 25,600,000          |
| Ireland . . . . .         | 4,000,000   | 1,500,000   | 9,000,000           |
| France . . . . .          | 25,000,000  | 17,000,000  | 74,000,000          |
| Germany . . . . .         | 16,000,000  | 15,000,000  | 47,000,000          |
| Russia . . . . .          | 60,000,000  | 45,000,000  | 82,000,000          |
| Austria . . . . .         | 14,000,000  | 17,000,000  | 33,800,000          |
| Italy . . . . .           | 12,000,000  | 5,000,000   | 22,000,000          |
| Spain and Portugal . . .  | 6,500,000   | 9,500,000   | 18,000,000          |
| Sweden and Norway . . .   | 2,000,000   | 3,000,000   | 5,400,000           |
| Denmark . . . . .         | 1,000,000   | 2,000,000   | 3,600,000           |
| Holland . . . . .         | 3,000,000   | 1,000,000   | 6,900,000           |
| Belgium . . . . .         | 5,000,000   | 1,600,000   | 11,600,000          |
| Roumania and Servia . . . | 2,000,000   | 3,400,000   | 4,800,000           |
| Europe . . . . .          | 159,000,000 | 127,500,000 | 343,700,000         |
| United States . . .       | 42,000,000  | 60,000,000  | 104,000,000         |
| Total . . . . .           | 201,000,000 | 187,500,000 | 447,700,000         |

The production in the United States has been as follows :—

| Year           | Hay, Tons  | Straw, Tons | Collective Value, £ |
|----------------|------------|-------------|---------------------|
| 1840 . . . . . | 10,000,000 | 12,000,000  | 26,000,000          |
| 1850 . . . . . | 14,000,000 | 17,000,000  | 37,000,000          |
| 1860 . . . . . | 19,000,000 | 25,000,000  | 45,000,000          |
| 1870 . . . . . | 27,000,000 | 28,000,000  | 54,000,000          |
| 1880 . . . . . | 35,000,000 | 54,000,000  | 89,000,000          |
| 1886 . . . . . | 42,000,000 | 60,000,000  | 104,000,000         |

Official returns give only the quantity of hay; that of straw is estimated above at 1 ton per 50 bushels of grain.

In the United Kingdom the hay crop averages 30 cwt. per acre, in Prussia 33, in France 30, in Italy 30 on irrigated and 16 on unirrigated land, in the United States 24. Italy has 3 millions irrigated and 10 millions unirrigated producing hay.

Three tons of grass usually give one ton of hay.

The weekly consumption of hay is—160 lbs. for a horse, 100 for a cow, 30 for a pig, 10 for a sheep, 8 for a goat.

**HEMP**

The world's crop is worth about 10 millions sterling, and the value of the manufactured goods is between 25 and 30 millions; the statistics are in many countries mixed with those of flax. The Factory Report for the United Kingdom gives the hemp industry thus :—

| Year           | Factories | Spindles | Hands |
|----------------|-----------|----------|-------|
| 1870 . . . . . | 35        | 32,000   | 3,100 |
| 1878 . . . . . | 58        | 25,000   | 4,800 |
| 1885 . . . . . | 107       | 39,000   | 9,900 |

The production and consumption of hemp, as given by N. Spallart in 1885 were :—

|                    | Tons Produced | Tons Consumed |
|--------------------|---------------|---------------|
| Russia . . . .     | 120,000       | 56,000        |
| Austria . . . .    | 90,000        | 90,000        |
| Italy . . . . .    | 96,000        | 56,000        |
| France . . . . .   | 50,000        | 68,000        |
| Germany . . . .    | 10,000        | 30,000        |
| United States . .  | 13,000        | 16,000        |
| Other countries* . | 16,000        | 79,000        |
| Total . . . . .    | 395,000       | 395,000       |

The imports of hemp into the United Kingdom are the only guide to extent of manufacture, the value of which is approximately as below :—

| Year         | Consumed, Tons | Price per Ton, £ | Value of Manufactures, £ |
|--------------|----------------|------------------|--------------------------|
| 1810 . . . . | 48,000         | 58               | 8,600,000                |
| 1830 . . . . | 26,000         | 25               | 2,000,000                |
| 1840 . . . . | 30,000         | 27               | 2,400,000                |
| 1850 . . . . | 54,000         | 30               | 4,900,000                |
| 1860 . . . . | 35,000         | 30               | 1,900,000                |
| 1870 . . . . | 71,000         | 38               | 7,100,000                |
| 1880 . . . . | 73,000         | 29               | 5,400,000                |
| 1888 . . . . | 58,000         | 31               | 4,500,000                |

### HOLIDAY

On Bank-holiday, 5th August 1889, in London the number of visitors to museums, &c., was as follows :—

|                          |        |                        |        |
|--------------------------|--------|------------------------|--------|
| British Museum . . . .   | 5,200  | Zoological Gardens . . | 21,000 |
| National Gallery . . . . | 8,400  | Crystal Palace . . . . | 40,000 |
| Kensington Museum . . .  | 18,100 | Kew Gardens . . . . .  | 64,000 |

besides 11,000 to Tussaud's waxworks and 7000 to Windsor Castle.

### HOPS

|                     | Acres  | Crop, Tons | Value, £  |
|---------------------|--------|------------|-----------|
| England . . . .     | 65,000 | 26,000     | 3,120,000 |
| Germany . . . .     | 62,000 | 19,000     | 2,340,000 |
| France . . . . .    | 9,000  | 4,500      | 550,000   |
| United States . . . | 10,000 | 5,000      | 600,000   |

Germany consumes only three-fourths of her crop, but England has to import annually 7000 tons, her consumption averaging 33,000 tons. Returns for the United Kingdom show thus :—

| Period  | Acres Under Crop | Crop, Tons | Import, Tons | Annual Consumption, Tons |
|---------|------------------|------------|--------------|--------------------------|
| 1869-75 | 63,000           | 24,600     | 8,400        | 33,000                   |
| 1888-89 | 65,000           | 25,400     | 8,400        | 33,800                   |

### HORIZON

Objects at sea are visible at the following distances :—

| Elevation, Feet | Miles | Elevation, Feet | Miles |
|-----------------|-------|-----------------|-------|
| 5 . . . . .     | 3     | 200 . . . . .   | 18    |
| 10 . . . . .    | 4     | 300 . . . . .   | 23    |
| 20 . . . . .    | 6     | 500 . . . . .   | 30    |
| 50 . . . . .    | 9     | 800 . . . . .   | 37    |
| 100 . . . . .   | 13    | 1,000 . . . . . | 42    |

\* This table seems to omit Manilla, where there were 260,000 acres under hemp in 1880.

### HORSES

The number in each country will be found under *Cattle*, p. 109. A horse lives 25 years, but a tramway horse lasts only five years: horse-flesh is eaten in France, the carcase yielding 450 lbs. meat. Napoleon in 1812 crossed the Niemen with 100,000 horses, of which 95,000 died before he reached Moscow.

### HOTELS

On a given day in each year the number of guests in hotels at Paris was as follows :—

| Year | Number of Hotels | French Guests | Foreign Guests | Total   |
|------|------------------|---------------|----------------|---------|
| 1875 | 9,207            | 114,000       | 19,000         | 133,000 |
| 1879 | 10,189           | 140,000       | 41,000         | 181,000 |
| 1883 | 11,753           | 196,000       | 44,000         | 240,000 |

The hotels at Vienna admitted 240,000 guests during the whole year 1888. The hotels of Switzerland in 1889 were 1000 in number, making up 58,000 beds, employing 16,000 servants; the invested capital was £1,600,000, receipts £1,680,000, expenditure £1,150,000, and profit £530,000.

### HOUSES

The number of houses, inhabitants per house, and approximate value may be set down thus. We have no value as regards Portugal, which is estimated at the same ratio per inhabitant as in Spain :—

|                        | Houses     | Value, Millions £ | Average per House, £ | Average per Inhab., £ | Inhab. per House |
|------------------------|------------|-------------------|----------------------|-----------------------|------------------|
| United Kingdom . . .   | 7,100,000  | 2,424             | 340                  | 63                    | 5.4              |
| France . . . . .       | 9,080,000  | 1,704             | 187                  | 45                    | 4.2              |
| Germany . . . . .      | 5,770,000  | 1,232             | 214                  | 26                    | 8.0              |
| Russia . . . . .       | 11,436,000 | 701               | 62                   | 8                     | 8.0              |
| Austria . . . . .      | 5,000,000  | 501               | 100                  | 13                    | 7.8              |
| Italy . . . . .        | 4,420,000  | 394               | 90                   | 13                    | 6.6              |
| Spain and Portugal . . | 3,810,000  | 410               | 107                  | 20                    | 5.6              |
| Belgium . . . . .      | 1,060,000  | 106               | 100                  | 18                    | 5.8              |
| Holland . . . . .      | 720,000    | 132               | 180                  | 29                    | 6.2              |
| Scandinavia . . . . .  | 1,200,000  | 137               | 114                  | 16                    | 7.0              |
| Europe . . . . .       | 49,605,000 | 7,741             | 154                  | 26                    | 6.0              |
| United States . . . .  | 11,400,000 | 2,850             | 250                  | 46                    | 5.5              |
| Canada . . . . .       | ...        | 127               | ...                  | 25                    | ...              |
| Australia . . . . .    | ...        | 239               | ...                  | 67                    | ...              |
| Cape Colony . . . . .  | ...        | 17                | ...                  | 13                    | ...              |
| Argentina . . . . .    | ...        | 95                | ...                  | 30                    | ...              |
| Uruguay . . . . .      | ...        | 28                | ...                  | 45                    | ...              |

The value of house property in cities was as follows :—

|                        | Millions £ | £ per Inhab. |
|------------------------|------------|--------------|
| London . . . . .       | 673        | 153          |
| Paris . . . . .        | 286        | 128          |
| Berlin . . . . .       | 158        | 108          |
| Vienna . . . . .       | 102        | 130          |
| Buenos Ayres . . . . . | 85         | 153          |
| New York . . . . .     | 271        | 180          |
| Boston . . . . .       | 117        | 234          |
| Sydney . . . . .       | 90         | 245          |
| Melbourne . . . . .    | 92         | 209          |
| Cape Town . . . . .    | 5          | 110          |

# HOUSES

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# HOUSES

The annual increase of house property in various countries and cities is approximately as follows:—

|                  |            |                     |            |
|------------------|------------|---------------------|------------|
| U. Kingdom . . . | 33,000,000 | Sydney . . .        | 6,700,000  |
| London . . .     | 10,100,000 | Buenos Ayres . . .  | 5,500,000  |
| Scotland . . .   | 2,400,000  | United States . . . | 69,000,000 |
| France . . .     | 26,000,000 | New York . . .      | 6,400,000  |
| Paris . . .      | 5,200,000  | Philadelphia . . .  | 6,200,000  |
| Hamburg . . .    | 840,000    | Toronto . . .       | 320,000    |

Notable improvements in Paris and London have cost as follows:—

|                                 |           |
|---------------------------------|-----------|
|                                 | Cost, £   |
| Rue Rivoli, Paris . . .         | 2,860,000 |
| Boulevard Sebastopol . . .      | 1,390,000 |
| New Cannon Street, London . . . | 590,000   |
| Victoria Street . . .           | 330,000   |

Baron Haussman rebuilt a great portion of Paris in the years 1853 to 1869, at an outlay of 85 millions sterling.

## UNITED KINGDOM

The number of houses, population per house, and approximate valuation for Great Britain down to 1811, and the United Kingdom afterwards, showed thus:—

| Year | Houses    | Pop. per House | Rental, £   | Value, Millions £ | Value per Inhab., £ |
|------|-----------|----------------|-------------|-------------------|---------------------|
| 1801 | 1,870,000 | 5.6            | 9,400,000   | 170               | 11                  |
| 1811 | 2,102,000 | 5.7            | 14,000,000  | 252               | 14                  |
| 1821 | 3,572,000 | 5.8            | 20,300,000  | 366               | 17                  |
| 1831 | 4,101,000 | 5.9            | 24,500,000  | 441               | 18                  |
| 1841 | 4,775,000 | 5.6            | 41,500,000  | 747               | 28                  |
| 1851 | 4,694,000 | 5.8            | 50,000,000  | 900               | 33                  |
| 1861 | 5,131,000 | 5.7            | 61,200,000  | 1,102             | 38                  |
| 1871 | 5,632,000 | 5.6            | 86,400,000  | 1,555             | 48                  |
| 1881 | 6,485,000 | 5.4            | 117,500,000 | 2,115             | 60                  |
| 1888 | 7,100,000 | 5.4            | 134,700,000 | 2,424             | 63                  |

In 1887 the valuation of houses in the principal cities was:—

|                  | Rental, £  | Value, Millions £ | Per Inhabitant, £ |
|------------------|------------|-------------------|-------------------|
| London . . .     | 37,400,000 | 673               | 153               |
| Liverpool . . .  | 3,300,000  | 60                | 100               |
| Manchester . . . | 3,200,000  | 58                | 100.              |
| Birmingham . . . | 1,800,000  | 32                | 80                |
| Leeds . . .      | 1,200,000  | 22                | 63                |
| Sheffield . . .  | 1,100,000  | 20                | 63                |
| Bristol . . .    | 990,000    | 18                | 80                |
| Bradford . . .   | 980,000    | 18                | 80                |
| Nottingham . . . | 920,000    | 16                | 70                |
| Newcastle . . .  | 860,000    | 15                | 105               |
| Brighton . . .   | 670,000    | 12                | 110               |

The highest prices paid in London for building sites have been:—

| Year | Street             | Feet    | Sq. Feet | Price, £ | £ per Sq. Foot | £ per Acre |
|------|--------------------|---------|----------|----------|----------------|------------|
| 1880 | Cannon . . .       | 12 x 50 | 600      | 4,500    | 7.5            | 330,000    |
| 1880 | Grace Church . . . | ...     | ...      | ...      | 18.9           | 820,000    |
| 1886 | Old Broad . . .    | 42 x 30 | 1,285    | 37,000   | 28.8           | 1,260,000  |

In 1888 there were let on lease for eighty years six lots at Piccadilly and Charing Cross Road covering 19,000 square feet for £3600 per annum, being at the rate of £8300 per acre, the tenant erecting buildings worth £27,000. This would represent a selling value of £300,000 per acre for the land. House property has risen in value faster in London than throughout England. There is a

house in Lombard Street, the rent of which was £25 a year in 1665, and the building on the same site is now rented for £2600 a year under lease from 1877. The value of land in the suburbs is also prodigious. An acre at Hampstead was recently leased for building at £1000 a year for eighty years.

The rental and value of London show as follows:—

| Year | Houses  | Rental, £  | Value Million £ | Miles of Streets | Value per Mile, £ |
|------|---------|------------|-----------------|------------------|-------------------|
| 1801 | 130,000 | 3,700,000  | 67              | 470              | 142,000           |
| 1811 | 155,000 | 4,500,000  | 82              | 560              | 146,000           |
| 1821 | 170,000 | 5,300,000  | 96              | 610              | 157,000           |
| 1831 | 197,000 | 6,900,000  | 124             | 700              | 177,000           |
| 1841 | 256,000 | 9,600,000  | 174             | 905              | 192,000           |
| 1851 | 301,000 | 12,600,000 | 229             | 1,050            | 218,000           |
| 1861 | 369,000 | 16,800,000 | 306             | 1,290            | 235,000           |
| 1871 | 445,000 | 23,900,000 | 434             | 1,550            | 280,000           |
| 1881 | 520,000 | 33,400,000 | 601             | 1,740            | 343,000           |
| 1888 | 600,000 | 37,400,000 | 673             | 2,010            | 335,000           |

Since 1861 the value of houses in London has risen 14 millions per annum, of which probably 30 per cent. was merely an enhancement of value, leaving about 10 millions a year as the cost of new buildings.

The number of new houses built within a radius of 15 miles from Charing Cross, London, and the length of new streets opened, were:—

| Period   | Houses Built | Streets, Miles Opened | Annual Average |              |
|----------|--------------|-----------------------|----------------|--------------|
|          |              |                       | Houses         | Miles Street |
| 1871-80  | 136,200      | 410                   | 13,600         | 41           |
| 1881-88  | 142,100      | 278                   | 17,800         | 35           |
| 18 years | 278,300      | 688                   | 15,400         | 38           |

Glasgow built £360,000 per annum in the years 1883-87, viz:—

|                            |         |
|----------------------------|---------|
|                            | £       |
| Dwelling-houses . . .      | 130,000 |
| Churches and schools . . . | 49,000  |
| Warehouses . . .           | 121,000 |
| Improvements, &c. . .      | 60,000  |
| Total . . .                | 360,000 |

The above, however, does not include the value of sites, but only the structures. The cost of public buildings varies. Churches and schools may be built at £10 per head of the intended number of occupants. Hospitals sometimes cost £300 per bed. Chelsea barracks cost £245 a man.

Dwellings for the working classes are an urgent necessity, and could easily be constructed in all large towns. Those built in London have cost from 6d. to 8d. per cubic foot, the sites costing from 2s. to 5s. per square foot, the whole outlay being £36 per occupant, which involves an average rent of 2s. a week per room. The Peabody Buildings in 1889 showed an outlay of £900,000, including £500,000 given by the founder and £400,000 borrowed from Government; they had 11,300 rooms, occupied by 20,400 persons, or 5070 families; each family had weekly earnings that averaged 24s., and the average rent was 4s. 9d., or 26d. per room; gross rental £60,000, expenses and interest on loan £30,000, net profit £30,000. In 1882 Messrs. Guinness built in Dublin a block holding 540 rooms, to accommodate 180 families at 4s. a week. Sir Edward Guinness in 1889 gave £200,000 for a similar purpose in London.

The Town Council of Dublin also built a block for 1200 persons, on land which was bought at £6600 per acre: cost, £40,000; average rent, 4s. a week.

In a paper read by Mr. Hoey at the British Association,

1889, he stated that the population of Glasgow was lodged thus :—

| Living in                     | Number of Souls | Death-rate per 1000 |
|-------------------------------|-----------------|---------------------|
| One room . . . . .            | 133,000         | 35.0                |
| Two rooms . . . . .           | 235,000         | 27.7                |
| Three to four rooms . . . . . | 158,000         | 19.5                |
| Five or more rooms . . . . .  |                 | 11.2                |
| Total . . . . .               | 526,000         | 25.0                |

He further showed that the rents paid by the poor in London were exorbitant, a room 10 x 7 and 13 feet high, say 910 cubic feet, on a fifth floor, costing 18d. a week or £4 a year : often a whole family in a room 15 x 12 x 13, say 2300 cubic feet, paying 3s. or 4s. a week.

In 1887 the house property of the United Kingdom was as follows :—

|                             | Rental, £   | Value, Millions £ | £ per Inhabitant |
|-----------------------------|-------------|-------------------|------------------|
| London . . . . .            | 37,400,000  | 673               | 153              |
| Ten large towns . . . . .   | 15,020,000  | 270               | 81               |
| Rest of England . . . . .   | 64,780,000  | 1,166             | 55               |
| England and Wales . . . . . | 117,200,000 | 2,109             | 73               |
| Scotland . . . . .          | 12,600,000  | 228               | 57               |
| Ireland . . . . .           | 3,500,000   | 63                | 13               |
| United Kingdom . . . . .    | 133,300,000 | 2,400             | 63               |

There is no house-duty in Ireland. The houses subject to duty in Great Britain showed as follows :—

|                           | 1851      | 1871      | 1881      |
|---------------------------|-----------|-----------|-----------|
| Subject to duty . . . . . | 434,000   | 797,000   | 1,002,000 |
| Exempt . . . . .          | 3,214,000 | 3,875,000 | 4,569,000 |
| Total . . . . .           | 3,648,000 | 4,672,000 | 5,571,000 |

This shows the great improvement in the class of houses ; in 1851 only 12 per cent. were subject to duty, the ratio being 18 per cent. in 1881. The average value of a house in the United Kingdom was as follows :—

| Year           | £   | Year           | £   | Year           | £   |
|----------------|-----|----------------|-----|----------------|-----|
| 1801 . . . . . | 90  | 1841 . . . . . | 156 | 1871 . . . . . | 278 |
| 1821 . . . . . | 103 | 1851 . . . . . | 190 | 1881 . . . . . | 325 |
| 1831 . . . . . | 108 | 1861 . . . . . | 214 | 1888 . . . . . | 340 |

The average value of a house is now more than double what it was in 1841.

#### ENGLAND AND WALES

In 1688 Gregory King estimated the house rental at two millions sterling. In 1798 it was put down at £6,500,000. The first official valuation was in 1812, viz., £8,490,000, and a later one in 1831 amounted to £12,350,000, but Porter showed that farmhouses and cottages were exempted. These would probably constitute one-third of the total. The rental would therefore be :—

| Year           | Rental, £   | Value, Million £ | £ per Inhabitant |
|----------------|-------------|------------------|------------------|
| 1688 . . . . . | 2,000,000   | 36               | 6                |
| 1798 . . . . . | 6,500,000   | 117              | 14               |
| 1812 . . . . . | 12,700,000  | 229              | 21               |
| 1831 . . . . . | 18,500,000  | 333              | 24               |
| 1850 . . . . . | 42,000,000  | 756              | 42               |
| 1860 . . . . . | 52,000,000  | 936              | 47               |
| 1870 . . . . . | 70,000,000  | 1,276            | 55               |
| 1880 . . . . . | 100,100,000 | 1,802            | 69               |
| 1888 . . . . . | 118,500,000 | 2,133            | 73               |

The number of houses and souls per house was as follows :—

| Census         | Houses.   | Population per House |
|----------------|-----------|----------------------|
| 1801 . . . . . | 1,576,000 | 5.6                  |
| 1811 . . . . . | 1,798,000 | 5.6                  |
| 1821 . . . . . | 2,088,000 | 5.8                  |
| 1831 . . . . . | 2,482,000 | 5.6                  |
| 1841 . . . . . | 2,944,000 | 5.4                  |
| 1851 . . . . . | 3,278,000 | 5.5                  |
| 1861 . . . . . | 3,740,000 | 5.4                  |
| 1871 . . . . . | 4,259,000 | 5.3                  |
| 1881 . . . . . | 4,832,000 | 5.4                  |

#### Houses in England and Wales in 1862 :—

| Annual Rental, £    | Number    | Aggregate Rental, £ | Value, Millions £ | Ratio |
|---------------------|-----------|---------------------|-------------------|-------|
| Over 1000 . . . . . | 233       | 440,000             | 8                 | 0.7   |
| 500-1000 . . . . .  | 924       | 650,000             | 12                | 1.1   |
| 200-500 . . . . .   | 8,633     | 2,860,000           | 51                | 4.5   |
| 100-200 . . . . .   | 32,806    | 4,830,000           | 86                | 7.6   |
| 50-100 . . . . .    | 101,948   | 7,120,000           | 128               | 11.3  |
| 30-50 . . . . .     | 169,920   | 6,880,000           | 124               | 11.0  |
| 20-30 . . . . .     | 205,528   | 5,110,000           | 92                | 8.3   |
| Under 20 . . . . .  | 3,624,608 | 34,700,000          | 626               | 55.5  |
| Total . . . . .     | 4,144,600 | 62,590,000          | 1,127             | 100.0 |

#### Official returns for 1875 and 1886 compare as follows :—

| Rental   | 1875      | 1886      | Increase per Cent. | Amount of Rent |            |
|----------|-----------|-----------|--------------------|----------------|------------|
|          |           |           |                    | 1875           | 1886       |
| Under 20 | 3,922,000 | 4,626,000 | 18                 | 28,600,000     | 38,000,000 |
| 20-50    | 394,000   | 595,000   | 51                 | 11,700,000     | 17,800,000 |
| 50-100   | 119,000   | 167,000   | 40                 | 7,700,000      | 10,800,000 |
| Over 100 | 56,000    | 77,000    | 37                 | 11,100,000     | 14,700,000 |
| Total    | 4,491,000 | 5,465,000 | 22                 | 59,100,000     | 81,300,000 |

The above is exclusive of shops, which were as follows :—

|                | Number  | Rental, £  |
|----------------|---------|------------|
| 1875 . . . . . | 295,000 | 14,300,000 |
| 1886 . . . . . | 366,000 | 18,900,000 |

The valuations for house-duty are about 10 per cent. lower than the income-tax assessments.

#### SCOTLAND.

The number and rental valuation showed thus :—

| Year           | Number  | Rental, £  | £ per House | Capital Value, Millions £ |
|----------------|---------|------------|-------------|---------------------------|
| 1801 . . . . . | 295,000 | ...        | ...         | ...                       |
| 1811 . . . . . | 304,000 | ...        | ...         | ...                       |
| 1821 . . . . . | 341,000 | ...        | ...         | ...                       |
| 1831 . . . . . | 369,000 | ...        | ...         | ...                       |
| 1841 . . . . . | 503,000 | ...        | ...         | ...                       |
| 1851 . . . . . | 370,000 | 5,000,000  | 14          | 90                        |
| 1861 . . . . . | 393,000 | 5,500,000  | 14          | 100                       |
| 1871 . . . . . | 412,000 | 7,300,000  | 18          | 131                       |
| 1881 . . . . . | 739,000 | 11,800,000 | 16          | 212                       |
| 1888 . . . . . | ...     | 12,700,000 | ...         | 229                       |

Before 1851 the Census collectors counted as houses each separate holding or flat.

# HOUSES

315

# HOUSES

## GREAT BRITAIN.

The following table shows the number of houses and approximate rental at each Census :—

| Census         | Number    | Rental, £   | Value, Millions £ |
|----------------|-----------|-------------|-------------------|
| 1801 . . . . . | 1,870,000 | 9,400,000   | 170               |
| 1811 . . . . . | 2,102,000 | 14,000,000  | 252               |
| 1821 . . . . . | 2,429,000 | 17,300,000  | 311               |
| 1831 . . . . . | 2,851,000 | 21,500,000  | 387               |
| 1841 . . . . . | 3,447,000 | 38,500,000  | 693               |
| 1851 . . . . . | 3,648,000 | 47,000,000  | 846               |
| 1861 . . . . . | 4,139,000 | 58,200,000  | 1,048             |
| 1871 . . . . . | 4,672,000 | 82,700,000  | 1,489             |
| 1881 . . . . . | 5,571,000 | 114,200,000 | 2,056             |

Colquhoun's classification of houses in Great Britain, excluding Ireland, in 1812 was as follows :—

| Rental, £      | Number  |           |           | Value, Millions £ |
|----------------|---------|-----------|-----------|-------------------|
|                | Urban   | Rural     | Total     |                   |
| Over 100 . . . | 6,500   | 500       | 7,000     | 18                |
| 40-100 . . .   | 30,000  | 6,000     | 36,000    | 41                |
| 20-40 . . .    | 100,000 | 20,000    | 120,000   | 72                |
| 10-20 . . .    | 200,000 | 100,000   | 300,000   | 89                |
| Under 10 . . . | 579,000 | 995,000   | 1,574,000 | 110               |
| Total . . .    | 915,500 | 1,121,500 | 2,037,000 | 330               |

A classification published in 1881 was as follows :—

| Class       | Houses    | Rental, £   | Average Rental, £ | Ratio of Houses |
|-------------|-----------|-------------|-------------------|-----------------|
| 1 . . .     | 21,000    | 14,000,000  | 665               | 0.4             |
| 2 . . .     | 238,000   | 28,500,000  | 120               | 4.3             |
| 3 . . .     | 512,000   | 17,900,000  | 35                | 9.3             |
| 4 . . .     | 1,294,000 | 19,400,000  | 15                | 23.4            |
| 5 . . .     | 3,410,000 | 34,400,000  | 10                | 62.6            |
| Total . . . | 5,475,000 | 114,200,000 | 21                | 100.0           |

The annual consumption of bricks was known down to 1850, when the tax was abolished. If the same ratio per house as in 1821-50 be supposed from 1850 to 1881, the consumption in sixty years will show thus :—

## Annual Average

| Period        | Million Bricks | Houses Built | Bricks per Inhabitant |
|---------------|----------------|--------------|-----------------------|
| 1821-30 . . . | 1,210          | 42,000       | 78                    |
| 1831-40 . . . | 1,530          | 59,600       | 90                    |
| 1841-50 . . . | 1,662          | 20,100       | 85                    |
| 1851-60 . . . | 1,884          | 49,100       | 86                    |
| 1861-70 . . . | 1,910          | 53,300       | 84                    |
| 1871-80 . . . | 3,240          | 89,900       | 120                   |

English bricks measure 9 × 4½ × 3 inches, and weigh 8 lbs., or 3 tons per 1000. An Adams or Liddell machine, 16-horse power, can make 30,000 daily, the average of hand-made bricks per moulder being 4000 a day. Fire-bricks will resist a crushing force varying from 600 up to 300 lbs. per square inch.

## IRELAND

The number of houses at each Census compared thus with population :—

| Census | Number    | Pop. per House | Census | Number  | Pop. per House |
|--------|-----------|----------------|--------|---------|----------------|
| 1821   | 1,143,000 | 6.0            | 1861   | 992,000 | 5.8            |
| 1831   | 1,250,000 | 6.2            | 1871   | 960,000 | 5.6            |
| 1841   | 1,328,000 | 6.2            | 1881   | 914,000 | 5.7            |
| 1851   | 1,046,000 | 6.3            | ...    | ...     | ...            |

The Census of 1871 classified the houses the same as in 1841 thus :—

| Houses of         | 1841      | 1871    | Decrease, per Cent. |
|-------------------|-----------|---------|---------------------|
| One room . . .    | 491,000   | 156,000 | 68                  |
| Two to four rooms | 533,000   | 357,000 | 33                  |
| Five or more . .  | 304,000   | 449,000 | ...                 |
| Total . . .       | 1,328,000 | 962,000 | 28                  |

## FRANCE

The number of houses and approximate value are shown thus :—

| Year | Houses    | Value, Millions £ | Pop. per House | Windows per House | Value per House, £ |
|------|-----------|-------------------|----------------|-------------------|--------------------|
| 1826 | 6,484,000 | 510               | 4.9            | 4.4               | 80                 |
| 1836 | 6,805,000 | 720               | 5.0            | 4.5               | 106                |
| 1846 | 7,146,000 | 850               | 5.5            | 4.9               | 120                |
| 1856 | 7,633,000 | 985               | 4.8            | 5.0               | 130                |
| 1866 | 7,811,000 | 1,150             | 4.9            | 5.5               | 148                |
| 1882 | 8,813,000 | 1,550             | 4.3            | 5.6               | 175                |
| 1888 | 9,081,000 | 1,704             | 4.2            | ...               | 187                |

Lavoisier valued the houses in 1789 at 280 millions sterling; Chaptal in 1815 at 462 millions. The next valuation was in 1835 by Moreau, only rural buildings, which he set down at 161 millions sterling, an advance of 19 millions in twenty years. In 1869 the Embassy Report gives a total of 1200 millions, and in 1884 the Minister of Finance makes it 1600 millions sterling. This gives an average building value increase of 26 millions per annum, say 1704 millions for 1888. If we compare the houses of 1835 with those of 1888 we find as follows :—

| Windows      | Houses    |           | Ratio |       |
|--------------|-----------|-----------|-------|-------|
|              | 1835      | 1888      | 1835  | 1888  |
| One . . .    | 2,164,000 | 2,047,000 | 32.2  | 22.4  |
| Two to four  | 2,747,000 | 3,658,000 | 40.8  | 40.2  |
| Five or more | 1,816,000 | 3,376,000 | 27.0  | 37.4  |
| Total . . .  | 6,727,000 | 9,081,000 | 100.0 | 100.0 |

Cabins of one window form a much smaller ratio, while houses of the best class have nearly doubled in number.

In eight years ending December 1887 the official returns showed as follows :—

|                    | Number    | Per Annum |
|--------------------|-----------|-----------|
| New houses . . .   | 1,048,000 | 131,000   |
| Pulled down . . .  | 703,000   | 88,000    |
| Net increase . . . | 345,000   | 43,000    |

The classification of houses in 1868 was as follows :—

| Class               | Houses    | Ratio |
|---------------------|-----------|-------|
| Gentry . . .        | 158,000   | 2.2   |
| Commercial, &c. . . | 583,000   | 7.9   |
| Tradesmen . . .     | 2,167,000 | 29.4  |
| Operatives, &c. . . | 4,453,000 | 60.5  |
| Total . . .         | 7,361,600 | 100.0 |

The growth of house property in Paris was as follows :—

| Year           | Millions £ | Per Inhabitant, £ |
|----------------|------------|-------------------|
| 1848 . . . . . | 81         | 82                |
| 1860 . . . . . | 188        | 109               |
| 1870 . . . . . | 223        | 122               |
| 1882 . . . . . | 286        | 128               |

The number of houses compared with population at two periods thus :—

| Year       | Houses | Population | Inhabitants per House |
|------------|--------|------------|-----------------------|
| 1817 . . . | 28,800 | 714,000    | 25                    |
| 1880 . . . | 76,100 | 2,240,000  | 30                    |

Each house represents nine *logements* or residences, owing to the custom of flats, and in 1882 these were 685,000 in number, and were let as follows :—

| Rent, £      | Number  | Rental, £  | Value, Millions £ | Ratio |
|--------------|---------|------------|-------------------|-------|
| Over 500 . . | 1,920   | 1,100,000  | 17                | 6.0   |
| 160 to 500 . | 13,100  | 4,200,000  | 63                | 22.0  |
| 40 to 160 .  | 65,250  | 6,300,000  | 94                | 32.7  |
| 15 to 40 . . | 135,400 | 2,800,000  | 42                | 14.8  |
| Under 15 . . | 469,000 | 4,700,000  | 70                | 24.5  |
| Total . . .  | 684,670 | 19,100,000 | 286               | 100.0 |

In 1882 a sum of £1,100,000 was expended in buildings for the working-classes, to accommodate 3000 families or 10,000 souls, say £110 per head, each *logement* being supplied with gas and water, the rent 8s. a week: total rent £60,000 a year, or 5½ per cent. on first outlay.

In 1879 the official estimated rental of all houses in France was 74 millions sterling, from which, for purposes of taxation, the Government allowed an abatement of 20 per cent. for repairs, &c., making the net rental 59 millions. In 1884 the Finance Minister estimated the gross rental at 88 millions sterling, which would represent a capital value of 1600 millions. The tax-collector's valuation the same year, after deducting one-fifth for repairs, was 1280 millions sterling, which confirms the Minister's estimate as above. Building sites in Paris, according to Yves Guyot, have quintupled in value in sixty years, the highest price in 1826 being £18 per square metre, and in 1883 ranging from £80 to £120: the maximum may therefore be taken as £10 per square foot, against £20 in London (even £30 having been paid in the latter city). In 1887 there were 250,000 persons in Paris living in furnished apartments, say 11 per cent. of the population :—

#### Ordinary Rent per Annum

| Unfurnished             | £  | Furnished (Boulevards)  | £   |
|-------------------------|----|-------------------------|-----|
| 1 room, suburbs . . .   | 8  | 3 rooms, 5th flat . . . | 160 |
| 2 rooms, suburbs . . .  | 12 | 3 rooms, 4th flat . . . | 200 |
| 2 rooms, Passy . . .    | 15 | 3 rooms, 3rd flat . . . | 250 |
| 3 rooms, Madeleine . .  | 20 | 3 rooms, and flat . . . | 300 |
| 3 rooms, Rue Rivoli . . | 30 | 4 rooms, Rue Rivoli . . | 400 |
| 3 rooms, Rue Rivoli . . | 50 | 5 rooms, Rue Rivoli . . | 600 |

#### GERMANY

An official report for Prussia in 1869 gave the number and rental of houses. In the following table the value is capitalised at 18 times the rental :—

|               | Number    | Rental, £  | Value, Millions £ |
|---------------|-----------|------------|-------------------|
| Urban . . . . | 467,000   | 8,400,000  | 151               |
| Rural . . . . | 1,701,000 | 5,100,000  | 92                |
| Total . . . . | 2,168,000 | 13,500,000 | 243               |

In the same year the urban house property of Saxony was valued at 70 millions sterling, that of rural being apparently no more than 10 millions. These two kingdoms form exactly two-thirds of the German Empire as regards population, and we may conclude that the total house property of Germany in 1869 was of the value of 485 millions sterling. Official returns for Berlin show as

follows (except that the capitalisation at 18 years' rent is mine) :—

| Year | Number of Houses | Rent, £   | Value, £    | Value per House, £ |
|------|------------------|-----------|-------------|--------------------|
| 1867 | 14,100           | 3,390,000 | 61,100,000  | 4,400              |
| 1872 | 15,050           | 5,370,000 | 96,700,000  | 6,500              |
| 1882 | 19,700           | 8,800,000 | 158,400,000 | 8,000              |

The total value of house property in 1888 may be estimated thus :—

|                   | Population | Houses, Millions £ | £ per Head |
|-------------------|------------|--------------------|------------|
| Berlin . . . .    | 1,460,000  | 158                | 108        |
| 114 cities . . .  | 6,900,000  | 310                | 45         |
| Rural districts . | 38,200,000 | 764                | 20         |
| Total . . . .     | 46,560,000 | 1,232              | 26         |

In four years ending 1886 Hamburg put up new suburbs and houses worth £3,350,000, say £840,000 per annum, the value of the sites being 60, and the buildings 40 per cent. of the total. Overcrowding in the large cities is as bad as in England, official returns showing the ratio of population living in one room as follows :—

| City       | Year | Per 1000 Inhab. | City    | Year | Per 1000 Inhab. |
|------------|------|-----------------|---------|------|-----------------|
| Königsberg | 1864 | 560             | Leipzig | 1871 | 471             |
| Chemnitz   | 1871 | 702             | Hamburg | 1875 | 356             |
| Frankfort  | 1871 | 225             | Leipzig | 1875 | 214             |

There was a marked improvement in Leipzig between 1871 and 1875; in the former year 108 per 1000 of the population lived in cellars.

In 1875 Leipzig had 3455 houses (comprising probably 18,000 flats or residences), which contained 140,000 souls, viz :—

| Class of House | Inhabitants per House | Number of Houses | Approximate Population |
|----------------|-----------------------|------------------|------------------------|
| 1st . . . .    | Up to 10              | 481              | 4,000                  |
| 2nd . . . .    | 11-20                 | 661              | 10,000                 |
| 3rd . . . .    | 21-40                 | 1,138            | 36,000                 |
| 4th . . . .    | Over 40               | 1,175            | 90,000                 |
| Total . . . .  | ...                   | 3,455            | 140,000                |

#### RUSSIA

There are 11,436,000 houses, but no returns of valuation. Strebinsky estimated the poorest kind of rural dwellings at £27 sterling, and a general average of £40 may be taken. As regards the 787,000 houses in cities, they may be estimated at 10 per cent. per inhabitant less than in Germany. The account will stand thus :—

|                 | Houses     | Population | Per Inhabitant, £ | Value, Mill. £ |
|-----------------|------------|------------|-------------------|----------------|
| St Petersburg   | 787,000    | 810,000    | 97                | 79             |
| 87 cities . . . | 4,900,000  | 40         | 196               |                |
| Rural . . . .   | 10,649,000 | 78,200,000 | 5½                | 426            |
| Total . . . .   | 11,436,000 | 83,910,000 | 7½                | 701            |

Of the houses in St. Petersburg and 87 other cities there were 127,000 of stone and 660,000 of wood; perhaps the term stone also includes brick.

In 1867 Buschen estimated the value of all buildings in Russia at 270 millions sterling, that is, dwelling-houses 150 millions, factories, &c., 120 millions.



AUSTRIA-HUNGARY

The last Census does not give the number of houses in Hungary, which may, however, be estimated at 2,000,000. The number in Austria has increased in the same ratio as population :—

|                   | 1840      | 1880      |
|-------------------|-----------|-----------|
| Austria . . . . . | 2,364,000 | 2,996,000 |
| Hungary . . . . . | 1,732,000 | 2,000,000 |
| Total . . . . .   | 4,096,000 | 4,996,000 |

In Austria the houses in 1880 were as follows :—

|                  | Number    | Approximate Value, £ | Per House, £ |
|------------------|-----------|----------------------|--------------|
| Vienna . . . . . | 183,900   | 102,000,000          | 545          |
| Towns . . . . .  | 388,100   | 77,600,000           | 200          |
| Rural . . . . .  | 2,424,000 | 121,200,000          | 50           |
| Total . . . . .  | 2,996,000 | 300,800,000          | 100          |

The house property of Hungary, at the same general ratio of £100 per house, would amount to 200 millions sterling, making a total of 501 millions for the whole Empire. In 1883 Roschmann valued the houses of Austria (without Hungary) at 256 millions sterling; but this seems 15 per cent. too low.

In 1886 the annual rental of Vienna showed as follows :—

| Rent                | Houses  | Gross Rental, £ | Ratio of Houses |
|---------------------|---------|-----------------|-----------------|
| Under £20 . . . . . | 89,192  | 1,200,000       | 48.5            |
| 20-50 . . . . .     | 68,993  | 2,200,000       | 37.5            |
| 50-100 . . . . .    | 17,736  | 1,200,000       | 9.7             |
| Over 100 . . . . .  | 7,985   | 1,100,000       | 4.3             |
| Total . . . . .     | 183,906 | 5,700,000       | 100.0           |

ITALY

Neumann Spallart estimates the house property of Italy at 360 millions sterling, although the official value in 1881 was only 240 millions, but the latter was confessedly one-third too low. The *Archivio* gives the value in 1880 as 380 millions sterling. Approximately the house property may be estimated thus :—

|                 | Houses    | Population | Rental, £  | Value, Millions £ | £ per Inhab. |
|-----------------|-----------|------------|------------|-------------------|--------------|
| Urban . . . . . | 650,000   | 5,100,000  | 8,400,000  | 153               | 30           |
| Rural . . . . . | 3,770,000 | 24,100,000 | 13,400,000 | 241               | 10           |
| Total . . . . . | 4,420,000 | 29,200,000 | 21,800,000 | 394               | 13           |

The house property of Rome is estimated at 14 millions sterling, or about £45 per inhabitant.

HOLLAND

The official returns of house property show number and rental :—

| Year           | Houses Taxed | Rental, £ | Value, £    |
|----------------|--------------|-----------|-------------|
| 1877 . . . . . | 372,400      | 6,060,000 | 109,000,000 |
| 1883 . . . . . | 398,900      | 6,660,000 | 120,000,000 |

This represents only the houses above a certain letting value, as the Census of 1879 showed 729,000 inhabited houses, of which 379,000 were subject to house-duty, and

350,000 were exempted. The assessment of 1880 showed as follows :—

|                           |         |
|---------------------------|---------|
| Over £80 rental . . . . . | 13,673  |
| £32 to £80 . . . . .      | 30,558  |
| Under £32 . . . . .       | 313,218 |

Total . . . . . 357,449

We may add 10 per cent. to the official valuation, say 12 millions sterling, as the value of the untaxed houses, which is equal to £34 per house. This makes the total house property of Holland worth 132 millions sterling.

SPAIN

In 1832 the *Junta de Medios* valued all buildings at 243 millions sterling, of which 68 millions were for public buildings and factories, the rest for dwelling-houses: the average was £20 per head of the population, and at the same rate Spain would now have 340 millions worth of house property distributed approximately as follows :—

|                     | Houses    | Population | Rental, £  | Value, Millions £ | £ per Inhab. |
|---------------------|-----------|------------|------------|-------------------|--------------|
| 28 cities . . . . . | 380,000   | 2,100,000  | 5,000,000  | 90                | 45           |
| Rural . . . . .     | 2,600,000 | 14,800,000 | 14,000,000 | 250               | 17           |
| Total . . . . .     | 2,980,000 | 16,900,000 | 19,000,000 | 340               | 20           |

SCANDINAVIA

Official valuations of house property in Sweden distinguish urban from rural; in Norway, give only urban, and in Denmark, confuse the same with landed property. The values are approximately as follows :—

|                   | House Property, Millions £ |       |       | £ per Inhabitant |       |       |
|-------------------|----------------------------|-------|-------|------------------|-------|-------|
|                   | Urban                      | Rural | Total | Urban            | Rural | Total |
| Sweden . . . . .  | 64                         | 16    | 80    | 72               | 4     | 17    |
| Norway . . . . .  | 10                         | 7     | 17    | 30               | 4     | 9     |
| Denmark . . . . . | 31                         | 9     | 40    | 60               | 6     | 20    |
| Total . . . . .   | 105                        | 32    | 137   | 63               | 5     | 16    |

In Sweden 9 per cent. of house property stood for schools, &c.

BELGIUM

The Census returns of Belgium show :—

| Year           | Number of Inhabited Houses | Population per House |
|----------------|----------------------------|----------------------|
| 1846 . . . . . | 799,000                    | 5.42                 |
| 1856 . . . . . | 834,000                    | 5.43                 |
| 1866 . . . . . | 930,000                    | 5.19                 |
| 1880 . . . . . | 1,061,000                  | 5.20                 |

The official rental valuation in 1884 was £5,900,000, equal to a capital value of 106 millions sterling.

UNITED STATES

The Census of 1880 showed 8,956,000 houses. Compared with the numbers at previous Censuses, the existing houses in 1880 would appear approximately as follows :—

|                             | Ratio |
|-----------------------------|-------|
| Built before 1840 . . . . . | 27.4  |
| 1840-1850 . . . . .         | 9.4   |
| 1850-1860 . . . . .         | 18.2  |
| 1860-1870 . . . . .         | 23.4  |
| 1870-1880 . . . . .         | 21.6  |
| Total . . . . .             | 100.0 |

The first settlers lived in wooden houses, the ordinary cost of which, in 1684, was estimated at £5 sterling, a clergyman's house costing £35. Fires were frequent. The first brick-kiln was at Salem, Massachusetts, in 1629, and Mr. Coddington built the first brick house at Boston in 1638, the number reaching 1000 by the year 1700. The house which W. Penn built at Philadelphia was of bricks brought from England, and cost £5000.

The earliest estimate of house property was in 1790, when there was found to be 277,000 houses, valued at £29,200,000 sterling, being £105 per house. The number of houses at the following dates was:—

| Year       | Houses    | Population | Inhabitant per House |
|------------|-----------|------------|----------------------|
| 1840 . . . | 2,430,000 | 17,069,000 | 7.1                  |
| 1850 . . . | 3,362,000 | 23,192,000 | 6.9                  |
| 1860 . . . | 4,970,000 | 31,443,000 | 6.3                  |
| 1870 . . . | 7,043,000 | 38,558,000 | 5.5                  |
| 1880 . . . | 8,956,000 | 50,410,000 | 5.5                  |

According to the Census of 1840, there were 54,100 houses built during the year, namely, 45,700 of wood, and 8400 of brick or stone, representing a total value of £8,800,000, say £160 per house, viz:—

| State               | Houses Built | Value, £  | Value per House, £ |
|---------------------|--------------|-----------|--------------------|
| New York . . .      | 6,400        | 1,520,000 | 240                |
| Pennsylvania . . .  | 4,400        | 1,100,000 | 250                |
| Illinois . . . . .  | 4,400        | 440,000   | 100                |
| Ohio . . . . .      | 3,800        | 790,000   | 210                |
| Massachusetts . . . | 1,600        | 580,000   | 360                |
| Other States . . .  | 33,500       | 4,370,000 | 130                |
| Total . . . . .     | 54,100       | 8,800,000 | 160                |

The number of new houses built yearly in the Union since 1840 is shown officially as follows:—

|                   |         |
|-------------------|---------|
| 1841-50 . . . . . | 93,200  |
| 1851-60 . . . . . | 161,000 |
| 1861-80 . . . . . | 199,000 |
| 1887 . . . . .    | 303,000 |

In 1880 the Census showed 156,000 men engaged in building, the annual value of new houses being put down at 35 millions sterling, but in 1887 it was estimated at 86 millions sterling; the average cost of city houses was estimated at £940, and of rural at £210 each. The following annual returns of city buildings are given:—

| City                  | New Houses | Value, £  | Value per House, £ | Years   |
|-----------------------|------------|-----------|--------------------|---------|
| New York . . . . .    | 1,950      | 6,400,000 | 3,240              | 1886-88 |
| Philadelphia . . . .  | 8,202      | 6,240,000 | 760                | 1888    |
| Kansas City . . . . . | 4,510      | 2,040,000 | 440                | 1886-88 |

The value of house property in some cities was as follows:—

| Year  | City                 | Value, Millions £ | Population | £ per Head |
|-------|----------------------|-------------------|------------|------------|
| 1888  | New York . . . . .   | 271               | 1,500,000  | 180        |
| 1888  | Boston . . . . .     | 117               | 500,000    | 234        |
| 1880  | Philadelphia . . . . | 119               | 850,000    | 140        |
| 1880  | Brooklyn . . . . .   | 45                | 570,000    | 80         |
| 1880  | St. Louis . . . . .  | 32                | 350,000    | 92         |
| Total | ...                  | 584               | 3,770,000  | 155        |

The increase of value in New York from 1880 to 1888 was 49 millions sterling, that is, 7 millions per annum. There is no city in England equal in valuation per inhabitant to Boston or New York, but the Australian cities are higher, Melbourne being £29 higher than New York, and Sydney £11 over Boston.

The average value of each house built in 1840 was £160, and in 1887 it was £285. The total value of house property in the Union may be estimated for various dates thus:—

| Year       | Houses     | Average Value, £ | Millions, £ | £ per Inhab. |
|------------|------------|------------------|-------------|--------------|
| 1870 . . . | 7,043,000  | 220              | 1,550       | 40           |
| 1880 . . . | 8,956,000  | 240              | 2,160       | 43           |
| 1890 . . . | 11,400,000 | 250              | 2,850       | 46           |

This shows an average value per head much below what it is in England, namely, £73.

CANADA

In Montreal the years 1837-88 averaged 1005 new houses, valued at £860,000, say £860 each, or £100 higher than in Philadelphia. The value of houses built at Toronto during the year 1880 was £320,000. In 1887 Upper Canada had, by official returns, a value of £38,500,000 in farm-buildings exclusive of towns. The total value of house property in the Dominion may be estimated thus:—

|                 | Population | House, Value £ per Head | Millions £ |
|-----------------|------------|-------------------------|------------|
| Urban . . . . . | 460,000    | 60                      | 27         |
| Rural . . . . . | 4,560,000  | 22                      | 100        |
| Total . . . . . | 5,020,000  | 25                      | 127        |

AUSTRALIA

House property is much more valuable compared with population than it is in Europe. In 1888, for example, Sydney and Melbourne showed thus:—

|                     | Population | Rental, £ | Value, £   | £ per Inhabitant |
|---------------------|------------|-----------|------------|------------------|
| Sydney . . . . .    | 367,000    | 5,220,000 | 78,300,000 | 211              |
| Melbourne . . . . . | 438,000    | 5,320,000 | 79,800,000 | 181              |

There is at Melbourne a block of houses valued at £494,000, the site of which was bought in 1838 for £45, and close to it is Menzies' Hotel, recently sold for £150,000, the site of which cost £10 in 1840.

The following table shows approximately the value of all house property in the seven colonies:—

|                        | Value, Millions £ |       |       | £ per Inhabitant |       |       |
|------------------------|-------------------|-------|-------|------------------|-------|-------|
|                        | Urban             | Rural | Total | Urban            | Rural | Total |
| N. S. Wales . . . . .  | 78                | 14    | 92    | 211              | 21    | 83    |
| Victoria . . . . .     | 80                | 11    | 91    | 181              | 18    | 83    |
| New Zealand . . . . .  | 20                | 5     | 25    | 100              | 10    | 40    |
| South Australia . . .  | 11                | 2     | 13    | 100              | 10    | 40    |
| Queensland . . . . .   | 9                 | 3     | 12    | 100              | 10    | 30    |
| Tasmania . . . . .     | 4                 | 1     | 5     | 100              | 10    | 33    |
| W. Australia . . . . . | 1                 | ...   | 1     | 100              | 10    | 25    |
| Total . . . . .        | 203               | 36    | 239   | 170              | 15    | 67    |

CAPE COLONY

In 1883 the house property of the principal towns was officially valued thus:—

|                        | Population | Value, £  | £ per Inhabitant |
|------------------------|------------|-----------|------------------|
| Cape Town . . . . .    | 45,000     | 4,980,000 | 110              |
| Port Elizabeth . . . . | 13,000     | 1,950,000 | 150              |
| Kimberley . . . . .    | 14,000     | 1,710,000 | 122              |
| Total . . . . .        | 72,000     | 8,640,000 | 120              |

## HONG-KONG

In 1889 the best building sites fetched £3 per square foot, or £130,000 per acre.

## ARGENTINE REPUBLIC

The classification of houses at Buenos Ayres in 1889 was as follows:—

| Yearly Rent       | Houses | Approximate Value, £ |
|-------------------|--------|----------------------|
| Under £50 . . . . | 3,067  | 1,600,000            |
| £50-£100 . . . .  | 10,320 | 9,500,000            |
| £100-£200 . . . . | 12,506 | 23,600,000           |
| £200-£300 . . . . | 6,512  | 21,100,000           |
| Over £300 . . . . | 4,835  | 28,700,000           |
| Total . . . .     | 37,248 | 84,500,000           |

The increase in eight years was exceedingly rapid, the official returns for 1881 having shown 22,700 houses valued at £39,800,000 and owned as follows:—

|                          | Value, £   |
|--------------------------|------------|
| By Argentines . . . .    | 22,800,000 |
| Italians . . . . .       | 6,800,000  |
| Other foreigners . . . . | 10,200,000 |
| Total . . . . .          | 39,800,000 |

In eight years there were built 14,500 new houses, and the average annual increase of house property was £5,500,000 sterling. The average value of each house was £1700 in 1881 and £2,300 in 1889. The province of Buenos Ayres, outside the city, had 106,000 houses in 1881, valued at £12,300,000, say £120 per house or £22 per inhabitant. The houses in the other 13 provinces were estimated at 35 millions sterling, or £17 per inhabitant. The total for the Republic, including public buildings, was £94,500,000.

## URUGUAY

In 1884 the value of house property was 28 millions sterling, about £45 per inhabitant. New houses at Monte-Video show an average of £230,000 per annum.

## HUNTING

## UNITED KINGDOM

The annual shooting is estimated thus:—

|                         | Number     | Value, £  |
|-------------------------|------------|-----------|
| Hares and rabbits . . . | 30,000,000 | 2,200,000 |
| Grouse . . . . .        | 500,000    | 50,000    |
| Partridges . . . . .    | 400,000    | 30,000    |
| Pheasants, &c. . . . .  | 900,000    | 90,000    |
| Deer . . . . .          | 10,500     | 50,000    |
| Total . . . . .         | ...        | 2,420,000 |

## BELGIUM

The number of shooting licenses issued was 12,900 in 1888, against 10,600 in 1860, and 6100 in 1840. The value of game killed yearly in the forests is 14 francs per hectare or 5s. an acre.

## FRANCE

The State pays £3 for each wolf killed. The numbers killed were:—

|                |       |                |     |
|----------------|-------|----------------|-----|
| 1882 . . . . . | 1,225 | 1886 . . . . . | 760 |
| 1885 . . . . . | 900   | 1887 . . . . . | 701 |

Game licenses average 350,000 yearly. French writers estimate the number of rabbits killed yearly in France at 70 millions.

## GERMANY

Game licenses, 146,000; slaughter, 20,000 foxes, 30,000 deer, 2,000,000 hares, 3,000,000 partridges. The

annual fair at Leipzig shows a sale of several million skins. In 1880 there were sold:—

|                    |         |                     |           |
|--------------------|---------|---------------------|-----------|
| Bear . . . . .     | 6,000   | Ermine . . . . .    | 160,000   |
| Sable . . . . .    | 54,000  | Fox . . . . .       | 180,000   |
| Otter . . . . .    | 66,000  | Skunk . . . . .     | 950,000   |
| Beaver . . . . .   | 80,000  | Squirrel, &c. . . . | 4,850,000 |
| Wild cat . . . . . | 125,000 |                     |           |

The forests of Prussia in 1869 contained 6000 wild boars and 151,000 deer.

## RUSSIA

In Russia and Siberia the annual slaughter of fur-bearing animals is as follows: 50,000 martens, 3 million ermines, 15 million marmots, 25 million squirrels. The Russian forests contained in 1880 over 170,000 wolves, which devoured 200 children or travellers per annum. In 1889 Russian peasants killed or captured 318 boars, 85 wolves, 503 foxes, 14,834 hares, 71,960 squirrels, 539 martens, &c. On the other hand, bears and wolves destroyed between them 500 horses, more than 1000 oxen, and over 4000 other domestic animals.

## AUSTRIA

The slaughter of large game in the whole Empire averages thus:—

|                  |     |                  |       |
|------------------|-----|------------------|-------|
| Bears . . . . .  | 160 | Wolves . . . . . | 1,200 |
| Lynxes . . . . . | 200 | Foxes . . . . .  | 8,000 |

Besides 3000 tiger-cats and various other kinds. The returns of game killed in Austria proper showed in 1885 thus:—

|                   |        |                     |           |
|-------------------|--------|---------------------|-----------|
| Bears . . . . .   | 22     | Wild boars . . . .  | 3,000     |
| Wolves . . . . .  | 113    | Hares . . . . .     | 1,430,000 |
| Lynxes . . . . .  | 24     | Woodcock . . . .    | 12,500    |
| Foxes . . . . .   | 26,400 | Pheasants . . . . . | 103,000   |
| Martens . . . . . | 9,700  | Partridges . . . .  | 1,336,000 |
| Deer . . . . .    | 72,500 | Snipe . . . . .     | 99,000    |
| Chamois . . . . . | 7,700  | Wild duck . . . .   | 50,300    |

## SWEDEN

The annual slaughter averaged as follows:—

|                  | 1827-36 | 1850-59 | 1867-76 |
|------------------|---------|---------|---------|
| Bears . . . . .  | 135     | 118     | 110     |
| Lynxes . . . . . | 243     | 140     | 91      |
| Wolves . . . . . | 542     | 162     | 53      |
| Foxes . . . . .  | 7,882   | 5,396   | ...     |

About 5000 eagles and vultures are shot yearly in Sweden: in 1868 the number killed was 27,000. Laplanders sometimes follow a wolf 200 miles to kill him. Of foxes about 10,000 are killed yearly, 5000 skins being annually exported: in 1867 there were 18,000 killed. The annual killing of martens reaches 1000, and of ermines and otters 3000.

## FINLAND

In Finland wolves destroy 5500 horned cattle yearly. The average of wild beasts killed in the decade ending 1870, per annum, was:—

|                  |     |                  |       |                  |    |
|------------------|-----|------------------|-------|------------------|----|
| Bears . . . . .  | 104 | Lynxes . . . . . | 42    | Gluttons . . . . | 35 |
| Wolves . . . . . | 393 | Foxes . . . . .  | 2,046 | Martens . . . .  | 5  |

## EAST INDIES

In Java there are 270 persons killed by tigers, and 180 by crocodiles, yearly. In India 23,000 persons and 68,000 cattle are killed yearly by tigers, snakes, &c. The Indian Government pays £16,000 per annum for killing 20,000 wild beasts and 560,000 snakes. In Cochin-China the French killed in 1882 no fewer than 109 tigers and 25 panthers.

## UNITED STATES

Between 1860 and 1882 more than 15 millions of bison were killed.

## I.

## ICE

The consumption in the United Kingdom exceeds 500,000 tons yearly, the quantity imported averaging 300,000 tons, mostly from Norway. The ice-crop of the United States, according to Simmonds, averages 12 million tons, of which the Hudson supplies 2,400,000. The capital employed in this trade in the United States has been estimated at 8 millions sterling: the ice, when cut, is valued at 4s. a ton, but is retailed at 12s. Some of the cities of the world consume as follows:—

|                    | Tons    | Lbs. per Inhab. |
|--------------------|---------|-----------------|
| London . . . . .   | 200,000 | 102             |
| Paris . . . . .    | 60,000  | 60              |
| New York . . . . . | 700,000 | 1,300           |
| Boston . . . . .   | 100,000 | 700             |

Russia consumes enormous quantities, St. Petersburg alone counting 10,000 ice-houses.

## INCOME

The subjoined table shows approximately the annual earnings or income of nations. It is compiled thus: 90 per cent. of agricultural values, 90 per cent. of mining, 60 per cent. of manufactures. Transport is computed at 10 per cent. on the gross value of agriculture, mining, and manufactures; house-rent, according to the assessed valuation or the nearest estimate; commerce, 10 per cent. on imports and exports; shipping, 30s. per ton yearly of carrying power; banking, 5 per cent. on banking power; and furthermore an allowance of 10 per cent. on the total of the preceding eight items, to cover the earnings of domestic servants, learned professions, army, police, civil service, &c. This is, of course, a conventional method for estimating the earnings of nations, but will answer fairly well for the sake of comparison.

NATIONAL EARNINGS FROM VARIOUS SOURCES

|                         | MILLIONS £ STERLING |        |              |                    |            |          |          |         |             |       | Per Inhab. £ |
|-------------------------|---------------------|--------|--------------|--------------------|------------|----------|----------|---------|-------------|-------|--------------|
|                         | Agriculture         | Mining | Manufactures | Internal Transport | House Rent | Commerce | Shipping | Banking | Professions | Total |              |
| U. Kingdom . . . . .    | 226                 | 53     | 492          | 113                | 135        | 74       | 30       | 45      | 117         | 1,285 | 33.7         |
| France . . . . .        | 474                 | 9      | 291          | 96                 | 93         | 31       | 4        | 13      | 95          | 1,046 | 27.8         |
| Germany . . . . .       | 382                 | 22     | 350          | 103                | 68         | 37       | 4        | 12      | 98          | 1,076 | 22.2         |
| Russia . . . . .        | 507                 | 14     | 218          | 94                 | 34         | 12       | 2        | 5       | 89          | 975   | 11.5         |
| Austria . . . . .       | 298                 | 7      | 152          | 59                 | 27         | 9        | 1        | 7       | 56          | 616   | 15.5         |
| Italy . . . . .         | 184                 | 2      | 73           | 33                 | 22         | 9        | 2        | 5       | 33          | 363   | 12.2         |
| Spain . . . . .         | 156                 | 4      | 51           | 27                 | 18         | 6        | 2        | 2       | 27          | 293   | 16.5         |
| Portugal . . . . .      | 28                  | 1      | 10           | 5                  | 4          | 2        | ...      | ...     | 5           | 55    | 12.1         |
| Sweden . . . . .        | 44                  | 1      | 30           | 10                 | 4          | 3        | 1        | 1       | 10          | 104   | 22.0         |
| Norway . . . . .        | 15                  | 1      | 12           | 4                  | 1          | 1        | 3        | ...     | 4           | 41    | 20.5         |
| Denmark . . . . .       | 31                  | ...    | 16           | 6                  | 2          | 3        | 1        | 1       | 6           | 66    | 32.5         |
| Holland . . . . .       | 35                  | ...    | 21           | 8                  | 7          | 20       | 1        | 1       | 9           | 102   | 22.6         |
| Belgium . . . . .       | 50                  | 6      | 61           | 17                 | 6          | 11       | ...      | 1       | 15          | 167   | 28.0         |
| Switzerland . . . . .   | 17                  | ...    | 19           | 5                  | 2          | 6        | ...      | 1       | 5           | 55    | 19.0         |
| Europe . . . . .        | 2,387               | 120    | 1,796        | 580                | 423        | 224      | 51       | 94      | 569         | 6,244 | 19.4         |
| United States . . . . . | 668                 | 96     | 856          | 231                | 157        | 32       | 12       | 52      | 214         | 2,358 | 39.0         |
| Canada . . . . .        | 50                  | 2      | 39           | 12                 | 7          | 4        | 2        | 2       | 12          | 130   | 26.0         |
| Australia . . . . .     | 56                  | 7      | 25           | 10                 | 13         | 12       | 1        | 7       | 13          | 144   | 40.2         |
| Argentina . . . . .     | 38                  | ...    | 24           | 8                  | 5          | 3        | ...      | 1       | 8           | 87    | 24.0         |
| Total . . . . .         | 3,229               | 225    | 2,750        | 841                | 605        | 275      | 66       | 156     | 816         | 8,963 | 20.8         |

## UNITED KINGDOM

The income of the nation has been estimated thus:—

| Year | Millions £ | Per Inhabitant, £ | Kingdom           |
|------|------------|-------------------|-------------------|
| 1664 | 42         | 7.8               | England and Wales |
| 1688 | 45         | 8.2               | "                 |
| 1770 | 122        | 16.3              | "                 |
| 1800 | 230        | 26.0              | "                 |
| 1822 | 280        | 19.8              | Great Britain     |
| 1840 | 504        | 19.2              | United Kingdom    |
| 1860 | 760        | 26.2              | "                 |
| 1889 | 1,285      | 33.6              | "                 |

King's classification in 1688 compares with later dates:—

A.D. 1688

| Class             | Families  | Average Income, £ | Amount, £  |
|-------------------|-----------|-------------------|------------|
| Gentry . . . . .  | 16,500    | 360               | 6,000,000  |
| Middle . . . . .  | 114,000   | 105               | 12,000,000 |
| Trades . . . . .  | 310,000   | 50                | 15,500,000 |
| Working . . . . . | 759,500   | 15                | 11,500,000 |
| Total . . . . .   | 1,200,000 | 37                | 45,000,000 |

A.D. 1800

| Class             | Families  | Average Income, £ | Amount, £   |
|-------------------|-----------|-------------------|-------------|
| Gentry . . . . .  | 36,000    | 770               | 28,000,000  |
| Middle . . . . .  | 181,000   | 315               | 57,000,000  |
| Trades . . . . .  | 446,000   | 150               | 67,000,000  |
| Working . . . . . | 1,117,000 | 70                | 78,000,000  |
| Total . . . . .   | 1,780,000 | 127               | 230,000,000 |

A.D. 1889

| Class                    | Families  | Average Income, £ | Amount, £     |
|--------------------------|-----------|-------------------|---------------|
| Gentry . . . . .         | 222,000   | 1,500             | 333,000,000   |
| Middle . . . . .         | 604,000   | 400               | 241,000,000   |
| Trades . . . . .         | 1,220,000 | 200               | 244,000,000   |
| Working . . . . .        | 4,774,000 | 97                | 467,000,000   |
| Total . . . . .          | 6,820,000 | 188               | 1,285,000,000 |
| England . . . . .        | 5,200,000 | 208               | 1,084,000,000 |
| Scotland . . . . .       | 740,000   | 173               | 128,000,000   |
| Ireland . . . . .        | 880,000   | 84                | 73,000,000    |
| United Kingdom . . . . . | 6,820,000 | 188               | 1,285,000,000 |

Professor Leone Levi in 1884 estimated the earnings of the people as follows:—

|                   | Millions £ Sterling Yearly |          |         |            |
|-------------------|----------------------------|----------|---------|------------|
|                   | England                    | Scotland | Ireland | U. Kingdom |
| Upper class . .   | 477                        | 59       | 36      | 572        |
| Middle class . .  | 98                         | 14       | 8       | 120        |
| Working class . . | 401                        | 62       | 42      | 505        |
| Total . .         | 976                        | 135      | 86      | 1,197      |

He estimated the wage-earners in 1884 as follows:—

|                    | Number     | Millions £ | £ per Head |
|--------------------|------------|------------|------------|
| Professional . . . | 300,000    | 16         | 53         |
| Domestic . . .     | 2,400,000  | 86         | 36         |
| Commercial . . .   | 900,000    | 45         | 50         |
| Agricultural . . . | 1,900,000  | 67         | 35         |
| Industrial . . .   | 6,700,000  | 307        | 46         |
| Total . .          | 12,200,000 | 521        | 43         |

|                 | Workers    | Millions £ | £ per Head |
|-----------------|------------|------------|------------|
| England . . .   | 8,600,000  | 401        | 47         |
| Scotland . . .  | 1,500,000  | 62         | 41         |
| Ireland . . .   | 1,800,000  | 42         | 23         |
| Undefined . . . | 300,000    | 16         | 53         |
| Total . .       | 12,200,000 | 521        | 43         |

|                      | Number     | Millions £ | £ per Head |
|----------------------|------------|------------|------------|
| Males under 20 . .   | 1,650,000  | 29         | 18         |
| " 20-65 . .          | 6,530,000  | 363        | 56         |
| Females under 20 . . | 1,300,000  | 30         | 23         |
| " 20-65 . .          | 2,720,000  | 99         | 37         |
| Total . .            | 12,200,000 | 521        | 43         |

According to income-tax assessments, the number of persons in the United Kingdom since 1860, and Great Britain before that date, having an income of £200 or upwards yearly, was as follows:—

| Year       | Number  | Per Million Population |
|------------|---------|------------------------|
| 1812 . . . | 39,765  | 3,314                  |
| 1850 . . . | 65,389  | 3,115                  |
| 1860 . . . | 85,530  | 2,949                  |
| 1870 . . . | 130,375 | 4,206                  |
| 1880 . . . | 210,430 | 6,313                  |

The number of persons enjoying great wealth has by no means increased in the same ratio. Assessments over £5000 a year showed as follows:—

| Year       | Number | Per Million Population |
|------------|--------|------------------------|
| 1812 . . . | 409    | 34                     |
| 1850 . . . | 1,181  | 56                     |
| 1860 . . . | 1,558  | 53                     |
| 1870 . . . | 2,080  | 67                     |
| 1880 . . . | 2,954  | 88                     |

Taking the relative numbers of each class to the whole population, we find:—

| Persons of       | Per Million Inhabitants |       | Rate of Increase |
|------------------|-------------------------|-------|------------------|
|                  | 1860                    | 1880  |                  |
| Great wealth . . | 53                      | 88    | 66 per cent.     |
| Easy fortune . . | 2,949                   | 6,313 | 112 "            |

This shows a greater diffusion of wealth, contrary to

the common impression that "the rich are getting richer every day."

The classification of incomes in 1877 was as follows:—

|              | Over £10,000 | £1000 to £10,000 | £150 to £1000 | Total   |
|--------------|--------------|------------------|---------------|---------|
| England . .  | 975          | 18,622           | 275,733       | 295,330 |
| Scotland . . | 147          | 2,191            | 27,642        | 29,980  |
| Ireland . .  | 35           | 878              | 14,473        | 15,386  |
| U. Kingdom   | 1,157        | 21,691           | 317,848       | 340,696 |

The earnings of the classes which pay income-tax are supposed to reach just one-half those of the nation. Levi made the earnings of the working-classes in 1883 amount to 521 millions, and Jeans in 1884 to 535 millions sterling. The assessments to income-tax have more than doubled since 1850, the following table including an estimate of 18 millions for Ireland in 1850 (in which year that country was exempt from this tax):—

| Year       | Annual Income, Millions £ |       |                  |       |
|------------|---------------------------|-------|------------------|-------|
|            | Houses                    | Lands | Professions, &c. | Total |
| 1850 . . . | 47                        | 56    | 171              | 274   |
| 1860 . . . | 61                        | 58    | 216              | 335   |
| 1870 . . . | 77                        | 65    | 303              | 445   |
| 1880 . . . | 115                       | 70    | 392              | 577   |
| 1888 . . . | 135                       | 61    | 440              | 636   |

| Year       | England | Scotland | Ireland | United Kingdom |
|------------|---------|----------|---------|----------------|
| 1860 . . . | 282     | 30       | 23      | 335            |
| 1870 . . . | 379     | 40       | 26      | 445            |
| 1880 . . . | 486     | 56       | 36      | 578            |
| 1888 . . . | 543     | 57       | 36      | 636            |

The relative increase of the several items of income since 1850 showed thus:—

| Year       | Houses | Lands | Railways | Professions | Total |
|------------|--------|-------|----------|-------------|-------|
| 1850 . . . | 100    | 100   | 100      | 100         | 100   |
| 1860 . . . | 130    | 104   | 143      | 125         | 122   |
| 1870 . . . | 164    | 116   | 228      | 174         | 162   |
| 1880 . . . | 238    | 123   | 295      | 228         | 211   |
| 1888 . . . | 280    | 107   | 351      | 252         | 232   |

The relative increase of each of the three kingdoms since 1860 was:—

| Year       | England | Scotland | Ireland | United Kingdom |
|------------|---------|----------|---------|----------------|
| 1860 . . . | 100     | 100      | 100     | 100            |
| 1870 . . . | 134     | 133      | 113     | 133            |
| 1888 . . . | 193     | 190      | 156     | 191            |

#### FRANCE

The income has been estimated as follows:—

| Year       | Millions £ | £ per Inhab. | Population |
|------------|------------|--------------|------------|
| 1780 . . . | 160        | 6.1          | 26,300,000 |
| 1800 . . . | 216        | 7.7          | 27,400,000 |
| 1820 . . . | 315        | 10.4         | 30,300,000 |
| 1840 . . . | 480        | 14.1         | 34,000,000 |
| 1868 . . . | 806        | 21.6         | 37,500,000 |
| 1888 . . . | 1,046      | 27.8         | 38,500,000 |

The distribution of income, according to house valuation, seems to be approximately as follows:—

| Class         | Number of Families | Average Income, £ | Amount, Millions £ |
|---------------|--------------------|-------------------|--------------------|
| Rich . . .    | 160,000            | 800               | 128                |
| Middle . . .  | 1,700,000          | 260               | 442                |
| Working . . . | 6,000,000          | 79                | 476                |
| Total . . .   | 7,860,000          | 133               | 1,046              |

## GERMANY

In 1885 Soetbeer and others estimated the earnings of the people of Prussia, Saxony, and Baden at 517 millions sterling, to which adding *pro rata* for the rest of Germany, the table stands thus:—

|                  | Population | Earnings, £ | Per Head, £ |
|------------------|------------|-------------|-------------|
| Prussia . . .    | 28,300,000 | 438,000,000 | 15.5        |
| Saxony . . .     | 3,180,000  | 57,100,000  | 18.0        |
| Baden . . .      | 1,600,000  | 22,400,000  | 14.0        |
| Bavaria, &c. . . | 13,770,000 | 220,000,000 | 16.0        |
| Total . . .      | 46,850,000 | 737,500,000 | 15.8        |

The above, perhaps, has reference only to the classes liable to income-tax, the total being manifestly too low to include also the working-classes.

The income-tax assessments of Prussia in 1881 and 1886 were as follows:—

| Income,            | Families Assessed |         |
|--------------------|-------------------|---------|
|                    | 1881              | 1886    |
| £150 to £210 . . . | 79,000            | 89,600  |
| £210 to £480 . . . | 71,700            | 82,400  |
| Over £480 . . .    | 21,800            | 26,800  |
| Total . . .        | 172,500           | 198,800 |

The above comprises only families with incomes over £150 a year. In 1883 there were 7,800,000 persons paying a poll-tax whose incomes were under £150. In Saxony the income assessments were:—

| Year       | Number    | £          |
|------------|-----------|------------|
| 1875 . . . | 972,000   | 50,900,000 |
| 1884 . . . | 1,213,000 | 57,100,000 |

The annual earnings of the whole Empire would seem to be distributed approximately as follows:—

| Class         | Families  | Average, £ | Total, Millions £ |
|---------------|-----------|------------|-------------------|
| Rich . . .    | 150,000   | 1,230      | 185               |
| Middle . . .  | 1,200,000 | 240        | 288               |
| Working . . . | 8,050,000 | 75         | 603               |
| Total . . .   | 9,400,000 | 114        | 1,076             |

According to the scheme laid down in page 320, the

gross earnings of the German people in 1889 amounted to 1076 millions sterling, or £22 4s. per inhabitant, against £28 in France, and £34 in the United Kingdom.

## AUSTRIA

Neumann Spallart estimated the national earnings at 600 millions sterling in 1874, as compared with 430 millions in 1868, and 336 millions in 1859, this last being Czernig's estimate. If we take the florin at its nominal value of 24d., the estimate of Roschman for 1883 will be 650 millions sterling; but if we allow for the depreciation of the currency, it will not exceed 610 millions. My estimate for 1888 is 616 millions sterling, as shown in the table.

## ITALY

Official returns published in 1881 give a very inadequate idea of the earnings of the nation; the first two columns are official, the last is the apparent result:—

| Income,            | Number Assessed | Gross Result, £ |
|--------------------|-----------------|-----------------|
| Under £40 . . .    | 559,000         | 8,400,000       |
| £40 to £200 . . .  | 71,000          | 7,100,000       |
| £200 to £400 . . . | 5,300           | 1,600,000       |
| Over £400 . . .    | 3,200           | 11,300,000      |
| Total . . .        | 638,500         | 28,400,000      |

As already shown, the earnings of the Italian nation are about 364 millions sterling, or £12 per inhabitant, which is less than half the average per head in France.

## UNITED STATES

In 1840 Tucker's estimate of the earnings of the American people was 1066 millions dollars, or 221 millions £ sterling, made up thus:—

|                        |             |
|------------------------|-------------|
| Product of farms . . . | 137,200,000 |
| Manufactures, &c. . .  | 83,600,000  |
| Total . . .            | 220,800,000 |

The above estimate was too low, seeing that agricultural products were worth 184 millions sterling (as already shown).

The national earnings at various dates are shown approximately thus:—

|                    | Millions £ |       |         |
|--------------------|------------|-------|---------|
|                    | 1850       | 1870  | 1886-88 |
| Agriculture . . .  | 225        | 452   | 698     |
| Manufactures . . . | 127        | 444   | 866     |
| Mines . . .        | 40         | 60    | 96      |
| Transport . . .    | 50         | 130   | 231     |
| Commerce . . .     | 7          | 17    | 32      |
| Shipping . . .     | 7          | 10    | 12      |
| Banking . . .      | 5          | 19    | 52      |
| Sundries . . .     | 109        | 218   | 371     |
| Total . . .        | 570        | 1,350 | 2,358   |

## AUSTRALIA

Mr. Coghlan, Government statist, estimates the fruits of all industries as follows:—

|                         | Farming    | Mining     | Manufactures, &c. | Total      | Per Inhabitant |
|-------------------------|------------|------------|-------------------|------------|----------------|
|                         | £          | £          | £                 | £          | £              |
| New South Wales . . .   | 17,200,000 | 3,800,000  | 6,600,000         | 27,600,000 | 25.1           |
| Victoria . . .          | 13,600,000 | 2,700,000  | 7,100,000         | 23,400,000 | 21.3           |
| Queensland . . .        | 8,300,000  | 2,100,000  | 2,300,000         | 12,700,000 | 32.0           |
| South Australia . . .   | 7,700,000  | 400,000    | 1,600,000         | 9,700,000  | 31.0           |
| New Zealand . . .       | 12,600,000 | 1,200,000  | 2,300,000         | 17,100,000 | 28.5           |
| Tasmania . . .          | 1,900,000  | 500,000    | 900,000           | 3,300,000  | 22.0           |
| Western Australia . . . | 900,000    | 200,000    | 300,000           | 1,400,000  | 33.0           |
| Total . . .             | 62,200,000 | 10,900,000 | 22,100,000        | 95,200,000 | 26.4           |

The above takes no account of transport, shipping, banking, commerce, &c., which brings up the total earnings to 144 millions sterling.

### INDIANS

The number in the United States in 1830 and in 1880 was :—

|                         | 1830    | 1880    |
|-------------------------|---------|---------|
| East of Rocky Mountains | 213,100 | 188,400 |
| West .. .. .            | 100,000 | 143,700 |
|                         | 313,100 | 332,100 |

In 1830 some of the States had the following Indian population :—

|                       |        |                    |       |
|-----------------------|--------|--------------------|-------|
| Mississippi . . . . . | 23,400 | Missouri . . . . . | 5,600 |
| Alabama . . . . .     | 19,200 | New York . . . . . | 4,800 |
| Michigan . . . . .    | 9,400  | Indiana . . . . .  | 4,100 |
| Arkansas . . . . .    | 7,200  | Florida . . . . .  | 4,000 |
| Illinois . . . . .    | 5,900  |                    |       |

In 1837 the principal tribes were as follows :—

#### East of Mississippi

|                     |        |                      |        |
|---------------------|--------|----------------------|--------|
| Cherokees . . . . . | 22,000 | Winnebagos . . . . . | 4,500  |
| Chippewas . . . . . | 6,500  | Various . . . . .    | 11,365 |
| Seminoles . . . . . | 5,000  |                      |        |
|                     |        | Total . . . . .      | 49,365 |

#### West of Mississippi

|                     |        |                   |         |
|---------------------|--------|-------------------|---------|
| Blackfeet . . . . . | 30,000 | Pawnees . . . . . | 12,500  |
| Sioux . . . . .     | 21,600 | Eutaws . . . . .  | 19,200  |
| Creeks . . . . .    | 20,437 | Crows . . . . .   | 7,200   |
| Apaches . . . . .   | 20,280 | Various . . . . . | 117,710 |
| Comanches . . . . . | 19,200 |                   |         |
| Choctaws . . . . .  | 15,000 | Total . . . . .   | 283,127 |

In 1880 the principal tribes were :—

|                             |         |
|-----------------------------|---------|
| Cherokees, Choctaws         | 47,800  |
| Esquimaux, &c.              | 62,400  |
| Shoshones, Snakes . . . . . | 25,300  |
| Dacotah, Sioux              | 28,100  |
| Crow, Flathead              | 19,400  |
| Pawnee, Fox . . . . .       | 18,100  |
| Apaches, Navajas . . . . .  | 20,100  |
| Oregon, Arizona, &c.        | 111,000 |

Total . . . . . 332,100

|                            | Civilised | Half-Civilised | Savage | Total     |
|----------------------------|-----------|----------------|--------|-----------|
| Population . . . . .       | 104,800   | 144,300        | 83,000 | 332,100   |
| Acres tilled . . . . .     | 273,000   | 157,000        | ...    | 430,000   |
| Grain, bushels . . . . .   | 2,780,000 | 1,070,000      | ...    | 3,850,000 |
| Hay, tons . . . . .        | 177,000   | 48,000         | ...    | 225,000   |
| Vegetables, tons . . . . . | 8,500     | 9,800          | ...    | 18,300    |
| Churches . . . . .         | 117       | ...            | ...    | 117       |
| Schools . . . . .          | 344       | ...            | ...    | 344       |
| Pupils . . . . .           | 13,350    | ...            | ...    | 13,350    |
| Horses . . . . .           | 301,000   | ...            | ...    | 301,000   |
| Cows . . . . .             | 311,000   | ...            | ...    | 311,000   |
| Sheep . . . . .            | 447,000   | ...            | ...    | 447,000   |
| Pigs . . . . .             | 214,000   | ...            | ...    | 214,000   |

The number of Indians who vote as American citizens is 24,600. That of Indians paying tax was as follows :—

| State                          | 1870   | 1880   | Increase |
|--------------------------------|--------|--------|----------|
| California . . . . .           | 7,241  | 16,277 | 9,036    |
| New Mexico . . . . .           | 1,309  | 9,772  | 8,463    |
| Michigan . . . . .             | 4,926  | 7,249  | 2,323    |
| Washington Territory . . . . . | 1,319  | 4,405  | 3,086    |
| Arizona . . . . .              | 31     | 3,493  | 3,462    |
| Wisconsin . . . . .            | 1,206  | 3,161  | 1,955    |
| Various . . . . .              | 9,699  | 22,050 | 12,351   |
| Total . . . . .                | 25,731 | 66,407 | 40,676   |

In Canada a report on Indians in 1880 was as follows :—

|                       | Number  | Property, £ | £ per Head |
|-----------------------|---------|-------------|------------|
| Ontario . . . . .     | 16,000  | 1,968,000   | 123        |
| Quebec . . . . .      | 11,000  | 363,000     | 33         |
| Manitoba, &c. . . . . | 75,400  | ...         | ...        |
| Total . . . . .       | 102,400 | ...         | ...        |

### INDUSTRIES

The following table shows approximately the value yearly of the chief occupations of mankind :—

|                         | Millions £ Sterling * |              |        |           |          |        | £ per Inhabitant |
|-------------------------|-----------------------|--------------|--------|-----------|----------|--------|------------------|
|                         | Agriculture           | Manufactures | Mining | Transport | Commerce | Total  |                  |
| U. Kingdom . . . . .    | 251                   | 820          | 60     | 113       | 740      | 1,984  | 52               |
| France . . . . .        | 460                   | 485          | 10     | 96        | 310      | 1,361  | 36               |
| Germany . . . . .       | 424                   | 583          | 25     | 103       | 370      | 1,505  | 32               |
| Russia . . . . .        | 563                   | 363          | 15     | 94        | 120      | 1,155  | 13               |
| Austria . . . . .       | 331                   | 253          | 6      | 59        | 95       | 744    | 19               |
| Italy . . . . .         | 204                   | 121          | 2      | 33        | 95       | 455    | 15               |
| Spain . . . . .         | 173                   | 85           | 4      | 27        | 60       | 349    | 20               |
| Portugal . . . . .      | 31                    | 16           | 1      | 5         | 20       | 73     | 16               |
| Sweden . . . . .        | 49                    | 50           | 1      | 10        | 30       | 140    | 30               |
| Norway . . . . .        | 17                    | 19           | 1      | 4         | 10       | 51     | 25               |
| Denmark . . . . .       | 35                    | 26           | ...    | 6         | 25       | 92     | 46               |
| Holland . . . . .       | 39                    | 35           | ...    | 8         | 200      | 282    | 61               |
| Belgium . . . . .       | 55                    | 102          | 7      | 17        | 110      | 291    | 48               |
| Switzerland . . . . .   | 19                    | 32           | ...    | 5         | 60       | 116    | 39               |
| Various . . . . .       | 194                   | 40           | ...    | 23        | 72       | 329    | 22               |
| Europe . . . . .        | 2,845                 | 3,030        | 132    | 603       | 2,317    | 8,027  | 27               |
| United States . . . . . | 776                   | 1,443        | 107    | 231       | 320      | 2,877  | 46               |
| Canada . . . . .        | 56                    | 64           | 3      | 12        | 40       | 175    | 36               |
| Australia . . . . .     | 62                    | 41           | 8      | 10        | 120      | 241    | 66               |
| Argentina . . . . .     | 42                    | 40           | ...    | 8         | 30       | 120    | 32               |
| Total . . . . .         | 3,781                 | 4,618        | 250    | 864       | 2,827    | 12,340 | 30               |

The value of the above industries in the above countries at various dates was approximately as follows in millions £ sterling :—

| Year | Agriculture | Manufactures | Mining | Transport | Commerce | Total  |
|------|-------------|--------------|--------|-----------|----------|--------|
| 1820 | 1,405       | 865          | 19     | 229       | 287      | 2,805  |
| 1840 | 1,750       | 1,314        | 35     | 310       | 485      | 3,894  |
| 1860 | 2,380       | 2,404        | 108    | 490       | 1,305    | 6,687  |
| 1888 | 3,781       | 4,618        | 250    | 864       | 2,827    | 12,340 |

The relative increase of the principal industries is shown approximately as follows :—

|                        | 1820 | 1840 | 1860 | 1888  |
|------------------------|------|------|------|-------|
| Agriculture . . . . .  | 100  | 124  | 170  | 270   |
| Manufactures . . . . . | 100  | 153  | 280  | 536   |
| Mining . . . . .       | 100  | 183  | 567  | 1,320 |
| Transport . . . . .    | 100  | 135  | 213  | 376   |
| Commerce . . . . .     | 100  | 166  | 450  | 990   |
| Total . . . . .        | 100  | 152  | 336  | 440   |

\* The values here given represent the gross amounts without any deduction. For net values see *Income*, p. 320.

The ratios of the various industries in forming the aggregate were as follows:—

|                      | 1820  | 1840  | 1860  | 1888  |
|----------------------|-------|-------|-------|-------|
| Agriculture . . . .  | 50.1  | 44.8  | 35.6  | 30.5  |
| Manufactures . . . . | 30.8  | 33.8  | 36.0  | 37.6  |
| Mining . . . . .     | 0.7   | 0.9   | 1.6   | 2.1   |
| Transport . . . . .  | 8.2   | 8.0   | 7.3   | 7.0   |
| Commerce . . . . .   | 10.2  | 12.5  | 19.5  | 22.8  |
| Total . . . . .      | 100.0 | 100.0 | 100.0 | 100.0 |

If we take the first four items as the direct fruits of human industry in the aggregate, and compare with population, we find as follows:—

| Year           | Population  | Industries, Millions £ | £ per Head |
|----------------|-------------|------------------------|------------|
| 1820 . . . . . | 208,000,000 | 2,518                  | 12.1       |
| 1840 . . . . . | 256,000,000 | 3,409                  | 13.3       |
| 1860 . . . . . | 313,000,000 | 5,382                  | 17.2       |
| 1888 . . . . . | 416,000,000 | 9,513                  | 22.8       |

The population and industries are those of Europe, United States, Canada, Australia, and Argentina. It appears that, owing to improved machinery, the product of a man's labour represents at present double the value that it did in 1820. But as prices have fallen in the interval about 33 per cent., it follows that the average in 1888 was equal to £34 per head measured by prices of 1820. Thus one man now, in whatever industry, produces as much as 3 did in 1820, or 2½ in 1840, or 2 in 1860.

### INFIRM

The principal classes of infirm of body are blind and deaf-mutes, whose numbers by latest returns were as follows:—

|                               | Blind   | Deaf-Mutes | Total   | Per Million Population |
|-------------------------------|---------|------------|---------|------------------------|
| England . . . . .             | 22,800  | 13,300     | 36,100  | 1,390                  |
| Scotland . . . . .            | 3,200   | 2,200      | 5,400   | 1,455                  |
| Ireland . . . . .             | 6,700   | 4,000      | 10,700  | 1,940                  |
| United Kingdom . . . . .      | 32,100  | 19,500     | 51,600  | 1,475                  |
| France . . . . .              | 32,060  | 21,100     | 53,160  | 1,390                  |
| Germany . . . . .             | 39,000  | 45,000     | 84,000  | 1,830                  |
| Russia . . . . .              | 178,500 | 53,500     | 232,000 | 2,730                  |
| Austria proper . . . . .      | 15,800  | 26,800     | 42,600  | 1,940                  |
| Hungary . . . . .             | 20,600  | 15,000     | 35,600  | 2,350                  |
| Italy . . . . .               | 28,200  | 19,800     | 48,000  | 1,610                  |
| Spain . . . . .               | 20,300  | 10,700     | 31,000  | 1,700                  |
| Scandinavia . . . . .         | 7,900   | 7,800      | 15,700  | 1,840                  |
| Belgium and Holland . . . . . | 6,700   | 4,200      | 10,900  | 1,050                  |
| Switzerland . . . . .         | 2,100   | 6,800      | 8,900   | 3,200                  |
| Europe . . . . .              | 383,260 | 230,200    | 613,460 | 1,840                  |
| United States . . . . .       | 48,900  | 33,900     | 82,800  | 1,650                  |
| Total . . . . .               | 432,160 | 264,100    | 696,260 | 1,760                  |

In 1881 Professor Halkenhoff of Geneva said that there were 311,000 blind persons in Europe, mostly the result of fevers, and that 75 per cent. of them could have kept their sight if they had been properly treated.

The proportion of sexes shows thus:—

Females Blind to 100 Males

|                   |    |                   |     |                         |     |
|-------------------|----|-------------------|-----|-------------------------|-----|
| France . . . . .  | 76 | Prussia . . . . . | 88  | Sweden . . . . .        | 118 |
| Belgium . . . . . | 89 | Norway . . . . .  | 108 | United States . . . . . | 82  |

The following table is by Principal Campbell:—

|             | Blind per Million Persons of Each Sex |        |           |       |        |
|-------------|---------------------------------------|--------|-----------|-------|--------|
|             | Male                                  | Female |           | Male  | Female |
| England .   | 953                                   | 809    | Austria . | 1,280 | 1,183  |
| Scotland .  | 865                                   | 827    | Italy . . | 1,106 | 925    |
| Ireland . . | 1,141                                 | 1,219  | Spain . . | 1,242 | 1,011  |
| France . .  | 948                                   | 726    | Norway .  | 1,313 | 1,411  |
| Germany .   | 884                                   | 881    | Holland . | 499   | 394    |
| Sweden . .  | 767                                   | 843    | Belgium . | 982   | 641    |
| Denmark .   | 776                                   | 793    | Finland . | 1,514 | 2,938  |

The number of blind institutions and of pupils were:—

|                               | Institutions | Inmates |
|-------------------------------|--------------|---------|
| United Kingdom . . . . .      | 80           | 2,830   |
| France . . . . .              | 23           | 1,210   |
| Germany . . . . .             | 35           | 1,810   |
| Austria . . . . .             | 11           | 680     |
| Italy . . . . .               | 22           | 670     |
| Spain . . . . .               | 12           | 650     |
| Russia . . . . .              | 15           | 400     |
| Scandinavia . . . . .         | 10           | 330     |
| Belgium and Holland . . . . . | 14           | 500     |
| United States . . . . .       | 36           | 2,500   |
| Canada . . . . .              | 3            | 200     |
| Total . . . . .               | 261          | 11,780  |

The number of deaf-mutes in most countries increases faster than population, as the following table shows:—

|                             | Number |        | Per Million Inhab. |       |
|-----------------------------|--------|--------|--------------------|-------|
|                             | 1831   | 1871   | 1831               | 1871  |
| United Kingdom . . . . .    | 14,328 | 19,237 | 597                | 611   |
| France . . . . .            | 20,189 | 21,130 | 630                | 603   |
| Germany . . . . .           | 20,470 | 30,900 | 724                | 770   |
| Russia . . . . .            | 27,834 | ...    | 631                | ...   |
| Austria . . . . .           | 21,684 | 34,450 | 802                | 980   |
| Italy . . . . .             | 12,618 | 19,800 | 628                | 702   |
| Spain . . . . .             | 7,255  | 10,700 | 633                | 655   |
| Switzerland . . . . .       | 3,567  | 6,820  | 1,996              | 2,620 |
| Denmark . . . . .           | 1,260  | ...    | 1,114              | ...   |
| Sweden and Norway . . . . . | 2,397  | 5,540  | 605                | 920   |
| United States . . . . .     | 6,030  | 18,150 | 460                | 480   |

Sex ratio is in most countries 55 male deaf-mutes to 45 females, but in Italy 58 to 42.

Colour-blindness, which usually takes the form of inability to distinguish red from green, is found to prevail thus:—

|                         | Per 1000 Persons |        |                    |
|-------------------------|------------------|--------|--------------------|
|                         | Male             | Female | General Population |
| England . . . . .       | 47               | 40     | 44                 |
| Scotland . . . . .      | 30               | ...    | ...                |
| France . . . . .        | 70               | ...    | ...                |
| Sweden . . . . .        | 32               | 26     | 29                 |
| Switzerland . . . . .   | 47               | 9      | 28                 |
| United States . . . . . | 40               | 10     | 26                 |
| Boston . . . . .        | 40               | 17     | 30                 |
| Holland . . . . .       | ...              | ...    | 58                 |
| Belgium . . . . .       | ...              | ...    | 26                 |
| Russia . . . . .        | ...              | ...    | 80                 |
| London . . . . .        | 34               | ...    | ...                |

Of French marines 82 per 1000, of British sailors 45



## UNITED KINGDOM

The number and ratios of blind were as follows :—

| Year       | Number of Blind |          |         | U. Kingdom |
|------------|-----------------|----------|---------|------------|
|            | England         | Scotland | Ireland |            |
| 1851 . . . | 18,306          | 3,010    | 7,587   | 28,903     |
| 1861 . . . | 19,352          | 2,820    | 6,879   | 29,051     |
| 1871 . . . | 21,590          | 3,019    | 6,347   | 30,956     |
| 1881 . . . | 22,832          | 3,158    | 6,111   | 32,101     |

## Number of Population to one Blind Person

| Year       | England | Scotland | Ireland | U. Kingdom |
|------------|---------|----------|---------|------------|
| 1851 . . . | 979     | 1,065    | 864     | 948        |
| 1861 . . . | 1,037   | 1,090    | 843     | 1,002      |
| 1871 . . . | 1,052   | 1,112    | 852     | 1,022      |
| 1881 . . . | 1,138   | 1,182    | 847     | 1,094      |

The number of blind in England per million persons of each age was in 1881 as follows :—

| Years                 | Per Million |
|-----------------------|-------------|
| 0-5 . . .             | 166         |
| 5-15 . . .            | 288         |
| 15-20 . . .           | 388         |
| 20-25 . . .           | 422         |
| 25-45 . . .           | 641         |
| 45-65 . . .           | 1,625       |
| Over 65 . . .         | 6,915       |
| General average . . . | 877         |

The number of deaf-mutes in the United Kingdom rose from 14,328 in 1831 to 19,237 in 1871. The number per million inhabitants was as follows :—

|                      | 1831 | 1861 | 1871  |
|----------------------|------|------|-------|
| England . . .        | 545  | 581  | 504   |
| Scotland . . .       | 552  | 753  | 633   |
| Ireland . . .        | 664  | 975  | 1,028 |
| United Kingdom . . . | 597  | 701  | 611   |

The number of short-sighted people is not known, but Ware found at Oxford, in 1813, that 26 per cent. of those in the University used glasses.

## FRANCE

The returns for 1866 showed as follows :—

| Cause                     | Blind  | Deaf-Mutes | Total  |
|---------------------------|--------|------------|--------|
| From birth . . .          | 4,726  | 15,296     | 20,022 |
| Accident or illness . . . | 27,242 | 5,918      | 33,160 |
| Total . . .               | 31,968 | 21,214     | 53,182 |

The ratios of blind and deaf-mutes per million persons of each sex were :—

|                        | Blind |        | Deaf-Mutes |        | Total |        |
|------------------------|-------|--------|------------|--------|-------|--------|
|                        | Male  | Female | Male       | Female | Male  | Female |
| Under 15 . . .         | 270   | 210    | 470        | 380    | 740   | 590    |
| Unmarried adults . . . | 1,100 | 1,150  | 1,480      | 1,250  | 2,580 | 2,400  |
| Married . . .          | 900   | 520    | 185        | 120    | 1,085 | 640    |
| Widowed . . .          | 3,810 | 2,180  | 386        | 223    | 4,196 | 2,403  |

The number of persons born blind was 65 in a million of male population, 35 in a million of the female.

In 1876 the number of afflicted persons was :—

|               | Blind  | Deaf-Mutes | Total  |
|---------------|--------|------------|--------|
| Males . . .   | 15,526 | 11,460     | 26,986 |
| Females . . . | 12,965 | 9,935      | 22,900 |
| Total . . .   | 28,491 | 21,395     | 49,886 |

In 1883 there were 32,056 blind, of whom 2548 were under 21 years of age.

## GERMANY

In 1843 the kingdom of Prussia showed as follows :—

|                  | Male   | Female | Total  | Per Million Population |
|------------------|--------|--------|--------|------------------------|
| Blind . . .      | 5,222  | 4,930  | 10,152 | 680                    |
| Deaf-mutes . . . | 6,460  | 5,037  | 11,497 | 770                    |
| Total . . .      | 11,682 | 9,967  | 21,649 | 1,450                  |

In 1880 the German Empire had 37,800 blind, of whom 1810 were receiving instruction in Blind schools. In 1888 there were 28 Blind institutions, with 2139 pupils, the total number of blind in the Empire being estimated at 39,000. The numbers of deaf-mutes in Prussia in 1871 and 1880 were :—

|               | Number |        | Per Million Population |       |
|---------------|--------|--------|------------------------|-------|
|               | 1871   | 1880   | 1871                   | 1880  |
| Males . . .   | 13,118 | 15,168 | 1,080                  | 1,130 |
| Females . . . | 11,197 | 12,026 | 900                    | 910   |
| Total . . .   | 24,315 | 27,194 | 990                    | 1,020 |

The rate was 990 per million among Protestants, 1040 among Catholics, and 1440 among Jews. There are in Prussia 96 schools for deaf-mutes, with 331 teachers and 3991 pupils.

## RUSSIA

The total number of blind is estimated at about 180,000, the rate per million inhabitants varying in the different provinces for which there are returns, viz. :—

|               |       |                |       |
|---------------|-------|----------------|-------|
| Kieff . . .   | 1,960 | Livonia . . .  | 5,020 |
| Pultowa . . . | 1,780 | Esthonia . . . | 4,110 |
| Kazan . . .   | 5,700 | Finland . . .  | 2,140 |

In the city of St. Petersburg the rate is only 890 per million, the total number of blind being 771, namely, 320 males and 451 females; only 17 per cent. of the whole number were born blind. There are 21 Blind asylums in the Empire.

## FINLAND

The ratio of blind in 1875 was: 214 per 100,000 males, 438 for females, and 328 for the general population; this is nearly 2½ times as much as in Norway, four times as much as in France. Smoky huts are one of the causes. Finland has 233 deaf-mutes per million.

## ALGERIA

There are 6666 blind persons, of whom 5330 are adult. The above number compared with population shows 1750 per million, which is 50 per cent. over the European average.

## AUSTRIA

Official returns for 1886 showed as follows for Austria, without Hungary :—

|                  | Males  | Females | Total  | Per Million Population |
|------------------|--------|---------|--------|------------------------|
| Blind . . .      | 8,480  | 7,282   | 15,762 | 710                    |
| Deaf-mutes . . . | 15,041 | 11,752  | 26,793 | 1,220                  |
| Total . . .      | 23,521 | 19,034  | 42,555 | 1,930                  |

The institutions contained the following:—

|                | Males   | Females   | Total |
|----------------|---------|-----------|-------|
| Blind . . . .  | 403     | 281       | 684   |
| Deaf-mutes . . | 807     | 621       | 1,428 |
| Total . . . .  | 1,210   | 902       | 2,112 |
|                | Born so | Became so | Total |
| Blind . . . .  | 101     | 583       | 684   |
| Deaf-mutes . . | 469     | 959       | 1,428 |
| Total . . . .  | 570     | 1,542     | 2,112 |

In 1884 there were 26,245 deaf-mutes, of whom 22,319, say 92 per cent., were born so.

## HUNGARY

The number of blind was as follows:—

|                 | Number |        | Per Million Population |      |
|-----------------|--------|--------|------------------------|------|
|                 | 1870   | 1880   | 1870                   | 1880 |
| Males . . . .   | 9,800  | 10,242 | 127                    | 128  |
| Females . . . . | 8,723  | 10,597 | 113                    | 132  |
| Total . . . .   | 18,523 | 20,639 | 120                    | 130  |

The number of deaf-mutes in 1880 was 15,000, or 960 per million population.

## ITALY

The ratios of blind and of deaf-mutes in 1872 showed:—

|                   | Per Million Inhabitants |            |       |
|-------------------|-------------------------|------------|-------|
|                   | Blind                   | Deaf-Mutes | Total |
| Sicily . . . .    | 1,282                   | 687        | 1,969 |
| Central Italy . . | 1,000                   | 744        | 1,744 |
| Lombardy . . .    | 795                     | 1,153      | 1,948 |
| Sardinia, &c. . . | 1,929                   | 719        | 2,648 |
| Italy . . . .     | 1,050                   | 738        | 1,788 |

The distribution according to sexes was as follows:—

|                | Males  | Females | Total  |
|----------------|--------|---------|--------|
| Blind . . . .  | 15,946 | 12,181  | 28,127 |
| Deaf-mutes . . | 11,615 | 8,164   | 19,779 |
| Total . . . .  | 27,561 | 20,345  | 47,906 |

The Census of 1881 showed 21,718 blind and 15,300 deaf-mutes, but the authorities believe the real numbers to be much greater.

## BELGIUM AND HOLLAND

In Belgium the asylums for the blind and for deaf-mutes contained in 1885:—

|                 |       |
|-----------------|-------|
| Males . . . .   | 729   |
| Females . . . . | 540   |
| Total . . . .   | 1,269 |

The ratio of blind in Belgium was 874 per million inhabitants in 1860, and has now declined to 810. Deaf-mutes were 450 per million in 1835, and have declined to 404. As regards Holland, there are no returns since 1869, when there were 1593 blind, or 450 per million of population.

## NORWAY

The ratios of blind and of deaf-mutes at various dates were:—

| Year         | Blind per 100,000 Inhab. |       | Deaf-Mutes per 100,000 Inhabitants | Total |
|--------------|--------------------------|-------|------------------------------------|-------|
|              | Town                     | Rural |                                    |       |
| 1835 . . . . | 123                      | 183   | 177                                | 91    |
| 1845 . . . . | 127                      | 218   | 209                                | 83    |
| 1855 . . . . | 119                      | 195   | 186                                | 83    |
| 1865 . . . . | 90                       | 145   | 136                                | 92    |
| 1875 . . . . | 79                       | 148   | 136                                | 86    |

The actual numbers of deaf-mutes were as follows:—

| Year         | Males | Females | Total | Per 100,000 Population |
|--------------|-------|---------|-------|------------------------|
| 1835 . . . . | 598   | 493     | 1,091 | 91                     |
| 1855 . . . . | 650   | 592     | 1,242 | 83                     |
| 1875 . . . . | 819   | 752     | 1,571 | 86                     |

## SWEDEN AND DENMARK

The numbers in these countries are:—

|                 | Number |            | Per Million |            |
|-----------------|--------|------------|-------------|------------|
|                 | Blind  | Deaf-Mutes | Blind       | Deaf-Mutes |
| Sweden . . . .  | 3,723  | 4,834      | 810         | 1,050      |
| Denmark . . . . | 1,249  | ...        | 705         | ...        |

## UNITED STATES

The classification in 1880 was as follows:—

|                | Males    | Females  | Total  |
|----------------|----------|----------|--------|
| Blind . . . .  | 26,748   | 22,180   | 48,928 |
| Deaf-mutes . . | 18,567   | 15,311   | 33,878 |
| Total . . . .  | 45,315   | 37,491   | 82,806 |
|                | American | Foreign  | Total  |
| Blind . . . .  | 40,509   | 8,419    | 48,928 |
| Deaf-mutes . . | 30,507   | 3,371    | 33,878 |
| Total . . . .  | 71,016   | 11,790   | 82,806 |
|                | White    | Coloured | Total  |
| Blind . . . .  | 41,278   | 7,650    | 48,928 |
| Deaf-mutes . . | 30,661   | 3,217    | 33,878 |
| Total . . . .  | 71,939   | 10,867   | 82,806 |

The returns of deaf-mutes at various dates showed:—

| Year         | Number | Per Million Inhabitants | Ratio of Sex |         |
|--------------|--------|-------------------------|--------------|---------|
|              |        |                         | Males        | Females |
| 1830 . . . . | 6,106  | 470                     | ...          | ...     |
| 1840 . . . . | 7,706  | 453                     | ...          | ...     |
| 1850 . . . . | 9,803  | 427                     | 55           | 45      |
| 1860 . . . . | 12,820 | 413                     | 55           | 45      |
| 1870 . . . . | 16,205 | 422                     | 55           | 45      |
| 1880 . . . . | 33,880 | 678                     | 56           | 44      |

Deaf-mutes and blind have risen in numbers much faster than population. The ratio per million inhabitants rises at each successive census, perhaps because the ratio of urban population is at each period higher.

The number and ratio of blind at various dates were :—

| Year       | Number | Per Million Population | Ratio of Sex |         |
|------------|--------|------------------------|--------------|---------|
|            |        |                        | Males        | Females |
| 1830 . . . | 5,444  | 420                    | ...          | ...     |
| 1840 . . . | 6,916  | 407                    | ...          | ...     |
| 1850 . . . | 9,790  | 406                    | 55           | 45      |
| 1860 . . . | 12,660 | 410                    | 58           | 42      |
| 1870 . . . | 20,320 | 530                    | 56           | 44      |
| 1880 . . . | 48,928 | 970                    | 55           | 45      |

## CANADA

The general ratios are not published. In 1886 Manitoba had per million inhabitants 147 blind and 735 deaf-mutes, being a very low ratio for blindness.

## INQUESTS

In 1887 there were 30,030 held in England and Wales, viz. :—

## Cause of Death.

|                          |        |
|--------------------------|--------|
| Natural causes . . . . . | 11,231 |
| Suicide . . . . .        | 2,227  |
| Drink . . . . .          | 372    |
| Murder . . . . .         | 350    |
| Hunger . . . . .         | 250    |
| Various causes . . . . . | 15,600 |

Total . . . . . 30,030

## INSANE

The following table shows the number of insane, including idiots, in the various countries, about 1880-84 (except Italy, 1872) :—

|                               | Number  | Per 10,000 Inhab. | Ratio of Recovery | Annual Death-Rate | Asylums |
|-------------------------------|---------|-------------------|-------------------|-------------------|---------|
|                               |         |                   | Per Cent.         | Per Cent.         |         |
| England . . . . .             | 81,600  | 32                | 39                | 10                | 81      |
| Scotland . . . . .            | 11,600  | 32                | 42                | 8                 |         |
| Ireland . . . . .             | 19,500  | 37                | 48                | 8                 |         |
| France . . . . .              | 93,900  | 25                | 33                | 15                |         |
| Germany . . . . .             | 108,100 | 24                | 31                | 8                 | 110     |
| Russia . . . . .              | 80,000  | 11                | ...               | ...               | 74      |
| Austria . . . . .             | 44,000  | 20                | ...               | 12                | 28      |
| Italy . . . . .               | 44,100  | 17                | ...               | ...               | 33      |
| Spain and Portugal . . . . .  | 13,000  | 7                 | ...               | ...               | 11      |
| Belgium and Holland . . . . . | 10,400  | 12                | 32                | 14                | 68      |
| Switzerland . . . . .         | 3,100   | 11                | ...               | ...               | 42      |
| Scandinavia . . . . .         | 18,100  | 29                | ...               | ...               | 27      |
| Europe . . . . .              | 518,400 | 16                | 33                | 12                | 604     |
| United States . . . . .       | 168,900 | 33                | 47                | 10                | ...     |
| Canada . . . . .              | 7,300   | 18                | ...               | ...               | ...     |
| Australia . . . . .           | 4,900   | 17                | 45                | 7                 | ...     |
| Total . . . . .               | 695,500 | 19                | 36                | 11                | ...     |

As regards the causes of insanity, not including idiots, the average returns for England, France, Denmark, and United States combined give this result :—

|                      | Per Cent. |                           | Per Cent. |
|----------------------|-----------|---------------------------|-----------|
| Hereditary . . . . . | 24        | Loss of friends . . . . . | 11        |
| Drink . . . . .      | 24        | Sickness . . . . .        | 10        |
| Business . . . . .   | 12        | Various . . . . .         | 19        |

The ratios of sex in various countries show thus :—

|                         | Inmates of Asylums |         |       |
|-------------------------|--------------------|---------|-------|
|                         | Males              | Females | Total |
| England . . . . .       | 47                 | 53      | 100   |
| Scotland . . . . .      | 48                 | 52      | 100   |
| Ireland . . . . .       | 52                 | 48      | 100   |
| France . . . . .        | 48                 | 52      | 100   |
| Italy . . . . .         | 56                 | 44      | 100   |
| United States . . . . . | 51                 | 49      | 100   |

Even in countries where the number of insane females exceeds that of males, it is found that men are more liable than women to insanity, but die faster. Thus in France there are annually admitted 110 males to 100 females, though the existing number of the latter is greater.

The percentage of insanity caused by drink is stated thus :—Italy 2, Austria 15, France 20, England 32, Sweden 50.

The relative numbers of insane persons cured is :—

|                    | Per 100 of each Class |         |       |
|--------------------|-----------------------|---------|-------|
|                    | Males                 | Females | Total |
| France . . . . .   | 35                    | 32      | 33    |
| England . . . . .  | 36                    | 42      | 39    |
| Scotland . . . . . | 40                    | 44      | 42    |

Taking the existing numbers of mad people in the following countries, the sexes stood thus :—

|                             | Males to Females |     |
|-----------------------------|------------------|-----|
| England and Wales . . . . . | 100              | 118 |
| France . . . . .            | 100              | 110 |
| Italy . . . . .             | 100              | 73  |

## UNITED KINGDOM

The returns for 1883 showed as follows :—

|                          | England | Scotland | Ireland | United Kingdom |
|--------------------------|---------|----------|---------|----------------|
| Pauper insane . . . . .  | 65,400  | 8,000    | 12,200  | 85,600         |
| Private insane . . . . . | 16,200  | 3,600    | 7,300   | 27,100         |
| Total . . . . .          | 81,600  | 11,600   | 19,500  | 112,700        |
| Lunatics . . . . .       | 39,600  | 6,800    | 9,800   | 56,200         |
| Idiots . . . . .         | 29,500  | 4,600    | 6,700   | 40,800         |
| Unclassified . . . . .   | 12,500  | 200      | 3,000   | 15,700         |
| Total . . . . .          | 81,600  | 11,600   | 19,500  | 112,700        |

There has been a notable increase of insane paupers since 1861, viz. :—

| Period            | Paupers Insane per Million Inhab. |          |
|-------------------|-----------------------------------|----------|
|                   | England and Wales                 | Scotland |
| 1861-65 . . . . . | 2,080                             | 2,050    |
| 1871-75 . . . . . | 2,581                             | 2,290    |
| 1880 . . . . .    | 2,792                             | 2,580    |

Insanity varies with locality, as shown thus :—

## Pauper Insane per 100,000 Inhabitants

|                    |     |                     |     |                      |     |
|--------------------|-----|---------------------|-----|----------------------|-----|
| Shetland . . . . . | 96  | Edinburgh . . . . . | 172 | Argyll . . . . .     | 259 |
| Orkney . . . . .   | 107 | Sheffield . . . . . | 179 | Manchester . . . . . | 270 |
| Bradford . . . . . | 121 | Newcastle . . . . . | 191 | Birmingham . . . . . | 301 |
| Durham . . . . .   | 129 | Swansea . . . . .   | 202 | Oxford . . . . .     | 312 |
| Cornwall . . . . . | 158 | Liverpool . . . . . | 219 | Nottingham . . . . . | 342 |
| Leeds . . . . .    | 160 | Perth . . . . .     | 233 | London . . . . .     | 361 |

## FRANCE

| Year           | Number | Per 100,000 Inhabitants | Caused by Drink, per Cent. |
|----------------|--------|-------------------------|----------------------------|
| 1851 . . . . . | 46,400 | 129                     | 8                          |
| 1856 . . . . . | 59,800 | 166                     | 9                          |
| 1866 . . . . . | 90,100 | 238                     | 14                         |
| 1869 . . . . . | 94,800 | 247                     | 15                         |
| 1879 . . . . . | 93,970 | 252                     | 15                         |

The returns of lunatic asylums showed as follows :—

| Year           | Males  | Females | Total  |
|----------------|--------|---------|--------|
| 1871 . . . . . | 18,020 | 19,700  | 37,720 |
| 1880 . . . . . | 22,100 | 22,960  | 45,060 |
| 1886 . . . . . | 24,990 | 27,880  | 52,870 |

The returns for 1885 were as follows :—

|                        | Males  | Females | Total  |
|------------------------|--------|---------|--------|
| Old patients . . . . . | 24,400 | 27,400  | 51,800 |
| New patients . . . . . | 8,100  | 7,300   | 15,400 |
| Total . . . . .        | 32,500 | 34,700  | 67,200 |
| Cured . . . . .        | 1,655  | 1,519   | 3,174  |
| Died . . . . .         | 3,326  | 2,785   | 6,111  |

The death-rate was 10.2 for males, 8.2 for females, and 9.1 for all. The expenditure during the year was £780,000, of which the families defrayed only £56,000, the rest being borne by the State. The number of patients treated during the year was :—

| Asylums           | Males  | Females | Total  |
|-------------------|--------|---------|--------|
| Public . . . . .  | 20,100 | 21,400  | 41,500 |
| Private . . . . . | 12,400 | 13,300  | 25,700 |
| Total . . . . .   | 32,500 | 34,700  | 67,200 |

The death-rate was much lower in private than in public asylums, viz. :—

| Asylums           | Deaths |         |       | Per Cent. |
|-------------------|--------|---------|-------|-----------|
|                   | Males  | Females | Total |           |
| Public . . . . .  | 2,263  | 1,802   | 4,065 | 9.7       |
| Private . . . . . | 1,063  | 983     | 2,046 | 7.9       |
| Total . . . . .   | 3,326  | 2,785   | 6,111 | 9.1       |

The statistics published by the Prefecture of Police in Paris indicate a very rapid increase in the number of insane persons admitted into the special infirmary of the capital, viz. :—

| Year           | Males | Females | Total |
|----------------|-------|---------|-------|
| 1872 . . . . . | 1,695 | 1,389   | 3,084 |
| 1880 . . . . . | 1,932 | 1,552   | 3,484 |
| 1888 . . . . . | 2,549 | 1,900   | 4,449 |

The form of insanity known as *folie alcoolique* is twice as frequent now as it was fifteen years ago, and the number of persons placed under restraint on account of it has increased by 25 per cent. in the last three years. This is ascribed to the increased consumption of alcohol.

The returns for 1866 were as follows :—

|                       | Insane | Idiots | Total  |
|-----------------------|--------|--------|--------|
| In asylums . . . . .  | 31,992 | 3,980  | 35,972 |
| In families . . . . . | 18,734 | 35,973 | 54,707 |
| Total . . . . .       | 50,726 | 39,953 | 90,679 |

Of lunatics there were 91 males to 100 females, and of idiots 132 males to 100 females: taken collectively, the proportion was 107 males to 100 females. According to Lunier (1856) the number of persons who go mad yearly in a million of each class is as follows :—

|                       |     |                               |       |
|-----------------------|-----|-------------------------------|-------|
| Peasants . . . . .    | 52  | Learned professions . . . . . | 525   |
| Tradesmen . . . . .   | 180 | Soldiers . . . . .            | 590   |
| Capitalists . . . . . | 275 | Officers . . . . .            | 1,300 |

## GERMANY

The returns for Prussia showed as follows :—

| Year           | Males  | Females | Total  | Per 100,000 Inhabitants |
|----------------|--------|---------|--------|-------------------------|
| 1871 . . . . . | 28,002 | 27,041  | 55,043 | 221                     |
| 1880 . . . . . | 34,309 | 32,036  | 66,345 | 243                     |

Mayr's tables for Bavaria showed a stronger tendency to insanity among Jews than Christians, viz., 620 Protestants, 840 Catholics, and 1190 Jews per million. He also found that 30 per cent. of lunatics had hereditary taint, and that in 1877 there were 34 insane for every 1000 lawsuits.

## RUSSIA

In 1860 there were 41 asylums, containing 3100 insane. In 1882 the number of asylums had risen to 74; that of inmates was not stated. It was roughly supposed that the total number of insane and idiots in asylums and their own houses might reach 80,000, but nothing is really known. In Finland the ratio of insane persons is 170 per 100,000 inhabitants.

## AUSTRIA

The returns do not include Hungary, and show thus for 1886 :—

|                       | Males  | Females | Total  |
|-----------------------|--------|---------|--------|
| In asylums . . . . .  | 4,394  | 3,715   | 8,109  |
| In families . . . . . | 10,991 | 8,958   | 19,949 |
| Lunatics . . . . .    | 15,385 | 12,673  | 28,058 |
| Idiots . . . . .      | 9,507  | 6,913   | 16,420 |
| Total . . . . .       | 24,892 | 19,586  | 44,478 |

The average cost was 16d. daily, or £24 a year, for each inmate of asylums.

## BELGIUM

The number of insane at various dates was as follows :—

|                   | 1858  | 1868  | 1878   | 1888   |
|-------------------|-------|-------|--------|--------|
| Males . . . . .   | 3,481 | 4,287 | 5,288  | 5,200  |
| Females . . . . . | 2,994 | 3,953 | 4,732  | 5,080  |
| Total . . . . .   | 6,475 | 8,240 | 10,020 | 10,280 |

The returns for 1888 comprise only those in asylums; the statistics for previous dates showed thus:—

| In                   | 1888         | 1888         | 1878          |
|----------------------|--------------|--------------|---------------|
| Asylums . . . .      | 4,420        | 6,032        | 7,886         |
| Families . . . .     | 2,055        | 2,208        | 2,134         |
| <b>Total . . . .</b> | <b>6,475</b> | <b>8,240</b> | <b>10,020</b> |
| <b>Age</b>           |              |              |               |
| Under 30 . . . .     | 1,313        | 1,660        | 1,903         |
| 30-50 . . . . .      | 2,658        | 3,382        | 4,186         |
| Over 50 . . . . .    | 2,504        | 3,198        | 3,931         |
| <b>Total . . . .</b> | <b>6,475</b> | <b>8,240</b> | <b>10,020</b> |
| Married men . . .    | 499          | 639          | 821           |
| Married women . .    | 468          | 685          | 813           |
| Unmarried men . .    | 2,809        | 3,453        | 4,244         |
| Unmarried women .    | 2,184        | 2,806        | 3,394         |
| Widowers . . . . .   | 173          | 195          | 223           |
| Widows . . . . .     | 342          | 462          | 525           |
| <b>Total . . . .</b> | <b>6,475</b> | <b>8,240</b> | <b>10,020</b> |
| Deaths . . . . .     | 593          | 557          | 882           |
| Per cent. . . . .    | 7.7          | 6.7          | 8.8           |
| Cured . . . . .      | 590          | 626          | 617           |

Of 100 persons who become insane, 16 will be under 20 years of age, 24 between 20 and 30 years, 22 in the ensuing decade, 16 between 40 and 50, and 22 over 50 years.

## ITALY

Between 1872 and 1877 the number of pauper lunatics increased 24 per cent., namely, from 12,210 to 15,173, but the total number of insane in the latter year was unknown.

The returns for 1872 showed thus:—

|                      | Males         | Females       | Total         |
|----------------------|---------------|---------------|---------------|
| In asylums . . .     | 6,476         | 5,734         | 12,210        |
| In families . . .    | 19,140        | 12,752        | 31,892        |
| <b>Total . . . .</b> | <b>25,616</b> | <b>18,486</b> | <b>44,102</b> |

## Insane per 100,000 Inhabitants

|                  |     |                    |     |                    |     |
|------------------|-----|--------------------|-----|--------------------|-----|
| Naples . . . . . | 111 | Tuscany . . . . .  | 185 | Lombardy . . . . . | 230 |
| Rome . . . . .   | 157 | Piedmont . . . . . | 222 | Italy . . . . .    | 171 |
| Venice . . . . . | 174 | Liguria . . . . .  | 226 |                    |     |

The ratio of insanity according to condition, that is, married or unmarried, was as follows:—

100 unmarried males to 52 married  
100 " females to 58 married

The ratio of population is 100 unmarried to 60 married; it appears, therefore, that insanity is more prevalent among unmarried than married persons.

The returns for 1877 refer only to pauper lunatics, viz:—

|                        |               |
|------------------------|---------------|
| Males . . . . .        | 8,010         |
| Females . . . . .      | 7,163         |
| <b>Total . . . . .</b> | <b>15,173</b> |

Pauper lunatics compared with population thus:—

| Per 100,000 Inhabitants |    |                    |    |                    |    |
|-------------------------|----|--------------------|----|--------------------|----|
| Sardinia . . . . .      | 18 | Venice . . . . .   | 61 | Lombardy . . . . . | 76 |
| Naples . . . . .        | 19 | Piedmont . . . . . | 62 | Rome . . . . .     | 85 |
| Sicily . . . . .        | 23 | Genoa . . . . .    | 68 |                    |    |

Insanity was most prevalent between forty and sixty years of age, the number per million of each class showing thus:—

|                    |     |                    |       |
|--------------------|-----|--------------------|-------|
| Under 20 . . . . . | 93  | 41 to 60 . . . . . | 1,098 |
| 20-40 . . . . .    | 944 | Over 60 . . . . .  | 557   |

In 100,000 Christians there were 58 pauper lunatics; in 100,000 Jews there were 260. The prevalence of insanity among Jews has already been noted in Germany.

## NORWAY

The ratios of idiots and insane persons showed thus:—

| Year           | Per 100,000 Inhabitants |        |       |
|----------------|-------------------------|--------|-------|
|                | Idiots                  | Insane | Total |
| 1835 . . . . . | 142                     | 160    | 302   |
| 1845 . . . . . | 153                     | 168    | 321   |
| 1855 . . . . . | 160                     | 181    | 341   |
| 1865 . . . . . | 120                     | 185    | 305   |
| 1875 . . . . . | ...                     | ...    | 480   |

## HOLLAND

The number of insane paupers per million inhabitants rose from 594 in 1856 to 754 in 1863.

## UNITED STATES

| Year           | Lunatics | Idiots | Total   | Per 100,000 Inhabitants | Sex Ratio (Percentage of Males) |        |       |
|----------------|----------|--------|---------|-------------------------|---------------------------------|--------|-------|
|                |          |        |         |                         | Lunatics                        | Idiots | Total |
| 1840 . . . . . | ...      | ...    | 17,410  | 102                     | ...                             | ...    | ...   |
| 1850 . . . . . | 15,610   | 15,790 | 31,400  | 136                     | 51                              | 60     | 55    |
| 1860 . . . . . | 24,040   | 18,930 | 42,970  | 139                     | 49                              | 58     | 53    |
| 1870 . . . . . | 37,430   | 24,530 | 61,960  | 161                     | 47                              | 60     | 53    |
| 1880 . . . . . | 91,990   | 76,890 | 168,880 | 330                     | 46                              | 60     | 51    |

In 1880 the insane were classified thus:—

|                      | Males         | Females       | Total          |
|----------------------|---------------|---------------|----------------|
| Idiots . . . . .     | 45,309        | 31,586        | 76,895         |
| Insane . . . . .     | 44,388        | 47,571        | 91,959         |
| <b>Total . . . .</b> | <b>89,697</b> | <b>79,157</b> | <b>168,854</b> |

|                      | White          | Coloured      | Total          |
|----------------------|----------------|---------------|----------------|
| Idiots . . . . .     | 67,316         | 9,579         | 76,895         |
| Insane . . . . .     | 85,802         | 6,157         | 91,959         |
| <b>Total . . . .</b> | <b>153,118</b> | <b>15,736</b> | <b>168,854</b> |

|                      | Americans      | Foreigners    | Total          |
|----------------------|----------------|---------------|----------------|
| Idiots . . . . .     | 72,888         | 4,007         | 76,895         |
| Insane . . . . .     | 65,630         | 26,329        | 91,959         |
| <b>Total . . . .</b> | <b>138,518</b> | <b>30,331</b> | <b>168,854</b> |

## AUSTRALIA

In December 1887 the seven colonies counted 10,130 insane persons, being 286 per 100,000 inhabitants. The ratios were:—

|                      | Per 100,000 |                     | Per 100,000 |
|----------------------|-------------|---------------------|-------------|
| New South Wales . .  | 270         | South Australia . . | 240         |
| Victoria . . . . .   | 329         | Tasmania . . . . .  | 243         |
| New Zealand . . . .  | 281         | Western Australia . | 285         |
| Queensland . . . . . | 244         | General average . . | 286         |

## INSECTS

On an average, 15 tons of vegetable mould are annually thrown up by earth-worms on an acre of cultivable land, equal to a weight of 705 million tons in the United Kingdom. There are about 26,800 worms to each acre.

According to the *Edinburgh Review* (336), the annual value of agricultural products consumed by insects in the United States is 60 millions sterling. The value of 2,900,000 acres of vineyard devastated by phylloxera in France was 132 millions sterling.

Locusts inflict enormous damage in many countries. In Cyprus the peasants are paid £40 for every ton of locust eggs which they destroy, some years destroying 60 tons, which is equivalent to 680 million locusts. In Russia 600 soldiers can sweep a ton of locusts daily into ditches and destroy them.

### INSURANCE

The *Bulletin Statistique* of 1886 has the following tables:—

|                   | Amount of Life Insurances,<br>Millions £ Sterling |      |      |      |      |       |
|-------------------|---------------------------------------------------|------|------|------|------|-------|
|                   | 1850                                              | 1864 | 1869 | 1874 | 1879 | 1883  |
| Great Britain . . | 160                                               | 210  | 269  | 362  | 415  | 445   |
| Continent . . .   | 30                                                | 61   | 112  | 176  | 236  | 327   |
| United States . . | 30                                                | 85   | 397  | 431  | 311  | 383   |
| Total . . . . .   | 220                                               | 356  | 778  | 969  | 962  | 1,155 |

|                | Average Amount of Insurance, £ |        |         |         |               |
|----------------|--------------------------------|--------|---------|---------|---------------|
|                | Great Britain                  | France | Germany | Austria | United States |
| 1859 . . . . . | 580                            | 420    | 168     | 152     | 616           |
| 1869 . . . . . | 420                            | 400    | 136     | 136     | 604           |
| 1879 . . . . . | 460                            | 440    | 172     | 112     | 520           |
| 1883 . . . . . | 464                            | 448    | 184     | 128     | 544           |

Besso considers that 8,500,000 persons in Europe have their lives insured, say 2½ per cent. of the population.

The latest returns show as follows:—

| Year           | Country         | Amount, £   | Premiums, £ |
|----------------|-----------------|-------------|-------------|
| 1880 . . . . . | U. Kingdom      | 545,000,000 | 17,400,000  |
| 1888 . . . . . | Germany . . .   | 170,300,000 | 14,680,000  |
| 1885 . . . . . | Austria . . .   | 45,200,000  | 7,800,000   |
| 1885 . . . . . | Russia . . . .  | 10,000,000  | ...         |
| 1886 . . . . . | France . . . .  | 117,600,000 | 6,050,000   |
| 1885 . . . . . | Scandinavia .   | 11,200,000  | ...         |
| 1885 . . . . . | Switzerland .   | 8,100,000   | ...         |
| 1885 . . . . . | U. States . . . | 420,000,000 | 21,900,000  |
| 1880 . . . . . | Canada . . . .  | 17,000,000  | ...         |

The above does not include the Industrial Life Assurances of Great Britain, of which later on.

According to the *Archivio*, the aggregate insurance business of Germany, Austria and Switzerland multiplied 15-fold in the period of 25 years down to 1877, viz.:—

| Year           | Existing Policies | Amount, £   |
|----------------|-------------------|-------------|
| 1852 . . . . . | 46,980            | 8,600,000   |
| 1865 . . . . . | 280,500           | 41,600,000  |
| 1877 . . . . . | 753,400           | 116,900,000 |

The following table shows how the aggregate for 1877 was made up, and also the new business for that year:—

|                 | New Business, 1877 |            | Total on Books, 1877 |             |
|-----------------|--------------------|------------|----------------------|-------------|
|                 | Policies           | Amount, £  | Policies             | Amount, £   |
| Germany . . . . | 78,030             | 15,100,000 | 552,200              | 92,400,000  |
| Austria . . . . | 21,800             | 2,900,000  | 178,900              | 19,300,000  |
| Switzerland . . | 2,300              | 550,000    | 22,200               | 5,100,000   |
| Total . . . . . | 102,130            | 18,550,000 | 753,300              | 116,800,000 |

In 1880 the new business done in various countries was:—

|                   | New Policies | Amount, £  | Policies Paid, £ |
|-------------------|--------------|------------|------------------|
| Great Britain . . | 44,900       | 20,900,000 | 11,200,000       |
| United States . . | 123,000      | 37,500,000 | ...              |
| Germany . . . .   | 47,600       | 13,800,000 | 1,900,000        |
| France . . . . .  | 47,800       | 17,700,000 | 1,200,000        |

The life insurance of the principal countries in 1880 compared with the returns for 1870 as follows:—

|                  | Existing Policies |         | Amount       |              |
|------------------|-------------------|---------|--------------|--------------|
|                  | 1870              | 1880    | 1870         | 1880         |
| Great Britain    | 688,000           | 879,000 | £338,000,000 | £422,000,000 |
| U. States . . .  | 748,000           | 725,000 | 405,000,000  | 312,000,000  |
| Germany . . . .  | 456,000           | 797,000 | 64,000,000   | 127,000,000  |
| France . . . . . | 129,000           | 208,000 | 51,000,000   | 87,000,000   |
| Austria . . . .  | 90,000            | 170,000 | ...          | 20,000,000   |
| Canada . . . . . | 40,000            | 48,000  | 14,000,000   | 17,000,000   |

Besides the ordinary system in England of companies charging an annual premium for a policy payable only on death, there is another mode of insurance, whereby the insured person on reaching a certain age receives an annuity for life. In Denmark any person who pays in at the age of 21 a sum of £6 10s. will be entitled to an annuity of £13 on reaching the age of 65; if he die meantime, the sum is forfeit. In Germany, whoever pays 20d. a week during three years, beginning at the age of 18, will receive an annuity of £13 on arriving at that of 65. The German system of compulsory insurance divides the annual premium into three equal parts, one paid by the workman, one by his employer, one by the State. In England, by payment of £100 to any of the first-class insurance companies the following annuity may be secured, varying with the age of the person who buys the annuity:—

| Age          | Annuity for £100 |                   |
|--------------|------------------|-------------------|
|              | Man              | Woman             |
| 50 . . . . . | £ s. d.<br>7 7 0 | £ s. d.<br>6 13 0 |
| 60 . . . . . | 9 0 0            | 8 0 0             |

### UNITED KINGDOM

There are 95 principal companies, which showed the following aggregate of business for life insurance:—

|                   | 1877        | 1886        | 1889        |
|-------------------|-------------|-------------|-------------|
| Policies . . . .  | 779,000     | 902,000     | ...         |
| Amount, £ . . .   | 384,000,000 | 421,000,000 | 545,000,000 |
| Premiums, £ . .   | 11,700,000  | 12,800,000  | 13,930,000  |
| Assets, £ . . . . | 124,000,000 | 143,000,000 | 165,700,000 |

There are also industrial life insurances of the working classes, which showed thus:—

|                      | 1880       | 1886       |
|----------------------|------------|------------|
| Number of policies . | 5,440,000  | 9,132,000  |
| Amount, £ . . . .    | 49,000,000 | 83,000,000 |
| Annual premiums, £ . | 1,940,000  | 3,550,000  |

The average annual premium in British companies, per £100 of policy, varies with age thus:—

| Age          | £ s. d. | Age          | £ s. d. |
|--------------|---------|--------------|---------|
| 25 . . . . . | 2 2 0   | 40 . . . . . | 3 4 0   |
| 30 . . . . . | 2 8 0   | 45 . . . . . | 3 15 0  |
| 35 . . . . . | 2 15 0  | 55 . . . . . | 5 11 0  |

The business of 95 companies in 1889 compared with 1884 thus :—

|                          | 1884         | 1889       |
|--------------------------|--------------|------------|
| Premiums . . . . .       | £ 12,300,000 | 13,930,000 |
| Other receipts . . . . . | 6,600,000    | 7,710,000  |
| Total income . . . . .   | 18,900,000   | 21,640,000 |
| Paid claims . . . . .    | 10,600,000   | 11,000,000 |
| Expenses . . . . .       | 5,600,000    | 5,640,000  |
| Total payments . . . . . | 16,200,000   | 16,640,000 |

The assets amount to 166 millions sterling, and include £11,300,000 paid-up capital.

## FRANCE

In 1886 there were life policies running to the amount of £117,600,000, the premiums reaching £6,050,000 per annum; assets or reserve fund £35,800,000. The number and amount of policies for life insurance issued in twenty years down to 1880 were :—

| Period            | Number  | Amount, £   | Average, £ |
|-------------------|---------|-------------|------------|
| 1861-70 . . . . . | 128,700 | 51,000,000  | 396        |
| 1871-80 . . . . . | 250,400 | 104,500,000 | 418        |
|                   | 379,100 | 155,500,000 | 410        |

There were 26,600 new policies issued during the year 1885. The foregoing are payable at the death of the insured person. As regards the purchase of annuities, the annuity fund in 1881 amounted to 16 millions sterling, and the new annuities purchased yearly average a capital value of £900,000. The annuities now running average as follows :—

|                             | Per Annum |                      | Per Annum |
|-----------------------------|-----------|----------------------|-----------|
| Military officers . . . . . | 95        | Physicians . . . . . | 56        |
| Naval officers . . . . .    | 90        | Farmers . . . . .    | 40        |
| Men of property . . . . .   | 62        | Workmen . . . . .    | 36        |
| Civil service . . . . .     | 60        | Servants . . . . .   | 26        |

There is, moreover, a special life insurance against accidental deaths, which showed in 1886 premiums received £440,000, payments for persons killed £240,000.

## GERMANY

| Year           | Policies | Amount, £   | Policies Paid, £ |
|----------------|----------|-------------|------------------|
| 1850 . . . . . | 40,900   | 7,400,000   | 150,000          |
| 1860 . . . . . | 120,600  | 21,200,000  | 350,000          |
| 1870 . . . . . | 456,200  | 64,000,000  | 1,020,000        |
| 1880 . . . . . | 797,100  | 127,300,000 | 1,870,000        |
| 1888 . . . . . | 816,300  | 170,300,000 | ...              |

The above table shows the total number of existing policies and the aggregate amounts at the various dates. The increase of business in ten years appears on comparing the figures for 1888 with those of 1878 :—

|                              | 1878       | 1888        |
|------------------------------|------------|-------------|
| Amount of policies . . . . . | 97,700,000 | 170,300,000 |
| Amount of assets . . . . .   | 28,000,000 | 52,300,000  |

## AUSTRIA

The returns of 1885 compare with those of previous years thus :—

| Year           | Amount of Policies, £ | Amount of Premiums, £ |
|----------------|-----------------------|-----------------------|
| 1876 . . . . . | 25,500,000            | 3,000,000             |
| 1880 . . . . . | 31,200,000            | 6,500,000             |
| 1885 . . . . . | 45,200,000            | 7,800,000             |

## UNITED STATES

According to Bradstreet's, the income of American life companies rose from £1,300,000 in 1861 to £21,900,000 in 1885. The assets in 1880 amounted to 84 millions sterling. A statement in 1860 showed 47 life companies, 60,000 persons insured, aggregate amount 37 millions sterling.

## Fire Insurance

In 1887 a statement was published in London that the insurance companies of the United Kingdom covered properties to the amount of 5500 millions sterling, the annual premiums on the policies amounting to £14,500,000. The *Journal des Economists* published in 1883 a table of fire insurance for other countries. The result is as follows :—

| Country               | Property Insured, Millions £ | Annual Premium, £ | Rate per 1000 | Annual Loss by Fire, £ | Loss per Inhabitant, Pence |
|-----------------------|------------------------------|-------------------|---------------|------------------------|----------------------------|
| U. Kingdom            | 5,500                        | 14,500,000        | 2.5           | 9,100,000              | 60                         |
| France . . . . .      | 4,056                        | 3,760,000         | 1.0           | 3,200,000              | 20                         |
| Germany . . . . .     | 3,170                        | 6,500,000         | 2.0           | 6,100,000              | 32                         |
| Russia . . . . .      | 180                          | 900,000           | 5.0           | 9,000,000              | 26                         |
| Belgium . . . . .     | 400                          | 400,000           | 1.0           | 500,000                | 22                         |
| Scandinavia . . . . . | 115                          | 300,000           | 2.7           | 1,000,000              | 38                         |
| U. States . . . . .   | 2,180                        | 19,600,000        | 9.0           | 21,400,000             | 78                         |
| Canada . . . . .      | 140                          | 1,550,000         | 11.0          | 4,100,000              | 220                        |
| Total . . . . .       | 15,741                       | 47,510,000        | 3.0           | 54,400,000             | ...                        |

The figures for the United States are taken from the *Journal of Commerce*, 1887.

## UNITED KINGDOM

Official returns were published down to 1868, when the insurance duty was abolished; they showed thus :—

| Year | Amount, Millions £ |          |         |                | Per Inhabitant, £ |
|------|--------------------|----------|---------|----------------|-------------------|
|      | England            | Scotland | Ireland | United Kingdom |                   |
| 1801 | 220                | 4        | 9       | 233            | 15                |
| 1810 | 325                | 12       | 17      | 354            | 20                |
| 1830 | 482                | 34       | 19      | 535            | 22                |
| 1850 | 680                | 43       | 34      | 757            | 28                |
| 1868 | 921                | 99       | 52      | 1,072          | 36                |

The assets of fire companies in 1881 amounted to 24 millions sterling.

## FRANCE

The following table shows fire insurance :—

| Year           | Amount Insured |                  | Premium, £ | Losses Paid, £ |
|----------------|----------------|------------------|------------|----------------|
|                | Millions £     | £ per Inhabitant |            |                |
| 1851 . . . . . | 1,318          | 41               | 1,140,000  | 560,000        |
| 1856 . . . . . | 1,810          | 54               | 1,566,000  | 774,000        |
| 1868 . . . . . | 3,092          | 88               | 2,440,000  | 1,460,000      |
| 1875 . . . . . | 3,190          | 90               | 3,030,000  | 2,390,000      |
| 1881 . . . . . | 4,056          | 112              | 3,855,000  | 2,430,000      |

The balance-sheet for 1886 showed as follows :—

| Receipts, £             |           | Payments, £           |           |
|-------------------------|-----------|-----------------------|-----------|
| Fire premiums . . . . . | 3,650,000 | Fire losses . . . . . | 2,040,000 |
| Investments . . . . .   | 270,000   | Expenses . . . . .    | 1,360,000 |
| Total . . . . .         | 3,920,000 | Total . . . . .       | 3,400,000 |

This left a profit of £520,000, say about 6 per cent. on a capital of £8,500,000 sterling. The following is an official record of all payments by insurance companies for losses by fire or other calamity :—

|                         | 1871       | 1885       |
|-------------------------|------------|------------|
| Fire . . . . .          | 1,560,000  | 2,280,000  |
| Hail . . . . .          | 1,920,000  | 5,100,000  |
| Frost . . . . .         | 4,500,000  | 1,400,000  |
| Cattle-plague . . . . . | 1,800,000  | 1,500,000  |
| Phylloxera . . . . .    | ...        | 6,640,000  |
| Sundries . . . . .      | 220,000    | 880,000    |
| Total . . . . .         | 10,000,000 | 17,800,000 |

The total payments in 1881 were £16,000,000, including £5,700,000 for phylloxera.

#### GERMANY

The returns of fire insurance show as follows :—

| Year           | Amount Insured |                  | Premium, £ | Losses Paid, £ |
|----------------|----------------|------------------|------------|----------------|
|                | Millions £     | £ per Inhabitant |            |                |
| 1850 . . . . . | 815            | 27               | 1,650,000  | 1,200,000      |
| 1860 . . . . . | 1,450          | 40               | 3,000,000  | 2,000,000      |
| 1870 . . . . . | 2,030          | 50               | 4,160,000  | 2,900,000      |
| 1880 . . . . . | 3,125          | 67               | 6,370,000  | 4,400,000      |

#### RUSSIA

Official estimates for 1884-85 show an average loss of property yearly amounting to £9,100,000 sterling, of which £3,300,000 covered by insurance. The loss compared with population is estimated at 4s. per head in towns, and 2s. in the rural population yearly.

#### AUSTRIA

Policies paid on losses caused on farms in 1886 amounted in Austria to £2,900,000, of which £1,800,000 by fire, the rest by hail. Losses paid on farms in Hungary for fire were £1,100,000, being 20 per cent. over the average of six preceding years.

#### UNITED STATES

The *Journal of Commerce* (New York) gives the following :—

| Year           | Insurances in Force, £ | Loss by Fire, £ |
|----------------|------------------------|-----------------|
| 1875 . . . . . | 1,260,000,000          | 16,200,000      |
| 1880 . . . . . | 1,494,000,000          | 15,600,000      |
| 1885 . . . . . | 2,180,000,000          | 21,400,000      |

The above table shows the total loss by fire, insured and uninsured. The latter shows the amounts paid by the companies for losses :—

| Year | Amount Insured, £ | Premium, £ | Losses Paid, £ |
|------|-------------------|------------|----------------|
| 1856 | 175,000,000       | 1,440,000  | 880,000        |
| 1862 | 365,000,000       | 3,100,000  | 1,900,000      |
| 1876 | 1,310,000,000     | 11,800,000 | 8,800,000      |
| 1881 | 1,290,000,000     | 11,630,000 | 8,950,000      |

#### Marine Insurance

In 1880 the amount of marine insurance was estimated at 887 millions sterling, viz. :—

|                     | Millions £ |
|---------------------|------------|
| Lloyds . . . . .    | 480        |
| Hamburg . . . . .   | 105        |
| French, &c. . . . . | 302        |

In 1888 the aggregate returns of seven Liverpool companies showed an average premium on all insurances during three years of only 7 per 1000, viz.: Average annual insurances, 137 millions sterling; premium, £950,000; damages settled, £400,000; expenses of management, £100,000; annual dividend, 14 per cent. on a paid-up capital of £840,000. The losses, therefore, of ships and cargoes were only 3 per 1000 of value.

The Hamburg Company showed as follows :—

| Year           | Insured, £  | Rate per 1000 |
|----------------|-------------|---------------|
| 1803 . . . . . | 400,000     | ...           |
| 1820 . . . . . | 11,000,000  | 17            |
| 1840 . . . . . | 20,000,000  | 15            |
| 1860 . . . . . | 47,000,000  | 14            |
| 1878 . . . . . | 105,000,000 | 12            |

The French marine insurance returns were :—

|                           | 1884        | 1886        |
|---------------------------|-------------|-------------|
| Policies issued . . . . . | 200,100,000 | 175,100,000 |
| Premiums . . . . .        | 740,000     | 710,000     |
| Rate per £1000 . . . . .  | 3.7         | 4.1         |
| Losses paid . . . . .     | 530,000     | 460,000     |

The losses, therefore, averaged 53s. per £1000.

#### IRON

The production of pig iron, which amounted to 60,000 tons in the year 1500, advanced very slowly until the nineteenth century. The following table shows the quantities approximately :—

| Date           | Tons          |           |           |               |           |            |
|----------------|---------------|-----------|-----------|---------------|-----------|------------|
|                | Great Britain | France    | Germany   | United States | Various   | Total      |
| 1500 . . . . . | 6,000         | 12000     | 5,000     | ...           | 37,000    | 60,000     |
| 1700 . . . . . | 12,000        | 22,000    | 10,000    | ...           | 60,000    | 104,000    |
| 1740 . . . . . | 20,000        | 26,000    | 18,000    | 1,000         | 92,000    | 157,000    |
| 1790 . . . . . | 68,000        | 40,000    | 30,000    | 30,000        | 110,000   | 278,000    |
| 1800 . . . . . | 190,000       | 60,000    | 40,000    | 40,000        | 130,000   | 460,000    |
| 1810 . . . . . | 250,000       | 85,000    | 46,000    | 55,000        | 180,000   | 616,000    |
| 1820 . . . . . | 400,000       | 140,000   | 90,000    | 110,000       | 270,000   | 1,010,000  |
| 1830 . . . . . | 680,000       | 220,000   | 120,000   | 180,000       | 385,000   | 1,585,000  |
| 1840 . . . . . | 1,390,000     | 350,000   | 170,000   | 290,000       | 480,000   | 2,680,000  |
| 1850 . . . . . | 2,250,000     | 570,000   | 402,000   | 560,000       | 640,000   | 4,422,000  |
| 1860 . . . . . | 3,830,000     | 900,000   | 530,000   | 820,000       | 1,100,000 | 7,180,000  |
| 1870 . . . . . | 5,960,000     | 1,180,000 | 1,390,000 | 1,670,000     | 1,710,000 | 11,910,000 |
| 1880 . . . . . | 7,750,000     | 1,730,000 | 2,730,000 | 3,840,000     | 2,090,000 | 18,140,000 |
| 1885 . . . . . | 7,420,000     | 1,630,000 | 3,690,000 | 4,050,000     | 2,310,000 | 19,100,000 |
| 1889 . . . . . | 8,250,000     | 1,720,000 | 4,530,000 | 7,600,000     | 3,060,000 | 25,160,000 |

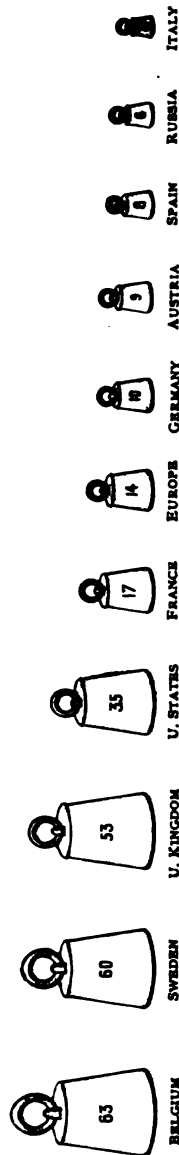
The figures from 1500 to 1740 are those given by Seaman



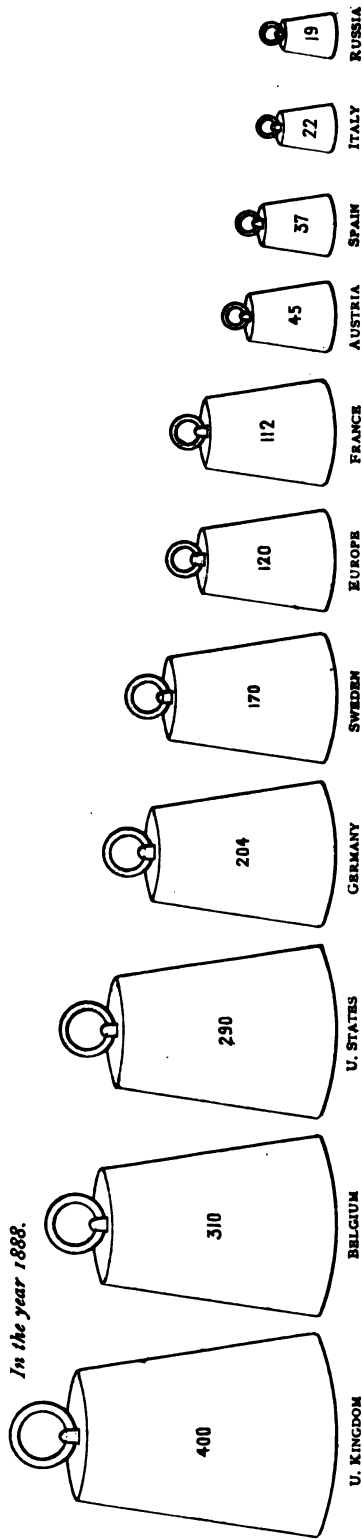
# IRON AND COAL.

*Consumption of Iron, lbs. per inhabitant.*

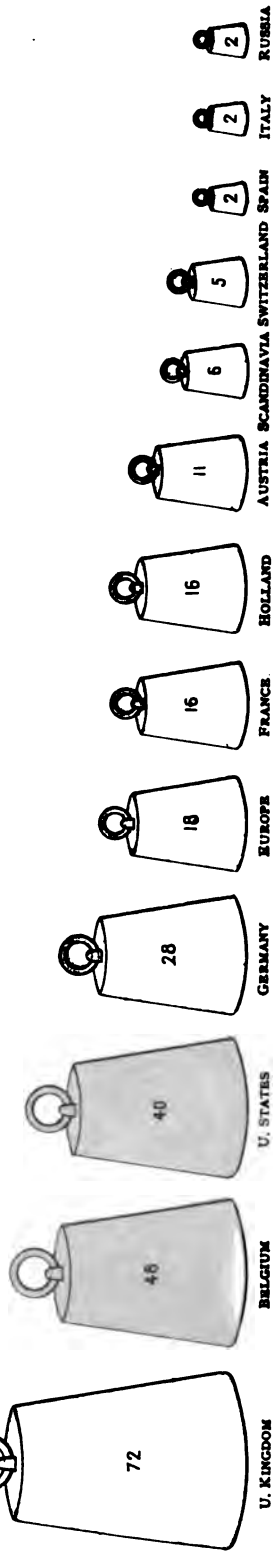
*In the year 1830.*



*In the year 1888.*



*Consumption of Coal (1888), cwt. per inhabitant.*





The production among minor countries since 1830 has been approximately thus :—

|                   | Tons    |         |           |           |           |           |
|-------------------|---------|---------|-----------|-----------|-----------|-----------|
|                   | 1830    | 1850    | 1860      | 1870      | 1880      | 1889      |
| Belgium . . . . . | 35,000  | 73,000  | 220,000   | 520,000   | 490,000   | 850,000   |
| Austria . . . . . | 80,000  | 140,000 | 310,000   | 400,000   | 470,000   | 760,000   |
| Russia . . . . .  | 120,000 | 220,000 | 290,000   | 350,000   | 450,000   | 600,000   |
| Sweden . . . . .  | 105,000 | 130,000 | 180,000   | 290,000   | 400,000   | 460,000   |
| Spain . . . . .   | 20,000  | 40,000  | 50,000    | 70,000    | 160,000   | 230,000   |
| Various . . . . . | 25,000  | 37,000  | 50,000    | 80,000    | 120,000   | 160,000   |
| Total . . . . .   | 385,000 | 640,000 | 1,100,000 | 1,710,000 | 2,090,000 | 3,060,000 |

The percentage of iron contained in ironstone is as follows :—

|                   |    |                         |    |                  |    |
|-------------------|----|-------------------------|----|------------------|----|
| France . . . . .  | 31 | United States . . . . . | 43 | Canada . . . . . | 60 |
| Germany . . . . . | 36 | Australia . . . . .     | 55 | Russia . . . . . | 44 |
| England . . . . . | 41 | Algeria . . . . .       | 58 | Sweden . . . . . | 52 |

capacity of 16,900,000 tons, the actual production having been only 7,510,000 : it would appear that the furnaces of Europe and America could produce at least 40 million tons of iron yearly.

The production in 1885 was as follows :—

|                          | Tons         |      |                 |                                       |
|--------------------------|--------------|------|-----------------|---------------------------------------|
|                          | Total Number |      | Working in 1885 | Average Product Tons Iron per Furnace |
|                          | 1875         | 1885 |                 |                                       |
| United Kingdom . . . . . | 959          | 891  | 429             | 17,400                                |
| United States . . . . .  | 713          | 591  | 276             | 14,700                                |
| France . . . . .         | ...          | ...  | 270             | 7,000                                 |
| Germany . . . . .        | 456          | ...  | 252             | 17,500                                |
| Russia . . . . .         | ...          | ...  | 206             | 2,400                                 |
| Austria . . . . .        | 180          | 137  | 80              | 8,900                                 |
| Sweden . . . . .         | ...          | ...  | 224             | 1,800                                 |
| Belgium . . . . .        | ...          | 61   | 32              | 22,000                                |

|                         | Tons       |           |           |
|-------------------------|------------|-----------|-----------|
|                         | Pig        | Wrought   | Steel     |
| Great Britain . . . . . | 7,510,000  | 1,940,000 | 1,920,000 |
| United States . . . . . | 4,040,000  | 1,640,000 | 1,600,000 |
| Germany . . . . .       | 3,700,000  | 1,460,000 | 1,140,000 |
| France . . . . .        | 1,600,000  | 770,000   | 530,000   |
| Belgium . . . . .       | 700,000    | 460,000   | 160,000   |
| Austria . . . . .       | 700,000    | 300,000   | 200,000   |
| Russia . . . . .        | 500,000    | 290,000   | 250,000   |
| Sweden . . . . .        | 400,000    | 50,000    | 40,000    |
| Spain, &c. . . . .      | 290,000    | 190,000   | 310,000   |
| Total . . . . .         | 19,440,000 | 7,100,000 | 6,150,000 |

The furnaces of Great Britain in 1885 had a productive

The following table shows approximately the consumption in the principal countries :—

|                          | Tons      |           |            |            | Lbs. per Inhabitant |      |      |      |
|--------------------------|-----------|-----------|------------|------------|---------------------|------|------|------|
|                          | 1830      | 1850      | 1870       | 1888       | 1830                | 1850 | 1870 | 1888 |
| United Kingdom . . . . . | 560,000   | 1,970,000 | 4,260,000  | 6,700,000  | 53                  | 170  | 310  | 400  |
| France . . . . .         | 250,000   | 600,000   | 1,350,000  | 1,900,000  | 17                  | 37   | 80   | 112  |
| Germany . . . . .        | 120,000   | 420,000   | 1,340,000  | 4,340,000  | 10                  | 27   | 74   | 204  |
| Russia . . . . .         | 120,000   | 300,000   | 655,000    | 730,000    | 6                   | 11   | 20   | 17   |
| Austria . . . . .        | 100,000   | 160,000   | 430,000    | 770,000    | 9                   | 12   | 28   | 45   |
| Italy . . . . .          | 20,000    | 50,000    | 100,000    | 290,000    | 3                   | 6    | 9    | 22   |
| Spain . . . . .          | 40,000    | 80,000    | 150,000    | 300,000    | 8                   | 13   | 23   | 37   |
| Sweden . . . . .         | 80,000    | 100,000   | 310,000    | 380,000    | 60                  | 63   | 165  | 170  |
| Belgium . . . . .        | 95,000    | 170,000   | 550,000    | 830,000    | 63                  | 90   | 242  | 310  |
| Various . . . . .        | 30,000    | 60,000    | 140,000    | 210,000    | 6                   | 9    | 15   | 20   |
| Europe . . . . .         | 1,415,000 | 3,910,000 | 9,285,000  | 16,450,000 | 14                  | 35   | 70   | 120  |
| United States . . . . .  | 200,000   | 600,000   | 1,730,000  | 7,900,000  | 35                  | 56   | 100  | 290  |
| Colonies, &c. . . . .    | 70,000    | 132,000   | 225,000    | 590,000    | ...                 | ...  | ...  | ...  |
| Total . . . . .          | 1,685,000 | 4,642,000 | 11,240,000 | 24,940,000 | ...                 | ...  | ...  | ...  |

The approximate value of goods manufactured from iron and steel in various countries is as follows :—

|                          | Iron, £     | Steel, £    | Total £     |
|--------------------------|-------------|-------------|-------------|
| United Kingdom . . . . . | 50,100,000  | 84,000,000  | 134,100,000 |
| France . . . . .         | 19,500,000  | 15,900,000  | 35,400,000  |
| Germany . . . . .        | 40,500,000  | 37,800,000  | 78,300,000  |
| Russia . . . . .         | 5,400,000   | 7,000,000   | 12,400,000  |
| Austria . . . . .        | 6,200,000   | 7,600,000   | 13,800,000  |
| Italy . . . . .          | 3,500,000   | 600,000     | 4,100,000   |
| Spain . . . . .          | 2,800,000   | 900,000     | 3,700,000   |
| Sweden . . . . .         | 4,100,000   | 2,200,000   | 6,300,000   |
| Belgium . . . . .        | 8,100,000   | 6,200,000   | 14,300,000  |
| Europe . . . . .         | 140,200,000 | 162,200,000 | 302,400,000 |
| United States . . . . .  | 72,000,000  | 94,500,000  | 166,500,000 |
| Total . . . . .          | 212,200,000 | 256,700,000 | 368,900,000 |

The cost of producing a ton of iron or of steel in various countries was stated in 1883 in a report drawn up by the French Government as follows :—

|                   | Shillings per Ton |              |       |
|-------------------|-------------------|--------------|-------|
|                   | Pig               | Wrought Iron | Steel |
| England . . . . . | 50                | 122          | 160   |
| France . . . . .  | 73                | 182          | 224   |
| Germany . . . . . | 59                | 144          | 192   |
| Belgium . . . . . | 47                | 130          | 131   |

A bar of iron, value 20s., may be manufactured into goods representing any of the following values :—

|                     |      |                         |         |
|---------------------|------|-------------------------|---------|
| Needles . . . . .   | £ 11 | Buttons . . . . .       | £ 6,100 |
| Penknives . . . . . | 650  | Watch-springs . . . . . | 51,000  |

The production of pig iron in ninety years from 1800 has been approximately as follows :—

| Period             | Tons           |               |            |                 |             |
|--------------------|----------------|---------------|------------|-----------------|-------------|
|                    | United Kingdom | United States | Germany    | Other Countries | Total       |
| 1800-20 . . . . .  | 5,700,000      | 1,400,000     | 1,300,000  | 4,800,000       | 13,200,000  |
| 1821-40 . . . . .  | 16,400,000     | 3,800,000     | 2,500,000  | 10,100,000      | 32,800,000  |
| 1841-50 . . . . .  | 18,200,000     | 4,200,000     | 2,600,000  | 8,500,000       | 33,500,000  |
| 1851-60 . . . . .  | 32,500,000     | 6,600,000     | 4,400,000  | 13,600,000      | 57,100,000  |
| 1861-70 . . . . .  | 47,400,000     | 11,400,000    | 10,300,000 | 24,500,000      | 93,600,000  |
| 1871-80 . . . . .  | 65,600,000     | 24,200,000    | 20,600,000 | 31,700,000      | 142,100,000 |
| 1881-89 . . . . .  | 71,200,000     | 47,900,000    | 33,300,000 | 38,700,000      | 191,100,000 |
| 90 years . . . . . | 257,000,000    | 99,500,000    | 75,000,000 | 131,900,000     | 563,400,000 |

| Period             | Value, £ Sterling |               |             |                 |               |
|--------------------|-------------------|---------------|-------------|-----------------|---------------|
|                    | United Kingdom    | United States | Germany     | Other Countries | Total         |
| 1800-20 . . . . .  | 40,100,000        | 12,600,000    | 10,400,000  | 38,400,000      | 101,500,000   |
| 1821-40 . . . . .  | 90,200,000        | 30,400,000    | 17,500,000  | 70,700,000      | 208,800,000   |
| 1841-50 . . . . .  | 72,800,000        | 23,100,000    | 13,000,000  | 42,500,000      | 151,400,000   |
| 1851-60 . . . . .  | 89,400,000        | 26,400,000    | 17,600,000  | 54,400,000      | 187,800,000   |
| 1861-70 . . . . .  | 128,000,000       | 51,300,000    | 36,400,000  | 88,200,000      | 303,900,000   |
| 1871-80 . . . . .  | 166,800,000       | 109,000,000   | 58,500,000  | 90,300,000      | 424,600,000   |
| 1881-89 . . . . .  | 148,000,000       | 196,500,000   | 73,200,000  | 92,000,000      | 509,700,000   |
| 90 years . . . . . | 735,300,000       | 449,300,000   | 226,600,000 | 476,500,000     | 1,887,700,000 |

|                           | Tons        | Value, £      |
|---------------------------|-------------|---------------|
|                           |             |               |
| Great Britain . . . . .   | 257,000,000 | 735,300,000   |
| United States . . . . .   | 99,500,000  | 449,300,000   |
| Germany . . . . .         | 75,000,000  | 226,600,000   |
| France . . . . .          | 49,700,000  | 189,400,000   |
| Belgium . . . . .         | 22,200,000  | 77,500,000    |
| Russia . . . . .          | 18,600,000  | 65,300,000    |
| Austria . . . . .         | 17,200,000  | 58,600,000    |
| Sweden . . . . .          | 15,100,000  | 52,300,000    |
| Spain, Italy, &c. . . . . | 9,100,000   | 33,400,000    |
| Total . . . . .           | 563,400,000 | 1,887,700,000 |

|                         | Tons    |           |            |
|-------------------------|---------|-----------|------------|
|                         | 1870    | 1880      | 1889       |
| Great Britain . . . . . | 215,000 | 1,440,000 | 3,670,000  |
| France . . . . .        | 84,000  | 385,000   | 530,000    |
| Germany . . . . .       | 126,000 | 660,000   | 1,860,000  |
| Russia . . . . .        | 5,000   | 295,000   | 250,000    |
| Austria . . . . .       | 22,000  | 100,000   | 300,000    |
| Belgium . . . . .       | 6,000   | 95,000    | 185,000    |
| Sweden . . . . .        | 12,000  | 30,000    | 70,000     |
| United States . . . . . | 70,000  | 1,250,000 | 3,385,000  |
| Total . . . . .         | 540,000 | 4,255,000 | 10,250,000 |

Visiting cards are now sometimes made of very thin sheet-iron, viz. :—

|                           | Per Inch Thick | Per Inch Thick       |
|---------------------------|----------------|----------------------|
| Belgian . . . . .         | 400            | Baron Krupp's 820    |
| Count Harrach's . . . . . | 640            | Count Renard's 1,000 |

The production of steel has been approximately as follows, in tons :—

|                         | 1880   | 1870    | 1881      | 1889       |
|-------------------------|--------|---------|-----------|------------|
| U. Kingdom . . . . .    | 49,000 | 215,000 | 1,440,000 | 3,670,000  |
| Continent . . . . .     | 17,000 | 255,000 | 1,565,000 | 3,195,000  |
| United States . . . . . | 5,000  | 70,000  | 1,250,000 | 3,385,000  |
| Total . . . . .         | 71,000 | 540,000 | 4,255,000 | 10,250,000 |

According to Mr. Chisholm's tables and others, the production of steel in all countries has been as follows since 1870 :—

The aggregate production of steel in forty years may be set down approximately as follows :—

| Period             | Tons          |               |            |           |           |            |
|--------------------|---------------|---------------|------------|-----------|-----------|------------|
|                    | Great Britain | United States | Germany    | France    | Various   | Total      |
| 1850-69 . . . . .  | 2,600,000     | 700,000       | 1,300,000  | 800,000   | 700,000   | 6,100,000  |
| 1870-79 . . . . .  | 8,300,000     | 3,800,000     | 3,100,000  | 2,200,000 | 2,100,000 | 19,500,000 |
| 1880-89 . . . . .  | 25,100,000    | 21,700,000    | 12,200,000 | 3,800,000 | 6,100,000 | 68,900,000 |
| 40 years . . . . . | 36,000,000    | 26,200,000    | 16,600,000 | 6,800,000 | 8,900,000 | 94,500,000 |

Steel rails were first used for railways at Chalk Farm, near London, in 1862. They bore an annual traffic of 96,000,000 tons, and after three years were found worn  $\frac{1}{4}$  inch. The consumption of steel for railways in 1882 was as follows :—

|                         | Consumption, Tons per Annum |           |           |
|-------------------------|-----------------------------|-----------|-----------|
|                         | New Lines                   | Renewal   | Total     |
| United States . . . . . | 1,200,000                   | 900,000   | 2,100,000 |
| Great Britain . . . . . | 60,000                      | 160,000   | 220,000   |
| Continent, &c. . . . .  | 680,000                     | 655,000   | 1,335,000 |
| Total . . . . .         | 1,940,000                   | 1,715,000 | 3,655,000 |

In twenty years ending 1889 it appears that railways have absorbed 43,500,000 tons of steel, or almost half the total product. The life of an iron rail is sixteen, that of a steel one forty, years.

Taking the strength of Swedish iron at 100, the tensile strength of steel compares thus :—

|              |     |              |     |
|--------------|-----|--------------|-----|
| Swedish iron | 100 | Cannon steel | 173 |
| Boiler steel | 118 | Spring steel | 202 |

A bar of chrome steel,  $\frac{1}{2}$  inch square and 5 inches long, gives a strength of 141,000 lbs. per square inch, being 37 per cent. more than carbon steel. The nominal strength of steel is 30 tons per square inch, but Professor Siemens shows that it is really 36 tons. The tests used by the French Admiralty as minimum breaking load are as follows :—

| Iron Plates | Lbs. | Steel Plates, Inch | Lbs. |
|-------------|------|--------------------|------|
| Common      | 52   | 0.16 to 0.24       | 101  |
| Better      | 62   | 0.24 „ 0.80        | 99   |
| Best        | 64   | 0.80 „ 1.20        | 97   |

The plates supplied by Messrs. Cammell of Sheffield for seven French ironclads were subjected to 36,000 foot-tons of energy, viz. :—Shot, 760 lbs.; charge, 150 lbs., fired from a 12-inch gun, with velocity 1425 feet per second; range, 264 feet.

The plates in question were 11 feet long and 7 feet wide by 18 inches thick.

In 1879 some vessels were built of steel on the Clyde, it being found that a steel ship could carry 20 per cent. more than one of iron. In 1882 the *Oregon*, 7400 tons, was built of steel; the construction in this metal being as follows :—

|                | Tons    |
|----------------|---------|
| 1879 . . . . . | 18,000  |
| 1883 . . . . . | 143,000 |

About three tons of steel are consumed daily in making pens, of which Birmingham consumes  $1\frac{1}{2}$  tons. The output of steel pens yearly in 1882 was as follows :—

|                          | Pens        | Per Inhab. |
|--------------------------|-------------|------------|
| United Kingdom . . . . . | 810,000,000 | 23         |
| France . . . . .         | 420,000,000 | 11         |
| United States . . . . .  | 105,000,000 | 2          |

There are fourteen steel-pen factories at Birmingham, three in France, two in Germany, and one in the United States. A ton of steel produces 1,500,000 pens. The price when first made by Gillott, sixty years ago, was 12s. a dozen, 150 times the present price.

#### UNITED KINGDOM

The following is a summary of iron and steel exports in thirty-five years, from Mr. Chisholm's tables :—

| Period   | Tons to    |           |            |           |           |           |           |           |           | Total      |
|----------|------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
|          | U. States  | France    | Germany    | Belgium   | Italy     | Russia    | India     | Australia | Canada    |            |
| 1855-59  | 1,600,000  | 600,000   | 1,200,000  | 20,000    | ...       | 230,000   | 860,000   | 280,000   | ...       | 6,900,000  |
| 1860-69  | 3,300,000  | 1,400,000 | 2,400,000  | 310,000   | 220,000   | 1,020,000 | 2,010,000 | 800,000   | 170,000   | 18,100,000 |
| 1870-79  | 5,100,000  | 1,100,000 | 5,900,000  | 1,240,000 | 780,000   | 2,200,000 | 1,500,000 | 1,700,000 | 1,600,000 | 27,100,000 |
| 1880-89  | 8,600,000  | 1,200,000 | 5,300,000  | 800,000   | 1,600,000 | 1,520,000 | 3,900,000 | 3,700,000 | 2,400,000 | 38,300,000 |
| 35 years | 18,600,000 | 4,300,000 | 14,800,000 | 2,370,000 | 2,600,000 | 4,970,000 | 8,270,000 | 6,480,000 | 4,170,000 | 90,400,000 |

In the above table Germany also includes Holland. The total includes many countries not above stated. The production of iron compares with the exports from the United Kingdom thus :—

| Period             | Tons Iron Made | Tons Exported | Home Use    |
|--------------------|----------------|---------------|-------------|
| 1855-59 . . . . .  | 18,500,000     | 6,900,000     | 11,600,000  |
| 1860-69 . . . . .  | 46,000,000     | 18,100,000    | 27,900,000  |
| 1870-79 . . . . .  | 64,000,000     | 27,100,000    | 36,900,000  |
| 1880-89 . . . . .  | 74,200,000     | 38,300,000    | 35,900,000  |
| 35 years . . . . . | 202,700,000    | 90,400,000    | 112,300,000 |

The consumption of coal in making pig iron was as follows :—

| Year           | Tons      |            | Tons of Coal to One Ton of Iron |
|----------------|-----------|------------|---------------------------------|
|                | Iron      | Coal       |                                 |
| 1796 . . . . . | 125,000   | 750,000    | 6.0                             |
| 1806 . . . . . | 243,000   | 1,220,000  | 5.0                             |
| 1840 . . . . . | 1,396,000 | 4,877,000  | 3.5                             |
| 1870 . . . . . | 5,230,000 | 16,220,000 | 3.1                             |
| 1875 . . . . . | 6,365,000 | 15,700,000 | 2.5                             |
| 1881 . . . . . | 8,326,000 | 18,300,000 | 2.2                             |
| 1889 . . . . . | 8,200,000 | 17,400,000 | 2.1                             |

Nelson's invention in 1829 of the hot-blast, 600° Fahr., caused a saving of 33 per cent. in the quantity of coal required. Cowper's "Regenerator" of 1500° Fahr., in 1857, caused a further saving. Meantime the total con-

sumption of coal in British ironworks is about 35 million tons. The estimate in 1881 was as follows :—

|                                    | Tons Coal Used |
|------------------------------------|----------------|
| Making pig-iron . . . . .          | 18,300,000     |
| Finished iron . . . . .            | 8,040,000      |
| Steel . . . . .                    | 1,680,000      |
| Engines and shipbuilding . . . . . | 1,510,000      |
| Sundries . . . . .                 | 5,230,000      |

Total . . . . . 34,760,000

The furnaces of the United Kingdom in 1889 were :—

|                    | In Blast | Idle | Total |
|--------------------|----------|------|-------|
| England . . . . .  | 329      | 233  | 562   |
| Wales . . . . .    | 45       | 66   | 111   |
| Scotland . . . . . | 87       | 53   | 140   |
| Total . . . . .    | 461      | 352  | 813   |

#### FRANCE

In the eighteenth century, according to Seaman, France produced more iron than Great Britain until the French Revolution, when England took the foremost place. In that century France only doubled her output from 22,000 to 50,000 tons, while Great Britain increased hers tenfold. The wars of Bonaparte considerably retarded this industry, for we find that in 1814 the production did not exceed 100,000 tons, whereas in Great Britain it reached 300,000 tons. A table published in 1840 was as follows :—

| Year           | Blast Furnaces | Tons Pig Iron |
|----------------|----------------|---------------|
| 1825 . . . . . | ...            | 160,000       |
| 1828 . . . . . | 393            | 220,000       |
| 1839 . . . . . | 569            | 350,000       |

In this latter year the number of hands employed was 44,000, giving an average of eight tons per man. The production and consumption of iron and steel were approximately as follows:—

| Year       | Iron, Tons |             | Lbs. Consumed per Inhabitant | Production of Steel, Tons |
|------------|------------|-------------|------------------------------|---------------------------|
|            | Production | Consumption |                              |                           |
| 1700 . . . | 22,000     | 22,000      | 2                            | ...                       |
| 1800 . . . | 60,000     | 60,000      | 5                            | ...                       |
| 1850 . . . | 570,000    | 600,000     | 37                           | 8,000                     |
| 1870 . . . | 1,180,000  | 1,350,000   | 80                           | 94,000                    |
| 1889 . . . | 1,720,000  | 1,900,000   | 112                          | 530,000                   |

In 1880 there were 600 blast-furnaces and 500 others. In 1885 the foundries employed 55,000 workmen, who turned out 780,000 tons of iron bars, &c., and 550,000 tons of steel, representing a value of £10,200,000, say £184 per man.

## GERMANY

The production of iron has increased an hundred-fold since 1810, viz. :—

| Year           | Tons Iron | Tons Steel | Lbs. Iron per Inhabitant |
|----------------|-----------|------------|--------------------------|
| 1810 . . . . . | 46,000    | ...        | 4                        |
| 1850 . . . . . | 402,000   | 6,000      | 27                       |
| 1870 . . . . . | 1,390,000 | 170,000    | 74                       |
| 1889 . . . . . | 4,530,000 | 1,400,000  | 204                      |

In 1888 there were 1470 foundries, employing 170,000 men. The most remarkable in the world is that of Mr. Krupp, at Essen, Prussia, covering 1100 acres: the number of workmen never falls below 16,000, and there are 800 steam-engines, with an aggregate of 18,000 horse-power, and 82 steam-hammers, the heaviest weighing 50 tons: the daily consumption of iron and steel averages 500 tons. Down to 1876 Mr. Krupp had delivered 15,000 pieces of cannon to various nations.

Germany is now the third great producer of iron, her output being half that of Great Britain. In seven years ending 1887 the imports and exports of pig-iron were equal, but the exports of railway bars and other manufactured iron averaged 340,000 tons yearly.

## RUSSIA

In 1828 there were 900 furnaces at work at Perm, Vialka, and Nijni, and 600 workshops for cutlery at Tula, with 7000 operatives: the production of iron was then estimated at 115,000 tons, but it was so dear that horses were unshod and farm implements were entirely of wood. In 1866 Tegebol'ski's report showed 1732 foundries, with 137,000 operatives, who consumed 300,000 tons of iron yearly, turning out manufactures valued at 10 millions sterling; an excessive valuation, equal to £28 a ton, the real value being about 7 millions. The following table shows approximately the production and consumption:—

| Year       | Tons Iron  |             | Lbs. per Inhabitant | Steel, Tons |
|------------|------------|-------------|---------------------|-------------|
|            | Production | Consumption |                     |             |
| 1828 . . . | 115,000    | 120,000     | 6                   | ...         |
| 1850 . . . | 220,000    | 300,000     | 11                  | ...         |
| 1870 . . . | 350,000    | 655,000     | 20                  | 9,000       |
| 1888 . . . | 600,000    | 730,000     | 19                  | 260,000     |

There has been a remarkable increase in the manufacture of farming implements, namely, from £220,000 in 1867 to one million sterling in 1885.

## AUSTRIA

In sixty years the production of iron has grown nearly tenfold, and Austria now holds sixth place. The production and consumption were approximately:—

| Year       | Tons       |             | Lbs. per Inhabitant | Steel, Tons |
|------------|------------|-------------|---------------------|-------------|
|            | Production | Consumption |                     |             |
| 1830 . . . | 80,000     | 100,000     | 9                   | ...         |
| 1850 . . . | 140,000    | 160,000     | 12                  | ...         |
| 1870 . . . | 400,000    | 430,000     | 28                  | 22,000      |
| 1888 . . . | 760,000    | 770,000     | 45                  | 280,000     |

Austria proper in 1888 produced 565,000, and Hungary 195,000, tons pig-iron.

## ITALY

The production and consumption were approximately as follows:—

| Year       | Tons Iron  |             | Lbs. per Inhabitant | Steel, Tons |
|------------|------------|-------------|---------------------|-------------|
|            | Production | Consumption |                     |             |
| 1830 . . . | 10,000     | 20,000      | 3                   | ...         |
| 1860 . . . | 40,000     | 75,000      | 8                   | ...         |
| 1870 . . . | 50,000     | 100,000     | 9                   | ...         |
| 1887 . . . | 70,000     | 290,000     | 22                  | 20,000      |

A statement published in 1877 was as follows as to production:—

| Year       | Tons     |       | Value, £ |        |         |
|------------|----------|-------|----------|--------|---------|
|            | Bar Iron | Steel | Bar Iron | Steel  | Total   |
| 1860 . . . | 30,000   | ...   | 540,000  | ...    | 540,000 |
| 1870 . . . | 38,000   | 1,000 | 660,000  | 25,000 | 685,000 |
| 1876 . . . | 49,000   | 3,000 | 720,000  | 56,000 | 776,000 |

Italy pays £1,200,000 for imported pig and bar iron, which she converts into merchandise worth £3,200,000.

## SPAIN

Although Spain possesses some of the best iron-fields in the world, her production is small, and she is forced to import 30 per cent. of what is used in her foundries. Meantime she exports 5 million tons yearly of iron ores. The production and consumption approximately were:—

| Year       | Tons       |             | Lbs. per Inhabitant | Steel, Tons |
|------------|------------|-------------|---------------------|-------------|
|            | Production | Consumption |                     |             |
| 1830 . . . | 20,000     | 40,000      | 8                   | ...         |
| 1850 . . . | 40,000     | 80,000      | 13                  | ...         |
| 1870 . . . | 70,000     | 150,000     | 23                  | ...         |
| 1889 . . . | 230,000    | 300,000     | 37                  | 30,000      |

Spain pays £700,000 a year for imported pig and bar iron: her manufactures of iron and steel are approximately worth £2,700,000.

## SWEDEN

In the beginning of the nineteenth century Sweden produced as much iron as Germany, but her production now is only one-tenth of that of the latter country. She holds eighth rank, coming next after Russia. The production and consumption were approximately:—

| Year       | Tons Iron  |             | Lbs. per Inhabitant | Steel, Tons |
|------------|------------|-------------|---------------------|-------------|
|            | Production | Consumption |                     |             |
| 1812 . . . | 65,000     | 40,000      | 37                  | ...         |
| 1830 . . . | 105,000    | 80,000      | 60                  | ...         |
| 1850 . . . | 130,000    | 100,000     | 63                  | ...         |
| 1870 . . . | 290,000    | 210,000     | 105                 | 6,000       |
| 1889 . . . | 460,000    | 320,000     | 170                 | 80,000      |

Sweden exports yearly 200,000 tons bar iron and 60,000 tons pig-iron. Her manufactures of iron and steel are about £4,200,000.

#### BELGIUM

In 1816 Mr. John Cockerill, from England, introduced the method of smelting with coke, and established at Seraing one of the finest ironworks in Europe. The industry advanced greatly after the separation from Holland in 1830, but its most striking progress has been in the last thirty years. Official returns since 1845 show as follows:—

| Year       | Blast Furnaces | Operatives | Output, Tons |         |
|------------|----------------|------------|--------------|---------|
|            |                |            | Iron         | Steel   |
| 1845 . . . | 56             | 14,600     | 62,000       | ...     |
| 1850 . . . | 65             | 11,600     | 73,000       | ...     |
| 1860 . . . | 51             | 26,300     | 218,000      | ...     |
| 1870 . . . | 48             | 41,200     | 523,000      | 4,000   |
| 1880 . . . | 36             | 37,300     | 493,000      | 132,000 |
| 1887 . . . | 29             | 34,100     | 534,000      | 216,000 |

The exports of bar and wrought iron were as follows:—

| Year | Tons    | Value, £  | Year | Tons    | Value, £  |
|------|---------|-----------|------|---------|-----------|
| 1860 | 63,000  | 440,000   | 1875 | 183,000 | 2,000,000 |
| 1865 | 118,000 | 800,000   | 1880 | 228,000 | 1,600,000 |
| 1870 | 220,000 | 1,400,000 | 1887 | 335,000 | 1,600,000 |

The iron and steel manufactures are worth about £10,600,000.

#### UNITED STATES

In 1620 a group of forty ironworkers arrived from Sussex, England, and commenced to make iron, but in 1662 a decree was issued to prohibit the importation of this metal, with the view to promote iron manufactures in the Colony. This prohibition was removed in 1682. The first regular foundry in North America was that established by Joseph Jenks in 1663, at Lynn, Massachusetts. There were six existing in the Colonies in 1750, when the British Parliament passed a law to close all mills, forges, or furnaces in the Colonies, the better to protect British manufactures. After the Independence this branch of industry made progress, but soon collapsed, owing to the influx of British merchandise. In 1833 Frederick Gersenhamer obtained a patent for using hot-blast with anthracite coal, and in 1835 produced the first iron so made.

The total output of iron, which was only 40,000 tons in 1796, rose to 287,000 in 1840, viz.:—

|                        | Tons    |
|------------------------|---------|
| Pennsylvania . . . . . | 98,000  |
| Ohio . . . . .         | 35,000  |
| Other States . . . . . | 154,000 |
| Total . . . . .        | 287,000 |

A table published in the latter year compared the production and the number of operatives with 1830 as follows:—

| Year           | Operatives | Tons Iron | Tons per Man |
|----------------|------------|-----------|--------------|
| 1830 . . . . . | 20,000     | 184,000   | 6.3          |
| 1840 . . . . . | 56,000     | 287,000   | 5.1          |

From this time the construction of railways, especially after the war of 1861-65, gave a great impetus to this industry, the production being as follows:—

| Year           | Tons      |
|----------------|-----------|
| 1850 . . . . . | 564,000   |
| 1870 . . . . . | 1,580,000 |

In 1873 there were 719 furnaces at work. In 1889 the output of pig-iron reached 7,600,000 tons, being second only to Great Britain.

The Census returns of foundries and ironworks showed thus:—

|                           | 1870       | 1880       |
|---------------------------|------------|------------|
| Hands . . . . .           | 78,000     | 141,000    |
| Wages, £ . . . . .        | 7,500,000  | 11,600,000 |
| Manufactures, £ . . . . . | 37,400,000 | 62,000,000 |

The production of pig-iron in 1888 and 1889 was as follows:—

|                        | 1888<br>Tons | 1889<br>Tons |
|------------------------|--------------|--------------|
| Pennsylvania . . . . . | 3,200,000    | 3,730,000    |
| Ohio . . . . .         | 990,000      | 1,090,000    |
| Other States . . . . . | 2,300,000    | 2,780,000    |
| Total . . . . .        | 6,490,000    | 7,600,000    |

The manufacture of steel dates from 1808, as follows:—

| Year           | Tons      |
|----------------|-----------|
| 1808 . . . . . | 900       |
| 1850 . . . . . | 2,000     |
| 1860 . . . . . | 12,000    |
| 1870 . . . . . | 64,000    |
| 1876 . . . . . | 520,000   |
| 1889 . . . . . | 3,390,000 |

At present the United States produce one-third the steel of the world. The make of steel in 1889 included 1,510,000 tons of rails.

The rivalry between Great Britain and the United States in iron and steel production is thus indicated by Mr. Swank:—

|                        | Great Britain, Tons |           | United States, Tons |           |
|------------------------|---------------------|-----------|---------------------|-----------|
|                        | 1882                | 1889      | 1882                | 1889      |
| Pig-iron . . . . .     | 8,580,000           | 8,250,000 | 4,620,000           | 7,605,000 |
| Steel ingots . . . . . | 1,670,000           | 2,140,000 | 1,510,000           | 2,930,000 |
| Steel rails . . . . .  | 1,230,000           | 940,000   | 1,280,000           | 1,510,000 |

The production of steel of all descriptions in 1889 was 3,690,000 tons in Great Britain and 3,390,000 in the United States.

## IRRIGATION

### FRANCE

Only 260,000 acres irrigated, which yield crops worth £3 per acre more than ordinary.

### ITALY

The canals in the Po valley irrigate 1,370,000 acres, which receive every day in summer 45 million tons of water, measured through a great number of little sluice-gates: the permanent right to an inch of water is worth from £500 to £800. The usual rent of these lands is £6 per acre per annum.

### BELGIUM

Since 1859 an area of 160,000 acres of waste lands has been made valuable by irrigation, adjoining State canals.

### SPAIN

Land unwatered may be rented at 5s. an acre, but the irrigated lands of Valencia, where the old canals and works of the Moors remain, readily rent at £5 per acre. The total area of irrigated lands is 2½ million acres.

### ALGERIA

The most important work is the "barrage" at Habra, with a basin holding 30 million tons of water, the main wall being 110 feet high, 120 feet thick, and 1500 feet long. The distributory canals are 310 miles, irrigating 70,000 acres. It belongs to a French Company, and cost £160,000.

## EGYPT

During his reign of seventeen years, from 1863 to 1879, Ismael Pasha constructed 112 canals branching from the Nile, to irrigate 1,400,000 acres, with an aggregate length of 8400 miles, the cost amounting to about 12 millions sterling. The lands thus newly irrigated produce crops worth £10,600,000, or 22 per cent. of the total value of Egyptian crops. The actual length of Nile canals is 52,000 miles, the task of irrigation employing 476 steam-pumps, 107,000 Persian water-wheels, 150,000 men, and 60,000 animals, at an annual cost averaging 4s. per acre.

## INDIA

The Ganges Canal irrigates 400,000 acres, is 880 miles long, having 902 bridges and 297 aqueducts, and cost £2,400,000. In the Madras Presidency irrigation is also carefully studied: there are 53,000 tank-reservoirs, 30,000 miles of dykes, the whole having cost 16 millions sterling, and producing a revenue of £1,500,000 per annum. The largest reservoir or artificial lake in the world is the great tank of Dhebar, Rajputana, which covers an area of 21 square miles. The masonry dam is 1000 feet long by 95 feet high, 50 feet wide at the base, and 15 feet at the top.

## CYPRUS

The canals made by the Venetians had fallen to ruin under the Turks, but many of them have been restored by British engineer officers since 1878. Irrigated lands yield three times heavier crops than the rest of the island.

## CALIFORNIA

Since 1870 there have been constructed 2000 miles of canals, irrigating more than 10 millions of acres.

## SOUTH AMERICA

The Incas had a perfect network of canals irrigating the lands on the western slope of the Andes. Near Mendoza, at the eastern foot of the Andes, still exists the Zanjon or canal made by the Cacique Guaymallen, irrigating a tract of eighteen miles of country.

## AUSTRALIA

The Melbourne Government has already spent £470,000, and proposes to spend two millions more on works of irrigation.

## J.

## JEWELLERY

## Diamonds

## Weight in Carats of Six Largest

|                        |     |                       |     |
|------------------------|-----|-----------------------|-----|
| Kohinoor . . . . .     | 103 | Austrian Kaiser . . . | 139 |
| Star of Brazil . . . . | 125 | Russian Czar . . . .  | 193 |
| Regent of France . . . | 136 | Rajah of Borneo . . . | 367 |

The value of the above is not regulated by size, nor easy to estimate, but none of them is worth less than £100,000.

## Scale of Value for Small Stones

|                   |      |                    |       |
|-------------------|------|--------------------|-------|
| 1 carat . . . . . | £ 8  | 5 carat . . . . .  | £ 200 |
| 3 carat . . . . . | £ 72 | 10 carat . . . . . | £ 800 |

Cape diamonds are of inferior value; one of the largest, the Stewart, found in November 1872, sold for £11,000, weighing 288 carats uncut. The Kimberley field, covering nine acres, has produced diamonds to the value of 15 millions sterling since 1871, the diggings being from 100 to 170 feet deep. The annual export of diamonds from the Cape is about 1400 lbs., worth over four millions, and the fields employ 2000 white and 22,000 coloured diggers. In 1889 the value of diamonds extracted was £4,300,000 sterling. The total product in eighteen years was approximately 46,000,000 carats, worth £56,000,000 sterling.

*Emerald.*—The ordinary value is as follows:—

| Grains       | £  | Grains       | £   |
|--------------|----|--------------|-----|
| 5 . . . . .  | 5  | 15 . . . . . | 50  |
| 10 . . . . . | 20 | 24 . . . . . | 100 |

*Opal.*—The Emperor of Austria has one for which he refused £50,000: it weighs 17 oz.

*Pearls.*—The pearl-fishery of Ceylon in 1890 only lasted 22 days, and during that period 11,000,000 oysters were brought to the surface by fifty divers. They are paid by one-fourth of the number. This season the whole produce was sold at the rate of 24s. per 1000 shells. The Government received £20,000 as their share, and the divers £6400. The largest pearls are worth in Ceylon from £40 to £60, and in Europe they fetch three times the price or more.

## JEWS

|                     | 1860      | 1880      | Increase  |
|---------------------|-----------|-----------|-----------|
| Russia . . . . .    | 2,025,000 | 2,621,000 | 596,000   |
| Austria . . . . .   | 1,048,000 | 1,375,000 | 327,000   |
| Germany . . . . .   | 393,000   | 512,000   | 119,000   |
| France . . . . .    | 88,000    | 49,000    | ...       |
| Holland . . . . .   | 63,000    | 78,000    | 15,000    |
| Great Britain . . . | 45,000    | 51,000    | 6,000     |
| Italy . . . . .     | 33,000    | 35,000    | 2,000     |
| Turkey, &c. . . . . | 260,000   | 280,000   | 20,000    |
| Europe . . . . .    | 3,955,000 | 5,001,000 | 1,046,000 |
| Morocco . . . . .   | 340,000   | 350,000   | 10,000    |
| Tripoli . . . . .   | 160,000   | 170,000   | 10,000    |
| Algeria . . . . .   | 82,000    | 133,000   | 51,000    |
| Egypt . . . . .     | 7,000     | 8,000     | 1,000     |
| America . . . . .   | 85,000    | 110,000   | 25,000    |
| Asia . . . . .      | 200,000   | 200,000   | ...       |
| Total . . . . .     | 4,829,000 | 5,972,000 | 1,143,000 |

The vital statistics of Jews in Germany compare with those of Christians as follows:—

| Births                        | Jews<br>per Cent. | Europeans<br>per Cent. |
|-------------------------------|-------------------|------------------------|
| Excess of male births . . . . | 16                | 5                      |
| Illegitimate births . . . . . | 2                 | 6                      |
| Still-births . . . . .        | 2½                | 4½                     |

| Age                | Marrying Age |         |           |         |
|--------------------|--------------|---------|-----------|---------|
|                    | Jews         |         | Europeans |         |
|                    | Males        | Females | Males     | Females |
| Under 20 . . . . . | 2.2          | 23.5    | 1.8       | 12.1    |
| 20-30 . . . . .    | 66.4         | 58.5    | 62.6      | 65.6    |
| 30-40 . . . . .    | 17.4         | 9.8     | 25.3      | 16.2    |
| 40-50 . . . . .    | 7.4          | 5.4     | 6.2       | 4.6     |
| Over 50 . . . . .  | 6.6          | 2.8     | 4.1       | 1.5     |
| Total . . . . .    | 100.0        | 100.0   | 100.0     | 100.0   |



## RATIO OF DEATHS

| Age               | Jews  |         | Christians,<br>Both Sexes |
|-------------------|-------|---------|---------------------------|
|                   | Males | Females |                           |
| Under 1 . . . . . | 38.4  | 33.7    | 29.3                      |
| 1-5 . . . . .     | 18.5  | 16.7    | 19.2                      |
| 5-10 . . . . .    | 4.7   | 4.3     | 4.9                       |
| 10-20 . . . . .   | 4.3   | 4.5     | 4.6                       |
| 20-30 . . . . .   | 8.5   | 12.5    | 11.3                      |
| 30-40 . . . . .   | 12.0  | 13.3    | 12.9                      |
| Over 60 . . . . . | 13.6  | 15.0    | 17.8                      |
| Total . . . . .   | 100.0 | 100.0   | 100.0                     |

The life-value of Prussian Jews compares with that of Christians as follows :—

## SURVIVAL OF 1000 PERSONS BORN

| Age          | Jews,<br>Prussia | Christians |         |
|--------------|------------------|------------|---------|
|              |                  | Prussia    | England |
| 5 . . . . .  | 593              | 639        | 751     |
| 10 . . . . . | 535              | 620        | 727     |
| 15 . . . . . | 514              | 610        | 714     |
| 20 . . . . . | 482              | 602        | 699     |
| 30 . . . . . | 432              | 562        | 650     |
| 40 . . . . . | 364              | 506        | 587     |
| 50 . . . . . | 305              | 438        | 506     |
| 60 . . . . . | 237              | 345        | 398     |
| 70 . . . . . | 153              | 206        | 253     |
| 80 . . . . . | 62               | 80         | 108     |

## JUTE

In 1828 India produced 18 tons of jute, valued at £62 sterling, say 70s. a ton; but it rapidly rose both in quality and price, the export from that country showing thus :—

| Year           | Tons    | Value, £   | Per Ton |
|----------------|---------|------------|---------|
| 1835 . . . . . | 600     | ...        | £ s. d. |
| 1850 . . . . . | 19,500  | 89,000     | 4 10 0  |
| 1860 . . . . . | 38,000  | 290,000    | 7 12 0  |
| 1870 . . . . . | 120,000 | 1,520,000  | 12 13 0 |
| 1880 . . . . . | 305,000 | 4,880,000  | 16 0 0  |
| 1890 . . . . . | 501,000 | 6,500,000* | 13 0 0  |

The cost of cultivation averages 16s. an acre, the yield half a ton per acre, worth £6.

There were in 1889 in India twenty-five factories, with 160,000 spindles, 8000 power-looms, and 61,000 operatives, consuming annually 190,000 tons of jute, and turning out 100 million sacks, of which California took 20 and China 15 millions.

Jute factories in the United Kingdom have increased as follows :—

|                       | 1870    | 1885    |
|-----------------------|---------|---------|
| Number . . . . .      | 63      | 120     |
| Spindles . . . . .    | 115,000 | 264,000 |
| Power-looms . . . . . | 4,300   | 12,000  |
| Operatives . . . . .  | 18,000  | 42,000  |

\* The nominal value was £8,600,000, taking the rupee at 24d.

The manufacture in the United Kingdom showed approximately thus :—

| Year | Con-<br>sumed,<br>Tons | Make,<br>Million<br>Yards | Export,<br>Million<br>Yards | Export<br>Yarn, Million<br>Lbs. | Manu-<br>factures,<br>Value, £ |
|------|------------------------|---------------------------|-----------------------------|---------------------------------|--------------------------------|
| 1850 | 19,000                 | 63                        | ...                         | ...                             | 900,000                        |
| 1860 | 38,000                 | 126                       | ...                         | ...                             | 1,900,000                      |
| 1870 | 98,000                 | 300                       | 52                          | 13                              | 4,700,000                      |
| 1880 | 178,000                | 560                       | 183                         | 17                              | 7,200,000                      |
| 1889 | 268,000                | 810                       | 265                         | 34                              | 9,100,000                      |

The output averages at present only £215 per operative yearly, against £260 in 1870, the price having fallen from 365d. to 216d. per 100 yards. The number of yards produced per operative is about 19,000 yards, or 11 miles yearly.

The jute manufacture since 1850 may be summed up approximately thus :—

| Period  | Great<br>Britain | Other<br>Coun-<br>tries | Total      | Value of<br>Manufac-<br>ture, Mil-<br>lions £ | Price of<br>Cloth, £<br>per<br>Mile |
|---------|------------------|-------------------------|------------|-----------------------------------------------|-------------------------------------|
| 1851-60 | 500,000          | 100,000                 | 600,000    | 17                                            | 29                                  |
| 1861-70 | 1,200,000        | 400,000                 | 1,600,000  | 43                                            | 27                                  |
| 1871-80 | 2,500,000        | 1,500,000               | 4,000,000  | 96                                            | 24                                  |
| 1881-88 | 2,700,000        | 3,200,000               | 5,900,000  | 118                                           | 20                                  |
| Total   | 6,900,000        | 5,200,000               | 12,100,000 | 274                                           | 23                                  |

The value of manufactured goods produced in thirty-eight years was shared approximately as follows :—

|                           | Million £ |
|---------------------------|-----------|
| Great Britain . . . . .   | 160       |
| India . . . . .           | 21        |
| Other countries . . . . . | 93        |
| Total . . . . .           | 274       |

The profit of this industry to Great Britain appears thus :—

| Period             | Millions £ Sterling |                   |                |
|--------------------|---------------------|-------------------|----------------|
|                    | Raw Jute            | Manu-<br>factured | Net<br>Product |
| 1851-60 . . . . .  | 2                   | 14                | 12             |
| 1861-70 . . . . .  | 7                   | 32                | 25             |
| 1871-80 . . . . .  | 20                  | 60                | 40             |
| 1881-88 . . . . .  | 24                  | 54                | 30             |
| 38 years . . . . . | 53                  | 160               | 107            |

This industry enriched the United Kingdom by over three millions sterling per annum in the last thirty years, of which apparently about £1,500,000 a year went in wages. The above, moreover, does not include exported yarn, the total value of which in thirty-eight years amounted to five millions sterling, thus bringing up the total net product to 112 millions sterling.

## K.

## KANGAROO

These animals will soon be extinct, as the squatters kill them wholesale. The export of kangaroo skins from Melbourne was as follows :—

| Year           | No.     | Value, £ |
|----------------|---------|----------|
| 1883 . . . . . | 20,000  | 1,500    |
| 1888 . . . . . | 260,000 | 54,000   |

Kangaroos can jump a fence 11 feet high.

## KOUMISS

Extracted by the Tartars from mares' milk, a gallon of milk giving three ounces of Koumiss brandy.

## KINGS

There are 22 kings or emperors. The number who have ruled in various countries since the battle of Hastings, A.D. 1066, has been as follows :—

| No.               | Average |       | No.               | Average |       |
|-------------------|---------|-------|-------------------|---------|-------|
|                   | Reign,  | Years |                   | Reign,  | Years |
| England . . . . . | 35      | 23    | Spain . . . . .   | 32      | 26    |
| France . . . . .  | 34      | 24    | Denmark . . . . . | 39      | 21    |
| Germany . . . . . | 39      | 21    | Sweden . . . . .  | 53      | 15    |
| Russia . . . . .  | 50      | 16    | Turkey . . . . .  | 35      | 17    |

The Turkish dynasty dates only from 1299. The average reign of the above 317 monarchs was just twenty years.

## L.

## LABOURER

Dr. Farr estimates the value of an agricultural labourer to the commonwealth as follows :—

| Age          | Value, £ | Age          | Value, £ | Age          | Value, £ |
|--------------|----------|--------------|----------|--------------|----------|
| 10 . . . . . | 117      | 30 . . . . . | 241      | 55 . . . . . | 138      |
| 15 . . . . . | 192      | 35 . . . . . | 228      | 60 . . . . . | 97       |
| 20 . . . . . | 234      | 40 . . . . . | 212      | 65 . . . . . | 46       |
| 25 . . . . . | 246      | 50 . . . . . | 168      | 70 . . . . . | 0        |

These figures of Dr. Farr have been often called in question as being too high, but the best authorities in the United States and Australia set even a higher value on able-bodied immigrants.

## LACE

This industry employs in Great Britain 9000 men and 41,000 women, who produce lace annually to the value of 6 millions sterling. It is stated that more than 500,000 women on the Continent make lace worth 30 millions yearly, or £60 each, but this seems a high average.

## LAKES

The following table is merely intended as a comparison of some of the most remarkable lakes in the world :—

|                           | Square Miles | Depth, Feet | Area Equal to   |
|---------------------------|--------------|-------------|-----------------|
| Superior . . . . .        | 32,100       | 688         | Ireland         |
| Victoria Nyanza . . . . . | 26,900       | ...         | ...             |
| Aral . . . . .            | 23,300       | 731*        | Holland         |
| Huron . . . . .           | 20,400       | 600         | Greece          |
| Baikal . . . . .          | 14,800       | 580         | Denmark         |
| Michigan . . . . .        | 12,900       | 600         | Belgium         |
| Erie . . . . .            | 9,600        | 84          | Sardinia Island |
| Ontario . . . . .         | 7,650        | 510         | ...             |
| Ladoga . . . . .          | 6,250        | ...         | Wurtemberg      |
| Onega . . . . .           | 3,350        | ...         | Corsica         |
| Wenner . . . . .          | 2,130        | 294*        | Devonshire      |
| Wetter . . . . .          | 733          | 410         | Oxfordshire     |
| Constance . . . . .       | 180          | 1,027*      | Isle of Man     |
| Neagh . . . . .           | 153          | 42          | Malta           |
| Maggiore . . . . .        | 130          | 700         | ...             |
| Zurich . . . . .          | 40           | 600         | St. Helena      |

\* Maximum depth ; the rest show the average depth.

## LAND

The following conspectus shows at a glance the distribution and tenure of land in various countries, the number of owners, the approximate value, the cultivated area, and other important features. The "data" do not correspond to any particular year, but represent the latest information :—

|                         | Area, Millions of Acres |              |       | Number of Owners | Average Acres per Estate | Value of Land, Million £ |
|-------------------------|-------------------------|--------------|-------|------------------|--------------------------|--------------------------|
|                         | Cultivated              | Uncultivated | Total |                  |                          |                          |
| U. Kingdom              | 48                      | 30           | 78    | 180,000          | 390                      | 1,544                    |
| France . . . . .        | 90                      | 41           | 131   | 3,226,000        | 32                       | 2,688                    |
| Germany . . . . .       | 65                      | 68           | 133   | 2,436,000        | 37                       | 1,815                    |
| Russia . . . . .        | 345                     | 899          | 1,244 | 11,336,000       | 31                       | 1,597                    |
| Austria . . . . .       | 73                      | 80           | 153   | 6,150,000        | 20                       | 1,371                    |
| Italy . . . . .         | 27                      | 44           | 71    | 1,265,000        | 36                       | 1,182                    |
| Spain . . . . .         | 22                      | 99           | 121   | 596,000          | 95                       | 984                      |
| Portugal . . . . .      | 5                       | 17           | 22    | 419,000          | 30                       | 132                      |
| Sweden . . . . .        | 12                      | 89           | 101   | 194,000          | 300                      | 240                      |
| Norway . . . . .        | 3                       | 74           | 77    | 75,000           | 200                      | 100                      |
| Denmark . . . . .       | 7                       | 2            | 9     | 71,000           | 115                      | 217                      |
| Holland . . . . .       | 5                       | 3            | 8     | 154,000          | 45                       | 314                      |
| Belgium . . . . .       | 5                       | 2            | 7     | 315,000          | 18                       | 377                      |
| Greece . . . . .        | 2                       | 9            | 11    | 163,000          | 30                       | 138                      |
| Europe . . . . .        | 709                     | 1,457        | 2,166 | 26,580,000       | 48                       | 12,609                   |
| United States . . . . . | 205                     | 2,086        | 2,291 | 4,005,000        | 134                      | 2,560                    |
| Canada . . . . .        | 16                      | 1,902        | 1,918 | 408,000          | 120                      | 282                      |
| Australia . . . . .     | 12                      | 1,846        | 1,858 | 168,000          | 380                      | 535                      |
| Argentina . . . . .     | 7                       | 770          | 777   | ...              | ...                      | 111                      |
| Total . . . . .         | 949                     | 8,061        | 9,010 | 31,161,000       | 70                       | 16,097                   |

Colbert in his letter to Louis XIV. estimated the value of land in France, England, and Holland in the seventeenth century (1660) as follows :—

|                   | Value        | Rental      | Per Acre |        |
|-------------------|--------------|-------------|----------|--------|
|                   |              |             | Value    | Rental |
| France . . . . .  | £122,000,000 | £15,000,000 | 2        | 3      |
| England . . . . . | £135,000,000 | £8,500,000  | 90       | 6      |
| Holland . . . . . | £46,000,000  | £4,000,000  | 180      | 15     |

## UNITED KINGDOM

The rental of the three kingdoms has been at various dates as follows :—

| A.D.           | England    | Scotland  | Ireland   | United Kingdom | Authority                |
|----------------|------------|-----------|-----------|----------------|--------------------------|
|                | £          | £         | £         | £              |                          |
| 1544 . . . . . | 1,500,000  | ...       | ...       | ...            | Haydn                    |
| 1600 . . . . . | 6,000,000  | ...       | ...       | ...            | "                        |
| 1660 . . . . . | 8,500,000  | ...       | ...       | ...            | Colbert                  |
| 1688 . . . . . | 10,000,000 | ...       | 900,000   | ...            | King, Petty              |
| 1729 . . . . . | ...        | ...       | 2,025,000 | ...            | Browne                   |
| 1750 . . . . . | 12,700,000 | 800,000   | 3,100,000 | 16,600,000     | ...                      |
| 1776 . . . . . | 16,000,000 | 1,100,000 | 5,340,000 | 22,440,000     | Young                    |
| 1800 . . . . . | 22,500,000 | 2,100,000 | 8,000,000 | 32,600,000     | { M'Culloch,<br>Newenham |
| 1815 . . . . . | 34,330,000 | 5,075,000 | 7,100,000 | 46,505,000     | M'Culloch                |
| 1843 . . . . . | 40,170,000 | 5,590,000 | 8,630,000 | 54,390,000     | Official                 |
| 1860 . . . . . | 42,990,000 | 6,280,000 | 8,990,000 | 58,260,000     | "                        |
| 1870 . . . . . | 47,800,000 | 7,190,000 | 9,140,000 | 64,130,000     | "                        |
| 1880 . . . . . | 51,800,000 | 7,770,000 | 9,930,000 | 69,550,000     | "                        |
| 1888 . . . . . | 44,470,000 | 6,820,000 | 9,560,000 | 61,250,000     | "                        |

Since 1880 the valuation of England has been reduced 14 per cent., that of Scotland 13 per cent., that of Ireland nothing. The Local Government Board estimated the real land rental of the three kingdoms in 1878 thus :—

|                          | Rental, £  | Extent, Acres | Number of Proprietors | Average Estate |           | Shillings per Acre |
|--------------------------|------------|---------------|-----------------------|----------------|-----------|--------------------|
|                          |            |               |                       | Acres          | Rental, £ |                    |
| England . . . . .        | 70,240,000 | 32,860,000    | 262,850               | 125            | 266       | 44                 |
| Scotland . . . . .       | 12,900,000 | 18,920,000    | 19,225                | 980            | 670       | 14                 |
| Ireland . . . . .        | 12,050,000 | 20,150,000    | 32,610                | 620            | 370       | 12                 |
| United Kingdom . . . . . | 95,190,000 | 71,930,000    | 314,685               | 230            | 310       | 26                 |

If we exclude owners of less than ten acres, we find the landed property of the three kingdoms, according to the Local Government Report, is held thus :—

|                      | 10 to 100 Acres | Over 100 | Total No. of Owners | Rental, £  | Average, £ |
|----------------------|-----------------|----------|---------------------|------------|------------|
| England . . . . .    | 99,000          | 42,100   | 141,100             | 63,800,000 | 450        |
| Scotland . . . . .   | 4,700           | 5,020    | 9,720               | 11,470,000 | 1,180      |
| Ireland . . . . .    | 11,900          | 14,500   | 26,400              | 11,550,000 | 450        |
| U. Kingdom . . . . . | 114,900         | 61,620   | 176,520             | 86,820,000 | 495        |

## ENGLAND

The estate-owners in England of more than one acre are as follows (Local Government Board Report) :—

| Holding Acres | Number of Owners | Acres Owned | Annual Rental, £ | Shillings per Acre | Percentage of Area |
|---------------|------------------|-------------|------------------|--------------------|--------------------|
| Under 50      | 194,620          | 2,230,000   | 12,950,000       | 116                | 7.0                |
| 50-100        | 25,840           | 1,790,000   | 4,300,000        | 48                 | 5.4                |
| 100-500       | 32,320           | 6,830,000   | 13,680,000       | 40                 | 20.8               |
| Over 500      | 10,070           | 22,010,000  | 39,310,000       | 36                 | 66.8               |
| Total         | 262,850          | 32,860,000  | 70,240,000       | 44                 | 100.0              |

## SCOTLAND

| Under 50 | 12,940 | 110,000    | 2,270,000  | 413 | 0.6   |
|----------|--------|------------|------------|-----|-------|
| 50-100   | 1,210  | 90,000     | 380,000    | 84  | 0.5   |
| 100-500  | 2,370  | 560,000    | 1,680,000  | 60  | 2.9   |
| Over 500 | 2,705  | 18,160,000 | 8,570,000  | 9   | 96.0  |
| Total    | 19,225 | 18,920,000 | 12,900,000 | 14  | 100.0 |

## IRELAND

| Holding  | Owners | Acres      | Rental, £ s. p. | Per Cent. |
|----------|--------|------------|-----------------|-----------|
| Under 50 | 14,600 | 224,000    | 980,000         | 88        |
| 50-100   | 3,500  | 250,000    | 310,000         | 25        |
| 100-500  | 8,010  | 1,956,000  | 1,770,000       | 18        |
| Over 500 | 6,500  | 17,720,000 | 8,990,000       | 10        |
| Total    | 32,610 | 20,150,000 | 12,050,000      | 12        |

## UNITED KINGDOM

| Under 50 | 222,160 | 2,564,000  | 16,200,000 | 122 | 3.6   |
|----------|---------|------------|------------|-----|-------|
| 50-100   | 30,550  | 2,130,000  | 4,990,000  | 47  | 3.0   |
| 100-500  | 42,700  | 9,346,000  | 17,130,000 | 38  | 13.1  |
| Over 500 | 19,275  | 57,890,000 | 56,870,000 | 20  | 80.3  |
| Total    | 314,685 | 71,930,000 | 95,190,000 | 26  | 100.0 |

The number of farmers in the United Kingdom was :—

| Holding Acres | England | Scotland | Ireland | United Kingdom | Percentage |
|---------------|---------|----------|---------|----------------|------------|
| Under 5       | 114,000 | 21,000   | 62,000  | 197,000        | 18.7       |
| 5-50          | 200,000 | 33,000   | 365,000 | 598,000        | 57.2       |
| 50-100        | 55,000  | 10,000   | 56,000  | 121,000        | 11.5       |
| 100-500       | 79,000  | 15,000   | 31,000  | 125,000        | 11.9       |
| Over 500      | 5,000   | 1,000    | 1,000   | 7,000          | 0.7        |
| Total         | 453,000 | 80,000   | 515,000 | 1,048,000      | 100.0      |

| Acres    | Area of Farms, Acres |           |            | Percentage |
|----------|----------------------|-----------|------------|------------|
| Under 50 | 4,100,000            | 700,000   | 7,800,000  | 26.5       |
| 50-100   | 3,900,000            | 700,000   | 4,400,000  | 18.8       |
| Over 100 | 19,600,000           | 3,400,000 | 3,100,000  | 54.7       |
| Total    | 27,600,000           | 4,800,000 | 15,300,000 | 47,700,000 |

The above refers only to the cultivated area. In all these tables properties or holdings of less than an acre are excluded.

In some parts of England rent has quadrupled in 120 years. For example, the farm of One Ash Grange, on the Duke of Devonshire's property, Derbyshire, has been let as follows:—

|         |      |         |      |
|---------|------|---------|------|
| 1769 at | £190 | 1855 at | £610 |
| 1788 „  | 242  | 1876 „  | 700  |
| 1810 „  | 440  | 1888 „  | 900  |

The average rental valuation of land in the three kingdoms was as follows:—

| A.D. | Shillings per Acre |          |         |                | Cultivated Area, Acres |
|------|--------------------|----------|---------|----------------|------------------------|
|      | England            | Scotland | Ireland | United Kingdom |                        |
| 1760 | 11                 | 6        | 5       | 10             | 37,100,000             |
| 1776 | 14                 | 8        | 9       | 11             | 38,600,000             |
| 1800 | 18                 | 12       | 13      | 16             | 40,320,000             |
| 1815 | 28                 | 25       | 15      | 24             | 42,500,000             |
| 1843 | 32                 | 28       | 12      | 24             | 43,800,000             |
| 1860 | 34                 | 30       | 12      | 25             | 44,000,000             |
| 1870 | 35                 | 33       | 13      | 28             | 46,000,000             |
| 1880 | 36                 | 34       | 14      | 28             | 47,600,000             |
| 1888 | 32                 | 29       | 14      | 26             | 47,880,000             |

The official rental valuation in England in 1810 for various counties was:—

|            |    | Shillings per Acre |    |
|------------|----|--------------------|----|
| Leicester  | 28 | Lincoln            | 18 |
| Somerset   | 27 | Surrey             | 17 |
| Worcester  | 24 | Devonshire         | 16 |
| Warwick    | 23 | Cornwall           | 15 |
| Lancashire | 22 | Monmouth           | 14 |
| Stafford   | 21 | Durham             | 9  |
| Kent       | 20 | Cardigan           | 6  |
| Bedford    | 19 |                    |    |

In 120 years more than 10 million acres of waste land in the United Kingdom have been enclosed, viz:—

| Period    | Acres      |           |
|-----------|------------|-----------|
|           | Quantity   | Per Annum |
| 1760-1800 | 3,221,000  | 81,000    |
| 1801-1829 | 3,380,000  | 116,000   |
| 1830-1869 | 2,217,000  | 55,000    |
| 1870-1879 | 1,687,000  | 169,000   |
| Total     | 10,505,000 | 88,000    |

It is doubtful whether the reclaimed lands are now worth what they have cost.

#### IRELAND

According to a report quoted by Mr. Molinari in 1880 the stated property of Ireland was held thus:—

| Proprietors        | Number | Acres Owned | Assessed Rental | Percentage of Area |
|--------------------|--------|-------------|-----------------|--------------------|
| Resident on estate | 3,966  | 9,733,000   | 5,090,000       | 52.4               |
| Resident in Dublin | 4,465  | 4,362,000   | 2,130,000       | 23.2               |
| Absentees          | 1,623  | 4,514,000   | 2,140,000       | 24.4               |
| Total              | 10,054 | 18,609,000  | 9,360,000       | 100.0              |

The above seems to exclude all estate-owners of less than 100 acres, the number of whom (as already shown) is 18,000. See preceding page.

As regards tenants, the number has been as follows:—

| Holding Acres | 1841    | 1851    | 1861    | 1871    | 1878    |
|---------------|---------|---------|---------|---------|---------|
| 1-5           | 310,000 | 88,000  | 86,000  | 75,000  | 66,000  |
| 5-15          | 253,000 | 192,000 | 184,000 | 171,000 | 163,000 |
| Over 15       | 128,000 | 290,000 | 299,000 | 298,000 | 298,000 |
| Total         | 691,000 | 570,000 | 569,000 | 544,000 | 527,000 |

The amount of rental drawn by absentee landlords has been:—

| Date | Rental of Ireland | Drawn by Absentees | Absentee Ratio | Authority     |
|------|-------------------|--------------------|----------------|---------------|
| 1729 | £2,025,000        | £627,000           | Per Cent. 31   | Browne, Prior |
| 1776 | 5,340,000         | 1,610,000          | 30             | Young         |
| 1880 | 9,360,000         | 2,140,000          | 23             | Molinari      |

The progressive rise of rent in Ireland is shown in Dr. Todd's evidence (July 1890) at the House of Commons respecting a certain estate in that country:—

| Year | Per Annum, £ |
|------|--------------|
| 1609 | 1,800        |
| 1635 | 2,200        |
| 1697 | 9,150        |
| 1758 | 20,000       |
| 1858 | 131,000      |
| 1882 | 160,000      |

The landed property of Ireland changed masters three times in 100 years,—first confiscation under Elizabeth, A.D. 1590-1600; second under Cromwell, 1650-52; third under William III., 1690-92. The following recent changes of tenure are remarkable:—

I. Encumbered Estates Court (established 1850).—Sold in thirty years down to 1880, estates covering 4,930,000 acres for £52,700,000, say £11 per acre, in 12,400 lots, averaging 400 acres each. The purchase-money represented 85 per cent. by Irish, 15 per cent. Scotch or English buyers.

II. Bright's Act.—From 1870 to 1880 the tenants bought 49,000 acres for £860,000, of which the Government advanced 60 per cent. (£516,000). Average price paid, £17 per acre.

III. Church Act.—From 1870 to 1885 about 6000 tenants bought their farms, covering — acres, for £1,674,000, the Government advancing £1,200,000, say 75 per cent. Price paid was 22½ years' rental. Of the sums advanced by Government, only £6000 was due by the purchasers in 1888 (Official Report, November 1888).

IV. Gladstone's Act, August 1881.—In seven years ending August 1888 the Land Court altered the rents of 243,490 farms, viz:—

|          |            |
|----------|------------|
| Old rent | £3,852,000 |
| New rent | 3,094,000  |

This was a reduction of 20 per cent. There were also 61,300 cases pending inquiry.

V. The Ashbourne Act, passed in 1885, regarding which an official report in 1890 was as follows:—

| Year    | Farms Bought | Price, £  | Sum Lent, £ | Years of Rental | Net Rental, £ |
|---------|--------------|-----------|-------------|-----------------|---------------|
| 1886    | 2,426        | 1,095,000 | 1,065,000   | 18.0            | 61,000        |
| 1887    | 4,636        | 1,925,000 | 1,903,000   | 17.6            | 110,000       |
| 1888    | 4,384        | 1,776,000 | 1,750,000   | 17.0            | 104,000       |
| 1889    | 2,574        | 1,170,000 | 1,155,000   | 16.4            | 71,000        |
| 4 years | 14,020       | 5,966,000 | 5,873,000   | 17.3            | 346,000       |

In four years the tenants were enabled to purchase nearly 3 per cent. of Ireland as measured by rental; thus

in 132 years the Ashbourne Act would settle the agrarian question.

## FRANCE

The official valuation of lands (which appears high) gave the following summary in 1881 :—

| Quality            | Acres       | Value per Acre, £ | Value, Millions £ |
|--------------------|-------------|-------------------|-------------------|
| Orchards . . . .   | 1,783,000   | 81                | 144               |
| Vineyards . . . .  | 5,445,000   | 44                | 239               |
| Meadows . . . .    | 6,170,000   | 55                | 340               |
| Arable . . . .     | 41,319,000  | 36                | 1,488             |
| Pasture, &c. . . . | 23,010,000  | 18                | 414               |
| Forest . . . .     | 21,288,000  | 12                | 256               |
| Waste . . . .      | 17,516,000  | 6                 | 105               |
| Total . . . .      | 116,531,000 | 26                | 2,986             |

The rise in the value of land from 1852 to 1881 appears in the official valuation thus :—

|                   | £ per Acre |      |
|-------------------|------------|------|
|                   | 1852       | 1881 |
| Arable . . . .    | 24         | 36   |
| Meadow . . . .    | 36         | 55   |
| Vineyards . . . . | 32         | 44   |

According to the Government inquiry of 1815, France comprised 1,851,000 farms (exclusive of 1,952,000 under five acres), classified as follows :—

| Average       | Number    | Area, Acres | Ratio of Area | Ratio of Holdings |
|---------------|-----------|-------------|---------------|-------------------|
| 10 . . . .    | 930,000   | 8,750,000   | 8.1           | 50.2              |
| 20 . . . .    | 259,000   | 5,900,000   | 5.5           | 14.1              |
| 30 . . . .    | 259,000   | 7,450,000   | 7.0           | 13.9              |
| 55 . . . .    | 218,000   | 11,920,000  | 11.1          | 11.7              |
| 150 . . . .   | 169,000   | 26,040,000  | 24.2          | 9.1               |
| 2200 . . . .  | 21,400    | 47,500,000  | 44.1          | 1.1               |
| Total . . . . | 1,854,400 | 107,560,000 | 100.0         | 100.0             |

The number of Côtes Foncières and the probable number of owners above five acres was :—

| Year         | Côtes      | Landowners |
|--------------|------------|------------|
| 1826 . . . . | 10,300,000 | 1,300,000  |
| 1835 . . . . | 10,900,000 | 1,400,000  |
| 1851 . . . . | 12,400,000 | 1,500,000  |
| 1861 . . . . | 13,700,000 | 1,700,000  |
| 1871 . . . . | 13,800,000 | 1,700,000  |
| 1885 . . . . | 14,075,000 | 1,825,000  |

The returns for 1885 showed the owners of less than five acres to be 10,426,000 in number. Of the remainder, it is believed by French economists that the number of côtes is double that of actual owners, by reason of

repetition, one person holding two or three properties. The real number of landowners, therefore, in 1885 was as follows :—

| Acres            | Côtes     | Land Owners | Acres       | Acres per Owner |
|------------------|-----------|-------------|-------------|-----------------|
| 5-15 . . . .     | 2,174,000 | 1,087,000   | 18,860,000  | 17              |
| 15-125 . . . .   | 1,352,000 | 676,000     | 48,040,000  | 72              |
| 125-500 . . . .  | 106,000   | 53,000      | 23,890,000  | 450             |
| Over 500 . . . . | 18,000    | 9,000       | 20,050,000  | 2,200           |
| Total . . . .    | 3,650,000 | 1,825,000   | 110,840,000 | 60              |

The number of Côtes Foncières over 12 acres in 1862 was 1,411,000 by the Government returns, whereas the number over 15 acres in 1885 was 1,476,000, which shows a marked increase.

The tenure of land in 1862 and in 1873 was as follows :—

|                   | Number    |           | Acres Held in 1873 | Ratio of Area in 1873 | Ratio of Cultivation in 1873 |
|-------------------|-----------|-----------|--------------------|-----------------------|------------------------------|
|                   | 1862      | 1873      |                    |                       |                              |
| Owners . . . .    | 1,813,000 | 2,826,000 | 42,530,000         | 50.1                  | 71.0                         |
| Tenants . . . .   | 1,035,000 | 832,000   | 29,900,000         | 35.2                  | 21.0                         |
| Metayers* . . . . | 405,000   | 319,000   | 11,920,000         | 14.7                  | 8.0                          |
| Total . . . .     | 3,253,000 | 3,977,000 | 84,350,000         | 100.0                 | 100.0                        |

The farms cultivated by owners averaged 15 acres in extent, those of tenants and metayers 35 acres. In 1882 the area cultivated by metayer had declined, viz. :—

|                           | Acres      |
|---------------------------|------------|
| Tilled by owner . . . .   | 50,500,000 |
| Tilled by tenant . . . .  | 22,800,000 |
| Tilled by metayer . . . . | 11,100,000 |
| Total . . . .             | 84,400,000 |

In eight years ending 1887 there were 39,300,000 acres sold in France, in lots averaging  $4\frac{1}{2}$  acres, that is, nearly five million acres yearly.

## GERMANY

The German Empire comprises 5,276,000 farms, viz. :—

|                                  |           |
|----------------------------------|-----------|
| Cultivated by owner . . . .      | 2,953,000 |
| Cultivated by tenants . . . .    | 829,000   |
| Farms of mixed character . . . . | 1,494,000 |
| Total . . . .                    | 5,276,000 |

It appears, therefore, that about 85 per cent. of the farms are cultivated wholly or in part by their owners, as compared with 71 per cent. in France.

\* System by which landlord receives share of the crops instead of a fixed rent.

If we exclude all farms under 2½ acres, we find the total in Germany reduced to 2,953,000, held as follows :—

| Size, Acres      | Number of Farms Held |           |           | Area, Acres |                  |            | Ratio of Area |
|------------------|----------------------|-----------|-----------|-------------|------------------|------------|---------------|
|                  | By Owner             | By Tenant | Total     | Cultivated  | Wood and Pasture | Total      |               |
| 2½-12 . . . .    | 1,613,000            | 107,000   | 1,720,000 | 10,600,000  | 2,100,000        | 12,700,000 | 12.9          |
| 12-50 . . . .    | 911,000              | 16,000    | 927,000   | 22,900,000  | 5,800,000        | 28,700,000 | 29.3          |
| 50-125 . . . .   | 234,000              | 6,000     | 240,000   | 17,900,000  | 4,800,000        | 22,700,000 | 23.2          |
| Over 125 . . . . | 58,000               | 8,000     | 66,000    | 26,300,000  | 7,800,000        | 34,100,000 | 34.6          |
| Total . . . .    | 2,816,000            | 137,000   | 2,953,000 | 77,700,000  | 20,500,000       | 98,200,000 | 100.0         |

The number of land-owners is of course less than that of farms, the returns for 1869 showing as follows :—

|                  | Owners    | Extent, Acres | Average, Acres |
|------------------|-----------|---------------|----------------|
| Prussia . . . .  | 1,033,000 | 49,000,000    | 48             |
| Bavaria . . . .  | 456,000   | 11,000,000    | 25             |
| Saxony . . . .   | 54,000    | 2,500,000     | 46             |
| Wurtemberg . .   | 152,000   | 2,500,000     | 17             |
| Baden . . . .    | 111,000   | 1,700,000     | 15             |
| Darmstadt . . .  | 140,000   | 1,400,000     | 10             |
| Small States . . | 490,000   | 19,500,000    | 40             |
| Total . . . .    | 2,436,000 | 87,600,000    | 36             |

#### PRUSSIA

The total area of Prussia is 86 million acres, but this includes 23 millions of mountain and forest. The tenure in 1869 was as follows :—

| Held by          | Number of Estates | Acres      | Average, Acres |
|------------------|-------------------|------------|----------------|
| Crown . . . .    | ...               | 11,200,000 | ...            |
| Nobles . . . .   | 22,470            | 21,200,000 | 950            |
| Farmers . . . .  | 1,503,000         | 44,800,000 | 30             |
| Cottiers . . . . | 1,087,000         | 3,100,000  | 3              |
| Total . . . .    | 2,612,470         | 80,300,000 | 26             |

In 1859 the nobles held 37,900,000 acres, but in the ensuing ten years their possessions were reduced by 16,700,000 acres, broken up into farms for the peasantry.

The farmers alluded to in the above table, excluding princes and cottiers, held their land thus :—

| Estate of, Acres | Number    | Acres      | Average |
|------------------|-----------|------------|---------|
| 5-20 . . . .     | 1,100,000 | 11,000,000 | 10      |
| 20-200 . . . .   | 390,000   | 28,000,000 | 72      |
| Over 200 . . . . | 13,000    | 6,000,000  | 460     |
| Total . . . .    | 1,503,000 | 45,000,000 | 30      |

The owners, as already shown, numbering 1,033,000, it appears that for two owners there are three estates.

In Saxony the Crown owns 1,077,000 acres, and the rest is held thus :—

| By               | Number | Acres     | Average |
|------------------|--------|-----------|---------|
| Nobles . . . .   | 440    | 490,000   | 1,100   |
| Farmers . . . .  | 53,000 | 1,440,000 | 27      |
| Cottiers . . . . | 33,000 | 160,000   | 5       |
| Total . . . .    | 86,440 | 2,090,000 | 24      |

In Bavaria the Crown owns 3,430,000 acres, and the rest is held thus :—

| By               | Number  | Acres      | Average |
|------------------|---------|------------|---------|
| Nobles . . . .   | 1,100   | 400,000    | 370     |
| Farmers . . . .  | 226,000 | 11,700,000 | 50      |
| Cottiers . . . . | 290,000 | 1,500,000  | 5       |
| Total . . . .    | 517,100 | 13,600,000 | 26      |

In Wurtemberg the Crown owns 1,100,000 acres, and the rest is held as follows :—

| By               | Number  | Acres     | Average |
|------------------|---------|-----------|---------|
| Nobles . . . .   | 718     | 650,000   | 840     |
| Farmers . . . .  | 85,000  | 1,900,000 | 22      |
| Cottiers . . . . | 246,000 | 750,000   | 3       |
| Total . . . .    | 331,718 | 3,300,000 | 10      |

The Stein law transferred nearly the half of Germany from the nobles to the peasantry. The nobles received Consols equal to eighteen years' rental of the lands taken from them. The peasants were compelled to pay a land-tax equal to 5 per cent. during forty-seven years, the land to be free to them after that period.

#### RUSSIA

Down to 1860 the land was almost equally held by the Crown and the nobles, the former possessing 26,200,000 serfs, the latter 21,800,000, by whom the soil was cultivated. Crown-serfs were in reality tenants, who paid 6d. an acre yearly rent, the farm of each family averaging 35 acres. They were emancipated in 1861, receiving their lands in fee on condition of paying 12s. a year for each male serf (three usually going to a family) during forty years. The other serfs were also tenants, although bought and sold like cattle, each family holding a farm of about 30 acres, subject to a rent of £6, or else the obligation to work two days each week for their masters. Lavish expenditure had so much encumbered the estates of nobles that in 1859 they had mortgaged 7,107,000 serfs and 102 million acres of land for sums in the aggregate reaching 60 millions sterling.

Between 1861 and 1870 the Government bought up from the nobles 40,954 estates, covering 35,000,000 acres, at an average cost of 35s. an acre, the Crown paying five-sixths, the serfs one-sixth of the amount, which was £61,100,000. The assessment, however, was made according to the number of serfs, the owners receiving £3 per head for 20,700,000; but the option was left to the serfs of receiving "beggar lots" of 10 acres free, in which case the noble received no indemnity. About 610,000 families preferred these lots, which they received free of conditions, the lands thus ceded to them covering 6,440,000 acres. The rest received farms of about 30 acres each, subject to a Crown-rent of 2s. an acre for forty-nine years.

In 1870 the arable land was held as follows :—

| Owners                      | Acres       |
|-----------------------------|-------------|
| Nobles . . . .              | 83,500,000  |
| Peasants . . . .            | 88,700,000  |
| Crown, merchants, &c. . . . | 133,000,000 |
| Total . . . .               | 305,000,000 |

Strebinsky's report in 1879 showed that 19,700,000 male serfs (6,600,000 families) possessed 68 million desiatines or 186 million acres, that is, an average of 27 acres per family. He made a catastral survey of eight provinces, viz., Koursk, Tula, Voroneja, Tambow, Penza, Oral, Riazan, and Kalonga, with an acreage of 142,600 square miles, say 91 million acres, and a population of 13 millions.

The tenure of the eight provinces was as follows :—

|                                    | Acres      | Value, £    | Average Farm, Acres |
|------------------------------------|------------|-------------|---------------------|
| 1,770,000 peasant families . . . . | 49,740,000 | 158,300,000 | 28                  |
| 24,740 nobles . . . .              | 25,100,000 | 59,200,000  | 1,020               |
| 10,870 citizens, &c. . . .         | 4,070,000  | 8,900,000   | 370                 |
| Crown-lands, &c. . . .             | 12,090,000 | ...         | ...                 |
| Total . . . .                      | 91,000,000 | 226,400,000 | 430                 |

The aggregate value of 78 million acres was 226½ millions sterling, a fraction under £3 per acre; the average was 45s. for lands held by citizens, 48s. for that of nobles, and 64s. an acre for what is held by peasants.

The proportions of land under crops in the estates of nobles and peasants were (1879) :—

| Owners                | Acres       |                    |            | Percentage under Crops |
|-----------------------|-------------|--------------------|------------|------------------------|
|                       | Under Crops | Pasture and Forest | Total      |                        |
| Peasants . . .        | 38,400,000  | 11,040,000         | 49,440,000 | 77                     |
| Nobles and citizens } | 21,200,000  | 7,970,000          | 29,170,000 | 73                     |
| Total . . .           | 59,600,000  | 19,010,000         | 78,610,000 | 75                     |

In the said eight provinces no less than 96 per cent. of the land held by peasants was in communes or villages. There were 26,456 villages, with 1,893,000 houses and 1,713,000 families, averaging 72 houses per village, with 447 inhabitants, the aggregate population being 11,840,000, of which 5,830,000 were males; the communal lands being

valued at 154 millions sterling, and covering an area of 47,800,000 acres, and the houses valued at £18,000,000, say £11 each. There were also 57,000 peasant proprietors, holding in their own right an aggregate area of 1,930,000 acres, an average of 35 acres each, valued at £4,300,000. Strebinsky also found that agriculture prevailed most where the population per square mile was highest, viz. :—

| Section      | Area, Square Miles | Population per Square Mile | Area under Crops, Acres | Cultivated Ratio |
|--------------|--------------------|----------------------------|-------------------------|------------------|
| First . . .  | 54,000             | 112                        | 27,600,000              | 80               |
| Second . . . | 65,000             | 81                         | 26,900,000              | 65               |
| Third . . .  | 23,000             | 63                         | 5,100,000               | 35               |
| Total . . .  | 142,000            | 90                         | 59,600,000              | 67               |

In 1878, according to Strebinsky, the tenure of all descriptions of land was as follows :—

|                     | Millions of Acres |                   |        |       | Ratio  |                   |        |       |
|---------------------|-------------------|-------------------|--------|-------|--------|-------------------|--------|-------|
|                     | Arable            | Pasture and Waste | Forest | Total | Arable | Pasture and Waste | Forest | Total |
| Crown . . . . .     | 5                 | 94                | 180    | 279   | 1.5    | 21.8              | 37.1   | 22.4  |
| Peasants . . . . .  | 115               | 50                | 21     | 186   | 35.2   | 11.6              | 4.3    | 15.0  |
| Nobles, &c. . . . . | 206               | 289               | 284    | 779   | 63.3   | 66.6              | 58.6   | 62.6  |
| Total . . . . .     | 326               | 433               | 485    | 1,244 | 100.0  | 100.0             | 100.0  | 100.0 |

The character of the land in possession of the three classes appears in the following table :—

|                      | Crown | Peasants | Nobles, &c. | Total |
|----------------------|-------|----------|-------------|-------|
| Arable . . . . .     | 1.7   | 61.5     | 26.4        | 26.3  |
| Pasture, &c. . . . . | 33.6  | 36.8     | 37.1        | 35.0  |
| Forest . . . . .     | 64.7  | 11.7     | 36.5        | 38.7  |
| Total . . . . .      | 100.0 | 100.0    | 100.0       | 100.0 |

Of the area comprised under the item "pasture and waste" 201 million acres are considered worthless.

#### AUSTRIA

Down to 1849 the tenure of land was similar to that in Russia, the nobles of Bohemia and Hungary holding vast estates, with sometimes as many as 10,000 serfs. Each serf had to work two days a week for his master, besides giving him 11 per cent. of all products in lieu of rent. In 1819 the number of serfs was 7,000,000, of whom 1,427,000 were male adults. In 1832 the Bohemian nobles resident at Vienna possessed lands valued at 45 millions sterling.

The largest estates in Austria proper are the following :—

| Of                             | Acres   |
|--------------------------------|---------|
| Prince Schwarzenburg . . . . . | 510,000 |
| Prince Lichtenstein . . . . .  | 460,000 |
| Archduke Albert . . . . .      | 305,000 |

There are in Bohemia 63 nobles holding estates, none of which is less than 12,000 acres. The Grand-Duchy of Austria counts 292 nobles and squires holding between them 2,900,000 acres. The proportions of land still held by this class in 1888 were :—

| In                         | Acres     | Of which under Forest |
|----------------------------|-----------|-----------------------|
| Bohemia . . . . .          | 4,300,000 | 2,800,000             |
| Duchy of Austria . . . . . | 1,600,000 | 1,100,000             |
| Styria . . . . .           | 1,100,000 | 900,000               |
| Galitzia . . . . .         | 7,500,000 | 4,200,000             |
| Tyrol . . . . .            | 700,000   | 600,000               |
| Moravia . . . . .          | 2,100,000 | 1,200,000             |
| Other provinces . . . . .  | 3,300,000 | 2,500,000             |

The emancipation law of 1849 changed the ownership of one-half the Empire. According to an official return in 1869, the peasant properties in Austria proper covered 25 million acres, in farms averaging 17 acres, viz. :—

| Province               | Peasant Properties | Area of Same, Acres | Average Estate, Acres | Total Area of Province, Acres | Ratio held by Peasants, per Cent. |
|------------------------|--------------------|---------------------|-----------------------|-------------------------------|-----------------------------------|
| Gd.-Duchy of Austria } | 189,000            | 3,020,000           | 16                    | 7,700,000                     | 40                                |
| Styria . . . . .       | 134,000            | 1,240,000           | 9                     | 5,600,000                     | 22                                |
| Bohemia . . . . .      | 199,000            | 5,470,000           | 27                    | 12,800,000                    | 43                                |
| Galitzia . . . . .     | 496,000            | 8,440,000           | 17                    | 19,200,000                    | 44                                |
| Tyrol . . . . .        | 113,000            | 890,000             | 8                     | 7,000,000                     | 12                                |
| Moravia . . . . .      | 98,000             | 2,720,000           | 28                    | 5,500,000                     | 49                                |
| Dalmatia . . . . .     | 47,000             | 1,450,000           | 31                    | 5,000,000                     | 29                                |
| Other provinces }      | 231,000            | 1,950,000           | 8                     | 13,200,000                    | 15                                |
| Total . . . . .        | 1,507,000          | 25,180,000          | 17                    | 76,000,000                    | 33                                |

The tenure of Hungary and Transylvania in 1880 was as follows :—

| Holding Acres       | Number of Owners |              |
|---------------------|------------------|--------------|
|                     | Hungary          | Transylvania |
| 7 to 42 . . . . .   | 1,815,700        | 532,900      |
| 42 to 280 . . . . . | 91,100           | 27,900       |
| Over 280 . . . . .  | 16,030           | 2,650        |
| Total . . . . .     | 1,922,830        | 563,450      |

The whole Empire counts 6,150,000 landowners, viz. :—

| Class              | Number    | Land-Tax   |
|--------------------|-----------|------------|
| Peasants . . . . . | 4,673,000 | Under £4   |
| Farmers . . . . .  | 1,259,000 | £4 to £20  |
| Gentry . . . . .   | 162,200   | £20 to £40 |
| Nobles . . . . .   | 56,500    | Over £40   |

## ITALY

The tenure of land in the whole kingdom is as follows (1870) :—

| Province               | Number of Farms held by |         |           |           | Average Size of Farms, Acres |
|------------------------|-------------------------|---------|-----------|-----------|------------------------------|
|                        | Proprietors             | Tenants | Metayer   | Total     |                              |
| Piedmont . .           | 608,000                 | 25,000  | 81,000    | 714,000   | 14                           |
| Lombardy . .           | 160,000                 | 53,000  | 236,000   | 449,000   | 11                           |
| Parma and Modena } . . | 69,000                  | 17,000  | 102,000   | 188,000   | 15                           |
| Tuscany . .            | 56,000                  | 10,000  | 227,000   | 293,000   | 17                           |
| Papal States . .       | 80,000                  | 3,000   | 573,000   | 656,000   | 8                            |
| Naples . .             | 224,000                 | 194,000 | 24,000    | 442,000   | 42                           |
| Sicily . .             | 52,000                  | 8,000   | 5,000     | 65,000    | 90                           |
| Island of Sardinia . . | 16,000                  | ...     | ...       | 16,000    | 360                          |
| Total . .              | 1,265,000               | 310,000 | 1,248,000 | 2,823,000 | 25                           |

The total is made up thus :—

| Class           | Number    | Farms, Acres | Average, Acres |
|-----------------|-----------|--------------|----------------|
| Proprietors . . | 1,265,000 | 33,000,000   | 26             |
| Metayers . .    | 1,248,000 | 18,000,000   | 15             |
| Tenants . .     | 310,000   | 20,000,000   | 66             |
| Total . .       | 2,823,000 | 71,000,000   | 25             |

The various quality and value of the land in different parts of Italy are shown in the following official table of 1882 :—

| Province         | Area, Acres | Rental Value, Shillings per Acre | Price per Acre, £ | Value, Millions £ |
|------------------|-------------|----------------------------------|-------------------|-------------------|
| Sardinia . .     | 9,840,000   | 15                               | 26.1              | 260               |
| Lombardy . .     | 4,800,000   | 22                               | 37.4              | 180               |
| Parma . .        | 1,280,000   | 13                               | 22.1              | 28                |
| Modena . .       | 1,580,000   | 15                               | 25.2              | 39                |
| Papal States . . | 10,840,000  | 7                                | 11.0              | 117               |
| Tuscany . .      | 5,020,000   | 10                               | 18.3              | 92                |
| Naples . .       | 18,740,000  | 11                               | 19.0              | 356               |
| Sicily . .       | 6,170,000   | 11                               | 18.8              | 116               |
| Total . .        | 58,270,000  | 13                               | 22.1              | 1,188             |

## SWITZERLAND

The land rental in 1880 was 191 million francs, or £7,600,000 sterling per annum. This would indicate a selling value of 228 millions sterling, or nearly double my estimate at page 37, which was evidently too low.

## SPAIN

The report of the Cortes in 1808 was as follows :—

| <i>Estates of</i>                  | <i>Acres</i> |
|------------------------------------|--------------|
| Crown, churches, and hospitals . . | 10,000,000   |
| Nobles and grandes . . . . .       | 30,500,000   |
| Citizens and peasants . . . . .    | 19,500,000   |
| Mountain and waste . . . . .       | 60,900,000   |

Total . . . 120,900,000

The *Registro Catastral* for 1877 gives the total number of landowners (exclusive of urban house-owners) as 596,000, whose estates covered 65 million acres, averaging 110 acres each. There were but 3900 whose rent-roll reached £400 a year.

## PORTUGAL

The kingdom comprises 559,000 farms by official report, viz. :—

| Class           | Number  | Area, Acres | Average Farm, Acres |
|-----------------|---------|-------------|---------------------|
| Nobles . .      | 62,000  | 12,450,000  | 200                 |
| Proprietors . . | 357,000 | 5,950,000   | 17                  |
| Tenants . .     | 140,000 | 2,800,000   | 20                  |
| Total . .       | 559,000 | 21,200,000  | 38                  |

## SWEDEN

In 1810 the kingdom was held by 1200 noblemen, who owned 65,300 farms let to tenants; each farm covered a quarter of a "mantal," or 400 acres. Between 1818 and 1840 the peasants bought from the nobles 16 million acres, at an average price of 1s. 5d. per acre. In 1876 the tenure was as follows :—

|             | Number  | Millions of Acres |                |       | Average<br>Farm,<br>Acres |
|-------------|---------|-------------------|----------------|-------|---------------------------|
|             |         | Culti-<br>vated   | Forest,<br>&c. | Total |                           |
| Landowners  | 194,000 | 10                | 60             | 70    | 360                       |
| Tenants . . | 40,000  | 2                 | 14             | 16    | 400                       |
| Crown . .   | ...     | ...               | 9              | 9     | ...                       |
| Total .     | 234,000 | 12                | 83             | 95    | 370                       |

Each farm averages 18 acres under crops, 32 meadow, and the remainder forest or waste. The uncultivated portion of the kingdom, as shown above, covers 83 million acres, of which (according to Government Report of 1885) the forests comprise 45 million acres, the remaining 38 millions being mountain waste. The landowners comprise two classes, viz. :—

| Class           | No.     | Area, Acres | Average Area |
|-----------------|---------|-------------|--------------|
| Nobles . . . .  | 2,650   | 38,000,000  | 14,000       |
| Freeholders . . | 191,000 | 48,000,000  | 250          |

The latter class includes 10,000 forest-owners, devoted to felling timber.

## NORWAY

The number of farms in 1870 was 110,000, of which 75,000 were cultivated by their owners, 35,000 by tenants. An ordinary farm of 300 acres may be rented at £50 a year, or purchased for £1000 sterling, comprising about 30 acres cultivated, 180 of forest, and 90 acres pasture.

## DENMARK

In 1801 the kingdom belonged to 614 nobles, who possessed until 1788 the right to buy and sell the tenantry the same as cattle. In 1840 the tenants had bought from the landlords 3,500,000 acres, that is, half the kingdom, at prices averaging £6 per acre, representing a gross value of 21 millions sterling.

The tenure of land in 1870 was as follows :—

|                 | Number  | Acres     | Average Farm, Acres |
|-----------------|---------|-----------|---------------------|
| Nobles . .      | 550     | 1,380,000 | 2,500               |
| Freeholders . . | 70,300  | 4,560,000 | 65                  |
| Huismen . .     | 137,000 | 570,000   | 4                   |
| Total . .       | 207,850 | 6,510,000 | 32                  |

## HOLLAND

There are 100,000 farms, of about 80 acres each, cultivated by their owners. The province of Groningen has some tenant-farmers called *meejers*. The landlord can never raise the rent nor disturb the tenant.



## BELGIUM

Excluding holdings of less than 2½ acres, the tenure of land has been :—

| Acres             | Number of Holdings |         |         | Holdings in 1880     |            |         |
|-------------------|--------------------|---------|---------|----------------------|------------|---------|
|                   | 1846               | 1866    | 1880    | Cultivated by Owners | By Tenants | Total   |
| 2½-12 . . . . .   | 166,000            | 220,000 | 226,000 | 152,000              | 74,000     | 226,000 |
| 12-50 . . . . .   | 69,000             | 82,000  | 74,000  | 51,000               | 23,000     | 74,000  |
| Over 50 . . . . . | 19,000             | 22,000  | 15,000  | 8,000                | 7,000      | 15,000  |
| Total . . . . .   | 254,000            | 324,000 | 315,000 | 211,000              | 104,000    | 315,000 |

In 1866, according to Consul Grattan's report, only 34 per cent. of the land was cultivated by proprietors; in 1880, by the official returns, the proportion was 60 per cent.

## GREECE

In 1836 the State sold farm-lots of 30 acres each to a large number of agricultural families at 47s. per acre, say £70 per farm. In 1862 there were 147,500 peasant proprietors, who held 5,600,000 acres, an average of 38 acres, one-third being under crops; also 16,100 landed gentry with large farms, who usually let their lands to tenants at 22s. per acre. The area of the kingdom was as follows :—

|                                  | Acres      |
|----------------------------------|------------|
| Under crops . . . . .            | 1,920,000  |
| Capable of cultivation . . . . . | 3,700,000  |
| Woods . . . . .                  | 1,440,000  |
| Mountain and pasture . . . . .   | 4,700,000  |
| Total . . . . .                  | 11,760,000 |

## ALGERIA

The land grants ceded to settlers were :—

|                   | Acres     |
|-------------------|-----------|
| 1840-70 . . . . . | 2,110,000 |
| 1871-80 . . . . . | 1,120,000 |
| Total . . . . .   | 3,230,000 |

The tenure is described at p. 40. Only 4 per cent. of the landed area is held by European settlers, the Arabs holding 52 per cent. in farms of 100 acres per family, and the remainder (44 per cent.) being under forest or Crown-lands.

## UNITED STATES

The area of the United States and the portion under cultivation appear as follows :—

| Date | Total Area, Millions of Acres | Under Farms, Millions Acres | Improved, Million Acres | Ratio under Farms, per Cent. | Ratio of Improved, per Cent. |
|------|-------------------------------|-----------------------------|-------------------------|------------------------------|------------------------------|
| 1776 | 269                           | 80                          | 30                      | 30                           | 11                           |
| 1810 | 1,018                         | 164                         | 64                      | 16                           | 6                            |
| 1850 | 1,902                         | 293                         | 113                     | 16                           | 6                            |
| 1860 | 2,291                         | 407                         | 163                     | 18                           | 7                            |
| 1870 | 2,291                         | 410                         | 190                     | 18                           | 8                            |
| 1880 | 2,291                         | 534                         | 285                     | 23                           | 12                           |
| 1888 | 2,291                         | ...                         | 356                     | ...                          | 15                           |

The above are official returns except for 1888 (see fourth paragraph on p. 43, *Agriculture*), and estimate of farms in 1776 based on Census of 1790.

Sales of public lands in United States were as follows :—

| Period                | Acres       | Amount Received, £ | Annual Average Acres Sold |
|-----------------------|-------------|--------------------|---------------------------|
| 1787-1810 . . . . .   | 4,700,000   | 1,800,000          | 200,000                   |
| 1811-20 . . . . .     | 15,300,000  | 8,600,000          | 1,530,000                 |
| 1821-30 . . . . .     | 10,100,000  | 2,800,000          | 1,010,000                 |
| 1831-40 . . . . .     | 62,300,000  | 14,100,000         | 6,230,000                 |
| 1841-60 . . . . .     | 68,500,000  | 12,700,000         | 3,430,000                 |
| 1861-80 . . . . .     | 94,100,000  | 9,500,000          | 4,710,000                 |
| Total . . . . .       | 255,000,000 | 49,500,000         | 2,700,000                 |
| 1881-88 . . . . .     | 99,400,000  | ...                | 12,400,000                |
| Grand total . . . . . | 354,400,000 | ...                | 3,500,000                 |

The sales of lands during ten years ending 1889 showed thus :—

| Acres                           | Acres                         |
|---------------------------------|-------------------------------|
| Dakota . . . . . 41,300,000     | Minnesota . . . . . 9,000,000 |
| Kansas . . . . . 23,200,000     | Florida . . . . . 7,300,000   |
| Nebraska . . . . . 21,000,000   | Montana . . . . . 6,700,000   |
| Washington . . . . . 12,900,000 | Louisiana . . . . . 4,300,000 |
| California . . . . . 11,400,000 | Various . . . . . 39,500,000  |
| Colorado . . . . . 10,900,000   |                               |
| Total . . . . .                 | 187,500,000                   |

The disposal of public lands in 102 years was approximately as follows :—

|                            | Millions of Acres |           |       |
|----------------------------|-------------------|-----------|-------|
|                            | 1787-1860         | 1861-1888 | Total |
| Sold . . . . .             | 154               | 68        | 222   |
| School grants . . . . .    | 68                | 9         | 77    |
| Railway grants . . . . .   | 26                | 166       | 192   |
| Military grants . . . . .  | 44                | 18        | 62    |
| Homestead grants . . . . . | ...               | 125       | 125   |
| Sundry grants . . . . .    | 45                | 18        | 63    |
| Total . . . . .            | 337               | 404       | 741   |

In this last table Homestead grants are distinguished, but in the preceding one they are included among lands sold. In eight years ending 1887 the lands taken up by settlers comprised 124 million acres of Government lands and 18 millions belonging to railway companies, in all averaging 18 million acres yearly, say 120,000 farms of 150 acres each. The Homestead Law of 1862 has had a powerful influence in promoting agriculture, the area of improved lands being now apparently 356 million acres against 163 millions in 1860, an increase of 118 per cent., the area newly improved each year averaging 7,100,000 acres. By this law any immigrant family can obtain a farm-lot of 160 acres, on condition of five years occupation, without other cost than £3 for the title-deeds. From 1862 to 1886 no fewer than 690,000 families received farm-lots of this kind, covering 111 million acres, or one-fifth of the total area under farms.

According to the agricultural product of 1886 for the Union, the average for these Homestead farms would be products of an annual value of 155 millions sterling, or £220 per family, and the farms would represent a capital value of 816 millions sterling, or nearly £1200 per farm. Compared with the total earnings of the nation, these

Homestead farmers appear to earn almost 8 per cent., and the value of their farms and stock stands for 7 per cent. of the aggregate wealth of the United States.

The number and area of farms in the great divisions of the country, according to Census reports, were as follows:—

| States              | Number of Farms |           |           |           | Millions of Acres |      |      |      |
|---------------------|-----------------|-----------|-----------|-----------|-------------------|------|------|------|
|                     | 1850            | 1860      | 1870      | 1880      | 1850              | 1860 | 1870 | 1880 |
| New England . . . . | 167,000         | 185,000   | 182,000   | 207,000   | 18                | 20   | 21   | 22   |
| Middle . . . . .    | 351,000         | 413,000   | 456,000   | 539,000   | 43                | 47   | 49   | 53   |
| Southern . . . . .  | 488,000         | 640,000   | 849,000   | 1,481,000 | 165               | 220  | 185  | 227  |
| Western . . . . .   | 444,000         | 716,000   | 1,167,000 | 1,778,000 | 67                | 120  | 155  | 232  |
| Total . . . . .     | 1,450,000       | 1,954,000 | 2,654,000 | 4,005,000 | 293               | 407  | 410  | 534  |

The proportion of farms over 100 acres is increasing:—

| Acres              | Number of Farms |           |           | Ratio |       |       |
|--------------------|-----------------|-----------|-----------|-------|-------|-------|
|                    | 1860            | 1870      | 1880      | 1860  | 1870  | 1880  |
| Under 20 . . . . . | 306,000         | 467,000   | 390,000   | 15.0  | 17.6  | 9.8   |
| 20-50 . . . . .    | 617,000         | 848,000   | 781,000   | 30.1  | 32.0  | 19.5  |
| 50-100 . . . . .   | 609,000         | 754,000   | 1,033,000 | 29.8  | 28.4  | 25.7  |
| 100-500 . . . . .  | 487,000         | 565,000   | 1,656,000 | 23.9  | 21.3  | 42.4  |
| Over 500 . . . . . | 25,000          | 20,000    | 105,000   | 1.2   | 0.7   | 2.6   |
| Total . . . . .    | 2,844,000       | 2,654,000 | 4,005,000 | 100.0 | 100.0 | 100.0 |

The size of farms in the Union is, however, diminishing, as appears from the following Census reports, viz.:—

| Census         | Number of Farms | Area, Acres | Average Acres per Farm |
|----------------|-----------------|-------------|------------------------|
| 1850 . . . . . | 1,450,000       | 293,000,000 | 202                    |
| 1860 . . . . . | 2,044,000       | 407,000,000 | 200                    |
| 1870 . . . . . | 2,654,000       | 410,000,000 | 154                    |
| 1880 . . . . . | 4,005,000       | 534,000,000 | 134                    |

It may be noted that farms over 100 acres constituted only 22 per cent. of the total in 1870, and rose to 45 per cent. in 1880.

Although most of the farms are cultivated by the owners, the three forms of tenure known in France and Italy exist in the United States, namely, owners, tenants, and "metayers," the last-mentioned giving the landlord half or other portion of the crops in lieu of rent.

The Census of 1880 showed as follows:—

| Farms Held by | New England | Middle States | Southern  | Western   | Total     |
|---------------|-------------|---------------|-----------|-----------|-----------|
| Proprietors   | 190,000     | 510,000       | 690,000   | 1,594,000 | 2,984,000 |
| Tenants       | 10,000      | 56,000        | 141,000   | 115,000   | 322,000   |
| Metayers      | 7,000       | 88,000        | 306,000   | 302,000   | 703,000   |
| Total         | 207,000     | 654,000       | 1,137,000 | 2,011,000 | 4,009,000 |

The proportion of these holdings is shown as follows:—

| Held by     | New England | Middle States | Southern | Western | Total |
|-------------|-------------|---------------|----------|---------|-------|
| Proprietors | 91.8        | 78.0          | 60.6     | 79.2    | 74.5  |
| Tenants     | 4.8         | 8.5           | 12.4     | 5.7     | 8.0   |
| Metayers    | 3.4         | 13.5          | 27.0     | 15.1    | 17.5  |
| Total       | 100.0       | 100.0         | 100.0    | 100.0   | 100.0 |

It will be observed that the metayer or share system is

twice as common as that of tenants paying rent in money. The above table refers merely to the number of farms.

The classification according to size of farms in 1880 was:—

| Acres              | Number of Farms held by |         |         | Total     |
|--------------------|-------------------------|---------|---------|-----------|
|                    | Owner                   | Tenant  | Metayer |           |
| Under 10 . . . . . | 88,000                  | 24,000  | 27,000  | 139,000   |
| 10-50 . . . . .    | 583,000                 | 138,000 | 314,000 | 1,035,000 |
| 50-100 . . . . .   | 805,000                 | 70,000  | 159,000 | 1,034,000 |
| 100-500 . . . . .  | 1,416,000               | 85,000  | 196,000 | 1,697,000 |
| Over 500 . . . . . | 92,000                  | 5,000   | 7,000   | 104,000   |
| Total              | 2,984,000               | 322,000 | 703,000 | 4,009,000 |

The value of land per acre is highest in New Jersey, the Agricultural Report for 1888 showing the following table of averages:—

| State               | Dollars per Acre | State               | Dollars per Acre |
|---------------------|------------------|---------------------|------------------|
| New Jersey . . . .  | 65               | Vermont . . . . .   | 36               |
| Massachusetts . . . | 50               | Maryland . . . . .  | 32               |
| Ohio . . . . .      | 46               | Illinois . . . . .  | 32               |
| New York . . . . .  | 44               | Wisconsin . . . . . | 23               |

In some of the Western States it is less than five dollars or £1 sterling per acre.

The following table shows the areas of lands improved and unimproved, the number of hands engaged in agriculture, and the value of the farms:—

| States              | Millions of Acres |      |      |      |            |      |      |      |
|---------------------|-------------------|------|------|------|------------|------|------|------|
|                     | Improved          |      |      |      | Unimproved |      |      |      |
|                     | 1850              | 1860 | 1870 | 1880 | 1850       | 1860 | 1870 | 1880 |
| New England . . . . | 11                | 12   | 12   | 13   | 7          | 8    | 8    | 8    |
| Middle . . . . .    | 26                | 30   | 33   | 37   | 16         | 16   | 16   | 15   |
| Southern . . . . .  | 49                | 65   | 58   | 82   | 117        | 155  | 126  | 147  |
| Western . . . . .   | 27                | 56   | 87   | 153  | 40         | 65   | 70   | 79   |
| Total . . . . .     | 113               | 163  | 190  | 285  | 180        | 244  | 220  | 249  |

| States              | Hands Employed |           |           | Value of Farms, Millions £ |       |       |       |
|---------------------|----------------|-----------|-----------|----------------------------|-------|-------|-------|
|                     | 1860           | 1870      | 1880      | 1860                       | 1870  | 1880  | 1880  |
| New England . . . . | 293,000        | 316,000   | 301,000   | 77                         | 99    | 107   | 121   |
| Middle . . . . .    | 721,000        | 793,000   | 847,000   | 248                        | 380   | 508   | 506   |
| Southern . . . . .  | 860,000        | 2,669,000 | 3,626,000 | 198                        | 445   | 253   | 347   |
| Western . . . . .   | 1,346,000      | 2,144,000 | 2,896,000 | 158                        | 458   | 818   | 1,148 |
| Total . . . . .     | 3,220,000      | 5,922,000 | 7,670,000 | 681                        | 1,382 | 1,686 | 2,122 |

In the above table of "hands employed" are omitted for 1860 the able-bodied slaves of the Southern States. Assuming that one-half of such slaves were engaged in agriculture (say 1,122,000), the number of persons so employed in 1860 would be 4,342,000 for the whole Union, and 1,982,000 for the Southern States. The value of farms (without live-stock, crops, or implements) was as follows to the number of hands engaged in agriculture :—

|                | Per Head |
|----------------|----------|
| 1860 . . . . . | £318     |
| 1870 . . . . . | 286      |
| 1880 . . . . . | 276      |

The ratio of improved acres to the number of hands engaged was :—

| States              | Acres Improved per Head |      |      |
|---------------------|-------------------------|------|------|
|                     | 1860                    | 1870 | 1880 |
| New England . . . . | 41                      | 38   | 43   |
| Middle . . . . .    | 41                      | 41   | 43   |
| Southern . . . . .  | 33                      | 22   | 23   |
| Western . . . . .   | 42                      | 41   | 53   |
| Average . . . . .   | 36                      | 32   | 39   |

It appears that agricultural skill has made most progress in the Western States, where three men in 1880 cultivated as much land as four in 1870.

#### CANADA

At the beginning of the present century agriculture was in the hands of the old French "*habitants*," who had a chain of farms 400 miles long on the banks of the St. Lawrence. These farms comprised, besides pastures, about 500,000 acres under crops, the quantity of grain produced being over 5 million bushels. According to a statement published in 1830, the average annual export of wheat to England since 1805 had been a trifle over one million bushels. Free grants of 200-acre farms were given by the British Government to military and other settlers down to 1826, on condition of building a hut and barn (cost £72) and getting four acres under crops. In 1826 these land grants were abolished, and farm lots were sold by auction at prices payable in four annual instalments without interest, the average for backwood lands being 5s. an acre.

A rush of settlers ensued. In 1834 the area covered by farms in the colony was 12,640,000 acres, of which 4,910,000 were cultivated. In 1842 Upper Canada, now called Ontario, counted 100,000 agricultural families, who had under tillage an area of 1,928,000 acres, and in 1852 there were 190,000 families, with 3,698,000 acres under plough. The grain crop of Ontario and Quebec in 1852 exceeded 45 million bushels.

In 1870 the Government of Canada passed a Homestead Law similar to that of the United States, granting farm lots of 200 acres to each head of a family and 100 to each male adult free, on condition of building a log-hut not less than 16 × 20 feet, cultivating 15 acres in

every 100, and residing six months in each year during five years on the farm: these grants to be limited to Manitoba. In all other parts of Canada public lands cost about 4s. an acre. The usual cost of felling timber to clear the land is £3 an acre.

In 1874 Canada proper, that is, Ontario and Quebec, had 368,000 farms covering an area of 34 million acres, the Government having still 167 million acres of public lands undisposed of. The tenure of the said farms was as follows :—

| Acres              | Number of Farms | Area, Acres |
|--------------------|-----------------|-------------|
| Under 10 . . . . . | 40,300          | 250,000     |
| 10-100 . . . . .   | 220,700         | 12,000,000  |
| Over 100 . . . . . | 107,400         | 22,000,000  |
| Total . . . . .    | 368,400         | 34,250,000  |

Of the above farms, 322,400 were cultivated by their owners, and 44,000 by tenants. The average size of each farm was 93 acres. The returns for 1881 showed 588,970 farms, against 57,890 in 1831; the area under farms in 1881 was 67,650,000 acres, that is, an average of 115 acres, against 134 in the United States. The increase of grain from 1874 to 1886 was 102 per cent.; of cattle, 35 per cent.

#### AUSTRALIA

Farming land first came into use near Sydney about 1790. It was not until 1813 that two farmers crossed the Blue Mountains, from which time squatters began to settle on Government lands. Some obtained free grants, others a squatter's privilege for lots of 6400 acres at a nominal rent of £10 a year. In 1831 free grants were abolished, the British Government fixing the price at 5s. an acre, which was raised to 12s. in 1838, and to 20s. in 1842. Between 1831 and 1842 the Government sold two million acres, the half of the money so obtained being given as a bonus to shipowners to bring out settlers from England. In 1850 Mr. Palmer wrote, "There are men who landed here without a guinea who have farms of 20,000 acres or more, stocked with 4000 cattle or 40,000 sheep."

In 1887 the lands sold and those unalienated in the seven colonies were :—

| Colony                    | Millions of Acres |               |            | Percentage of Lands Sold |
|---------------------------|-------------------|---------------|------------|--------------------------|
|                           | Sold              | Undisposed of | Total Area |                          |
| New South Wales . . . .   | 42                | 154           | 196        | 21                       |
| Victoria . . . . .        | 15                | 42            | 57         | 26                       |
| South Australia . . . .   | 9                 | 234           | 243        | 4                        |
| Western Australia . . . . | 2                 | 676           | 678        | ...                      |
| Queensland . . . . .      | 9                 | 419           | 428        | 2                        |
| Tasmania . . . . .        | 5                 | 11            | 16         | 30                       |
| New Zealand . . . . .     | 19                | 48            | 67         | 29                       |
| Total . . . . .           | 101               | 1,584         | 1,685      | 6                        |

The sales in the several colonies were as follows :—

|                             | Acres, Freehold |            |             | Price, £   | Shillings per Acre |
|-----------------------------|-----------------|------------|-------------|------------|--------------------|
|                             | 1831-75         | 1876-87    | Total       |            |                    |
| New South Wales . . . . .   | 13,600,000      | 28,500,000 | 42,100,000  | 42,000,000 | 20                 |
| Victoria . . . . .          | 10,400,000      | 4,800,000  | 15,200,000  | 23,300,000 | 31                 |
| South Australia . . . . .   | 5,600,000       | 3,800,000  | 9,400,000   | 10,000,000 | 23                 |
| Western Australia . . . . . | 1,500,000       | 400,000    | 1,900,000   | 1,000,000  | 10                 |
| Queensland . . . . .        | 1,800,000       | 7,200,000  | 9,000,000   | 5,800,000  | 13                 |
| Tasmania . . . . .          | 4,000,000       | 600,000    | 4,600,000   | 4,000,000  | 18                 |
| New Zealand . . . . .       | 13,600,000      | 5,300,000  | 18,900,000  | 12,000,000 | 12                 |
| Total . . . . .             | 50,500,000      | 50,600,000 | 101,100,000 | 98,100,000 | 19                 |

The sums received for lands in New South Wales, South Australia, Western Australia, Tasmania, and New Zealand are not known precisely. The above are estimates based on the ordinary prices.

The number of landowners and of squatters in 1880, and the lands held by them, were as follows :—

|                             | Number of  |           | Acres      |             | Acres to Average Farm |           |
|-----------------------------|------------|-----------|------------|-------------|-----------------------|-----------|
|                             | Landowners | Squatters | Freehold   | Sheep Runs  | Freehold              | Sheep Run |
| New South Wales . . . . .   | 39,900     | 4,330     | 25,500,000 | 133,200,000 | 634                   | 30,700    |
| Victoria . . . . .          | 49,600     | 612       | 14,800,000 | 14,300,000  | 321                   | 23,300    |
| South Australia . . . . .   | 31,000     | 1,472     | 9,200,000  | 115,000,000 | 296                   | 78,000    |
| Western Australia . . . . . | 1,800      | 4,500     | 1,700,000  | 24,000,000  | 950                   | 5,300     |
| Queensland . . . . .        | 9,500      | 6,600     | 4,600,000  | 239,000,000 | 478                   | 36,000    |
| Tasmania . . . . .          | 12,000     | 500       | 4,200,000  | 1,800,000   | 353                   | 3,500     |
| New Zealand . . . . .       | 24,100     | 997       | 4,100,000  | 12,100,000  | 167                   | 12,050    |
| Total . . . . .             | 167,900    | 19,011    | 64,100,000 | 539,400,000 | 384                   | 28,300    |

The average freehold farm in 1880 was 384 acres, against 93 in Canada and 134 in the United States. The area of freehold farms in 1887, as shown in preceding table, was 101 million acres.

The sales of land were as follows :—

| Period            | Acres Sold | Acres per Annum |
|-------------------|------------|-----------------|
| 1831-42 . . . . . | 2,100,000  | 200,000         |
| 1843-75 . . . . . | 48,400,000 | 1,450,000       |
| 1876-87 . . . . . | 50,600,000 | 4,220,000       |

The number of freehold landowners in 1880 was equal to 5 per cent. of the population, against 8 per cent. in the United States and 9 per cent. in Canada.

#### CAPE COLONY

When this colony was taken from the Dutch in 1806, it comprised 10,000 families, mostly following pastoral pursuits. In 1826 a small Scotch colony was sent out by the British Government.

The area is 212,000 square miles, or 135 million acres, viz. :—

|                                  | Acres       | Per Annum |
|----------------------------------|-------------|-----------|
| Sold from 1806 to 1875 . . . . . | 67,400,000  | 960,000   |
| " " 1876 to 1887 . . . . .       | 22,200,000  | 1,850,000 |
| Still unsold . . . . .           | 45,400,000  | ...       |
| Total . . . . .                  | 135,000,000 | ...       |

The nominal price was 1s. per acre, but the amount received has not averaged more than 6d. Sheep farms vary from 3000 to 10,000 acres, being much smaller than in Australia or the Argentine Republic. The number of farms is unknown, probably about 40,000, averaging 2200 acres each.

#### INDIA

The tenure of land is as follows :—

|                   | Number     | Annual Payment to Government, £ |
|-------------------|------------|---------------------------------|
| Nobles . . . . .  | 130,000    | 13,000,000                      |
| Farmers . . . . . | 724,000    | 7,300,000                       |
| Ryots . . . . .   | 9,750,000  | 970,000                         |
| Total . . . . .   | 10,604,000 | 21,270,000                      |

#### OTHER COLONIAL CROWN-LANDS

*Ceylon.*—This island has an area of 16 million acres. The Government has sold down to December 1887 only 1,150,000, the public lands still undisposed of reaching 12,040,000 acres. Usual price, 30s. per acre. The estates of English settlers, mostly under coffee, chin-chona, and tea, cover 300,000 acres, and were valued in 1880 at 9 millions sterling.

*Natal.*—This colony has an area of 12,100,000 acres, having been separated from Cape Colony in 1856 :—

|                                        | Acres     | Per Annum |
|----------------------------------------|-----------|-----------|
| Lands sold from 1856 to 1875 . . . . . | 8,000,000 | 400,000   |
| Lands sold from 1876 to 1887 . . . . . | 300,000   | 25,000    |
| Lands still undisposed of . . . . .    | 3,800,000 | ...       |

Total . . . . . 12,100,000

The usual price is 3s. per acre. The Kaffirs own nine-tenths of the total area.

*Jamaica.*—This island has an area of 2,600,000 acres, which have been sold to planters at prices varying from 4s. to 20s. per acre. The Government has still 100,000 acres unsold.

*Trinidad.*—Area 1,100,000 acres. It was taken from the Spaniards in 1797, but two-thirds of the island are still in the hands of the British Government.

Sales of Crown-lands show :—

|                                  | Acres   | Per Annum |
|----------------------------------|---------|-----------|
| Sold from 1797 to 1875 . . . . . | 290,000 | 3,500     |
| Sold from 1876 to 1887 . . . . . | 90,000  | 8,000     |
| Still undisposed of . . . . .    | 740,000 | ...       |

Total . . . . . 1,120,000

The average price is 25s. per acre. The farms are mostly under cocoa and sugar.

#### ARGENTINA

The tenure and value of land vary exceedingly. In such provinces as Buenos Ayres and Santa Fè, where great numbers of the inhabitants are landowners, and the

soil is subdivided, the prices are high; while in other provinces, where a few families possess great tracts of

land, the value is low. The following table is taken from the *River Plate Handbook* (1885):—

|                        | Acres              |                  |                    | Value per Square Mile (640 Acres) |              |
|------------------------|--------------------|------------------|--------------------|-----------------------------------|--------------|
|                        | Pasture            | Tillage          | Total              | Pasture, £                        | Tillage, £   |
| Buenos Ayres . . . . . | 53,800,000         | 2,300,000        | 56,100,000         | 600                               | 3,000        |
| Santa Fe . . . . .     | 20,100,000         | 1,500,000        | 21,600,000         | 300                               | 1,200        |
| Cordoba . . . . .      | 44,000,000         | 200,000          | 44,200,000         | 150                               | 1,000        |
| San Luis . . . . .     | 25,600,000         | 100,000          | 25,700,000         | 100                               | 1,000        |
| Mendoza . . . . .      | 32,000,000         | 500,000          | 32,500,000         | 80                                | 2,000        |
| San Juan . . . . .     | 28,800,000         | 300,000          | 29,100,000         | 80                                | 1,500        |
| Salta . . . . .        | 30,700,000         | 200,000          | 30,900,000         | 50                                | 1,000        |
| Tucuman . . . . .      | 10,200,000         | 200,000          | 10,400,000         | 150                               | 4,000        |
| Uruguay . . . . .      | 14,100,000         | 100,000          | 14,200,000         | 50                                | 1,000        |
| Rioja . . . . .        | 22,400,000         | 100,000          | 22,500,000         | 50                                | 1,000        |
| Catamarca . . . . .    | 49,600,000         | 100,000          | 49,700,000         | 50                                | 1,000        |
| Santiago . . . . .     | 22,300,000         | 100,000          | 22,400,000         | 50                                | 1,000        |
| Entre Rios . . . . .   | 23,000,000         | 200,000          | 23,200,000         | 300                               | 1,200        |
| Corrientes . . . . .   | 25,600,000         | 100,000          | 25,700,000         | 200                               | 1,000        |
| <b>Total . . . . .</b> | <b>402,200,000</b> | <b>6,000,000</b> | <b>408,200,000</b> | <b>130</b>                        | <b>1,800</b> |

The above refers merely to the inhabited portion of the Republic, besides which there are the following territories, for the most part public lands, with a scanty population, viz:—

|                        | Acres              |
|------------------------|--------------------|
| Gran Chaco . . . . .   | 102,400,000        |
| Misiones . . . . .     | 6,400,000          |
| Pampas . . . . .       | 96,000,000         |
| Patagonia . . . . .    | 192,000,000        |
| <b>Total . . . . .</b> | <b>396,800,000</b> |

The unsettled portion covers nearly as much area as that which is inhabited; the total is 805 million acres, or one-third of the extent of the United States.

The number of landowners is about 100,000, mostly Argentines. There are in Buenos Ayres 4000 Irish and Scotch sheep-farmers, whose land and stock in 1882 was worth 33 millions sterling.

In Santa Fe 16,000 grain-growers, Italians, Swiss, French, and Germans, possess farms worth 12 millions sterling. There are also 10,000 grain-growers, mostly Italians, in the province of Buenos Ayres. At least 70,000 Argentines have sheep and cattle farms in Buenos Ayres and the upper provinces. Land usually carries 200 sheep and 100 cattle to the square mile.

## LAND-TAXES

The total burthens on agriculture in various countries, by latest accounts, were approximately as follows:—

|                          | Taxes, £           | Agricultural Product, £ | Tax, Percentage |
|--------------------------|--------------------|-------------------------|-----------------|
| England . . . . .        | 16,200,000         | 157,000,000             | 10.3            |
| Scotland . . . . .       | 1,900,000          | 40,000,000              | 4.8             |
| Ireland . . . . .        | 2,700,000          | 54,000,000              | 5.0             |
| <b>United Kingdom</b>    | <b>20,800,000</b>  | <b>251,000,000</b>      | <b>8.3</b>      |
| France . . . . .         | 21,800,000         | 460,000,000             | 4.8             |
| Germany . . . . .        | 12,700,000         | 424,000,000             | 3.0             |
| Austria proper . . . . . | 8,600,000          | 175,000,000             | 4.9             |
| Italy . . . . .          | 14,200,000         | 204,000,000             | 7.0             |
| Belgium . . . . .        | 1,530,000          | 55,000,000              | 2.8             |
| Holland . . . . .        | 1,080,000          | 39,000,000              | 2.8             |
| Egypt . . . . .          | 4,890,090          | 35,000,000              | 14.0            |
| India . . . . .          | 23,400,000         | 400,000,000             | 5.8             |
| <b>Total . . . . .</b>   | <b>109,000,000</b> | <b>2,043,000,000</b>    | <b>5.4</b>      |

## UNITED KINGDOM

The taxes on agrarian industry in the United Kingdom may be set down approximately thus:—

|                             | England           | Scotland         | Ireland          | United Kingdom    |
|-----------------------------|-------------------|------------------|------------------|-------------------|
| Tithes . . . . .            | 4,050,000         | ...              | ...              | 4,050,000         |
| Rates . . . . .             | 8,300,000         | 1,400,000        | 2,100,000        | 11,800,000        |
| Income-tax . . . . .        | 1,200,000         | 200,000          | 250,000          | 1,650,000         |
| Land-tax . . . . .          | 1,050,000         | 50,000           | ...              | 1,100,000         |
| Duties and stamps . . . . . | 1,600,000         | 250,000          | 350,000          | 2,200,000         |
| <b>Total . . . . .</b>      | <b>16,200,000</b> | <b>1,900,000</b> | <b>2,700,000</b> | <b>20,800,000</b> |

## FRANCE

Councillor Tisserand enumerates the agrarian taxes as follows:—

|                        |                   |
|------------------------|-------------------|
| National . . . . .     | 4,800,000         |
| Departmental . . . . . | 4,800,000         |
| Indirect . . . . .     | 8,600,000         |
| Roads, &c. . . . .     | 3,600,000         |
| <b>Total . . . . .</b> | <b>21,800,000</b> |

Mr. Yves Guyot published the following table of rental and land-tax down to 1874:—

| Year           | Land Rental, £ | Land-Tax, £ | Per Cent. |
|----------------|----------------|-------------|-----------|
| 1791 . . . . . | 57,600,000     | 9,600,000   | 17        |
| 1821 . . . . . | 63,200,000     | 6,200,000   | 10        |
| 1862 . . . . . | 124,000,000    | 6,400,000   | 5         |
| 1874 . . . . . | 158,000,000    | 6,700,000   | 4         |

The ratios of properties according to tax assessment were:—

| Taxes                    | 1835         | 1858         |
|--------------------------|--------------|--------------|
| Under 5 francs . . . . . | 47.8         | 51.0         |
| 5-10 " . . . . .         | 16.1         | 15.4         |
| 10-20 " . . . . .        | 13.9         | 13.3         |
| 20-50 " . . . . .        | 13.1         | 12.1         |
| Over 50 " . . . . .      | 9.1          | 8.2          |
| <b>Total . . . . .</b>   | <b>100.0</b> | <b>100.0</b> |

Those under five francs may be considered pauper holdings, being mostly exempted from tax on the plea of extreme poverty.

## AUSTRIA

In Austria (without Hungary) the agricultural taxes in 1882 were :—

|                           |             |
|---------------------------|-------------|
| Land-tax . . . . .        | £ 2,600,000 |
| Local rates . . . . .     | 2,400,000   |
| Stamp-duties, &c. . . . . | 3,600,000   |
| Total . . . . .           | 8,600,000   |

## GERMANY

Professor Meitzen shows that the taxes on agriculture are as follows :—

| Taxes              | Per Cent.<br>on Rental<br>Valuation | Per Cent.<br>on Real<br>Rental |
|--------------------|-------------------------------------|--------------------------------|
| State . . . . .    | 17.4                                | 7.0                            |
| Communal . . . . . | 17.1                                | 6.8                            |
| Special . . . . .  | 9.3                                 | 3.7                            |
| Total . . . . .    | 43.8                                | 17.5                           |

## ITALY

The taxes levied on landed property in 1883 were as follows :—

|                      |             |
|----------------------|-------------|
| National . . . . .   | £ 5,020,000 |
| Provincial . . . . . | 2,060,000   |
| Communal . . . . .   | 3,130,000   |
| Total . . . . .      | 10,210,000  |

Farmers have also to pay a cattle-tax, legacy-duty, and other imposts, thus bringing up the total, as Professor Sbrojavacca shows, to £14,240,000 per annum. The land-tax proper was in 1882 as follows :—

|                        | £         | Pence per<br>Acre | Percentage<br>of Land<br>Product |
|------------------------|-----------|-------------------|----------------------------------|
| Sardinia . . . . .     | 820,000   | 20                | 11                               |
| Lombardy . . . . .     | 960,000   | 48                | 18                               |
| Parma . . . . .        | 150,000   | 28                | 18                               |
| Modena . . . . .       | 145,000   | 22                | 13                               |
| Papal States . . . . . | 480,000   | 22                | 14                               |
| Tuscany . . . . .      | 230,000   | 11                | 9                                |
| Naples . . . . .       | 1,420,000 | 18                | 13                               |
| Sicily . . . . .       | 360,000   | 14                | 11                               |
| Total . . . . .        | 4,565,000 | 20                | 13                               |

## HOLLAND

In 1884 the agrarian imposts were :—

|                           |           |
|---------------------------|-----------|
| Land-tax . . . . .        | £ 560,000 |
| Local rates . . . . .     | 140,000   |
| Stamp-duties, &c. . . . . | 380,000   |
| Total . . . . .           | 1,080,000 |

## BELGIUM

According to Professor Leemans the agricultural taxes in 1884 were :—

|                          |           |
|--------------------------|-----------|
| Land-tax . . . . .       | £ 790,000 |
| Indirect taxes . . . . . | 560,000   |
| Roads, &c. . . . .       | 180,000   |
| Total . . . . .          | 1,530,000 |

## EGYPT

The land-tax in 1833 was £1,120,000, and had risen in 1889 to £4,890,000 sterling.

## CHINA

In 1889 the land-tax was £4,800,000.

## LANGUAGE

The numbers of persons speaking the various languages in 1801 and in 1890 were as follows :—

|                      | 1801        | 1890        | Ratio |       |
|----------------------|-------------|-------------|-------|-------|
|                      |             |             | 1801  | 1890  |
| English . . . . .    | 20,520,000  | 111,100,000 | 12.7  | 27.7  |
| French . . . . .     | 31,450,000  | 51,200,000  | 19.4  | 12.7  |
| German . . . . .     | 30,320,000  | 75,200,000  | 18.7  | 13.7  |
| Russian . . . . .    | 30,770,000  | 75,000,000  | 19.0  | 18.7  |
| Spanish . . . . .    | 26,190,000  | 42,800,000  | 10.2  | 10.7  |
| Italian . . . . .    | 15,070,000  | 33,400,000  | 9.3   | 8.3   |
| Portuguese . . . . . | 7,480,000   | 13,000,000  | 4.7   | 3.2   |
| Total . . . . .      | 161,800,000 | 401,700,000 | 100.0 | 100.0 |

It will be observed what a wonderful advance the English language has made in ninety years. The following table shows in detail the distribution of the various principal languages in 1801 and in 1890. In the United States many speak both English and German.

## SPOKEN IN 1801

| In                      | English    | French     | Italian    | Spanish    | German     |
|-------------------------|------------|------------|------------|------------|------------|
| Europe . . . . .        | 14,540,000 | 30,155,000 | 14,840,000 | 10,265,000 | 30,005,000 |
| United States . . . . . | 5,250,000  | 230,000    | 5,000      | 5,000      | 280,000    |
| Other parts . . . . .   | 730,000    | 1,065,000  | 225,000    | 15,920,000 | 35,000     |
| Total . . . . .         | 20,520,000 | 31,450,000 | 15,070,000 | 26,190,000 | 30,320,000 |

## SPOKEN IN 1890

| In                      | English     | French     | Italian    | Spanish    | German     |
|-------------------------|-------------|------------|------------|------------|------------|
| Europe . . . . .        | 38,600,000  | 45,200,000 | 31,100,000 | 17,300,000 | 67,600,000 |
| United States . . . . . | 58,000,000  | 1,100,000  | 400,000    | 650,000    | 7,100,000  |
| Other parts . . . . .   | 14,500,000  | 4,900,000  | 1,900,000  | 24,850,000 | 500,000    |
| Total . . . . .         | 111,100,000 | 51,200,000 | 33,400,000 | 42,800,000 | 75,200,000 |

The number of persons speaking Gaelic in the United Kingdom is said to reach nearly 4 per cent. of the population, including 660,000 in Ireland, 350,000 in Wales, and 230,000 in Scotland.

The proportion of letters in the various languages in prose works is found to be as follows :—

|       | English | French | Italian | Spanish | Latin | German |
|-------|---------|--------|---------|---------|-------|--------|
| A     | 78      | 80     | 99      | 121     | 79    | 64     |
| B     | 23      | 8      | 2       | 11      | 14    | 20     |
| C     | 25      | 30     | 40      | 48      | 42    | 22     |
| D     | 39      | 35     | 42      | 55      | 29    | 71     |
| E     | 138     | 184    | 131     | 145     | 92    | 178    |
| F     | 18      | 8      | 12      | 6       | 13    | 14     |
| G     | 19      | 12     | 20      | 11      | 22    | 31     |
| H     | 46      | 2      | 11      | 20      | 2     | 40     |
| I     | 68      | 76     | 103     | 37      | 120   | 86     |
| J     | 2       | 2      | 4       | 8       | 4     | 6      |
| K     | 6       | ...    | ...     | ...     | ...   | 9      |
| L     | 47      | 47     | 71      | 61      | 29    | 29     |
| M     | 19      | 37     | 12      | 26      | 62    | 22     |
| N     | 78      | 73     | 71      | 55      | 44    | 110    |
| O     | 70      | 41     | 96      | 107     | 50    | 27     |
| P     | 21      | 33     | 28      | 24      | 32    | 11     |
| Q     | 3       | 8      | 9       | 15      | 11    | ...    |
| R     | 59      | 73     | 52      | 69      | 77    | 84     |
| S     | 64      | 99     | 74      | 69      | 79    | 55     |
| T     | 88      | 70     | 55      | 48      | 66    | 48     |
| U     | 37      | 58     | 47      | 46      | 106   | 40     |
| V     | 10      | 17     | 15      | 10      | 18    | 9      |
| W     | 19      | ...    | ...     | ...     | ...   | 20     |
| X     | 1       | 5      | ...     | ...     | 9     | ...    |
| Y     | 22      | 2      | ...     | 5       | ...   | ...    |
| Z     | ...     | ...    | 6       | 3       | ...   | 4      |
| Total | 1,000   | 1,000  | 1,000   | 1,000   | 1,000 | 1,000  |

Where blanks occur, it shows either that the letter is not used, or that the use does not reach 1 in 1000, such as "z" in English or "x" in Spanish. The Spanish N, of which 55 are used, includes three "ñ," equivalent to "gn" in Italian.

### LATITUDE AND LONGITUDE

|                  | Latitude | Longitude |
|------------------|----------|-----------|
| Algiers          | 36.46 N. | 3.6 E.    |
| Amsterdam        | 51.21    | 4.58      |
| Antwerp          | 51.13    | 4.25      |
| Archangel        | 65.40    | 43.0      |
| Azores           | 28.0     | 26.0 W.   |
| Bagdad           | 33.20    | 44.24 E.  |
| Baltimore        | 39.15    | 76.30 W.  |
| Belfast          | 54.36    | 5.55      |
| Berlin           | 52.33    | 13.25 E.  |
| Bombay           | 19.2     | 72.50     |
| Bordeaux         | 45.0     | 0.20 W.   |
| Boston           | 42.20    | 71.9      |
| Brussels         | 50.52    | 3.21 E.   |
| Bucharest        | 44.28    | 26.9      |
| Buda-Pesth       | 47.31    | 19.1      |
| Buenos Ayres     | 34.36 S. | 58.22 W.  |
| Cadiz            | 36.32 N. | 6.18      |
| Caro             | 30.5     | 31.45 E.  |
| Calcutta         | 22.40    | 88.25     |
| Canton           | 23.10    | 113.9     |
| Cape Town        | 34.30 S. | 18.0      |
| Caracas          | 10.30 N. | 67.10 W.  |
| Chicago          | 42.0     | 83.31     |
| Cincinnati       | 39.0     | 84.15     |
| Constantinople   | 41.1     | 28.58 E.  |
| Copenhagen       | 55.42    | 12.34     |
| Demerara         | 5.30     | 58.20 W.  |
| Dresden          | 51.6     | 13.36 E.  |
| Dublin           | 53.21    | 6.17 W.   |
| Edinburgh        | 55.57    | 3.12      |
| Falkland Islands | 51.30 S. | 59.0      |
| Faroe Islands    | 62.0 N.  | 7.0       |
| Florence         | 43.45    | 11.16 E.  |
| Frankfort        | 50.8     | 8.33      |
| Geneva           | 46.2     | 6.9       |
| Genoa            | 44.30    | 0.0       |

|                | Latitude | Longitude |
|----------------|----------|-----------|
| Gibraltar      | 36.8 N.  | 5.20 W.   |
| Glasgow        | 55.52    | 4.8       |
| Guatemala      | 14.0     | 88.0      |
| Halifax        | 44.30    | 63.55     |
| Hamburg        | 53.34    | 10.3 E.   |
| Havanna        | 23.7     | 82.28 W.  |
| Hobart         | 42.54 S. | 147.27 E. |
| Jersey         | 49.15 N. | 2.5 W.    |
| Jerusalem      | 31.48    | 35.10 E.  |
| Lima           | 12.0 S.  | 77.0 W.   |
| Lisbon         | 38.44 N. | 9.6       |
| Liverpool      | 53.24    | 2.58      |
| London         | 51.31    | 0.5       |
| Madeira        | 33.0     | 18.0      |
| Madras         | 13.12    | 80.21 E.  |
| Madrid         | 40.28    | 3.40 W.   |
| Malta          | 35.54    | 14.27 E.  |
| Manchester     | 53.29    | 2.14 W.   |
| Manilla        | 14.35    | 120.48 E. |
| Marseilles     | 43.18    | 5.28      |
| Mauritius      | 20.15 S. | 57.0      |
| Melbourne      | 37.52    | 145.0     |
| Mexico         | 19.30 N. | 99.2 W.   |
| Milan          | 45.40    | 9.10 E.   |
| Montreal       | 45.30    | 73.30 W.  |
| Moscow         | 55.40    | 37.28 E.  |
| Munich         | 48.7     | 11.35     |
| Naples         | 40.52    | 14.15     |
| New Orleans    | 30.7     | 90.0 W.   |
| New York       | 40.40    | 74.0      |
| Palermo        | 38.6     | 13.23 E.  |
| Paris          | 48.52    | 2.21      |
| Pekin          | 40.0     | 116.23    |
| Philadelphia   | 39.52    | 77.30 W.  |
| Prague         | 50.5     | 14.25 E.  |
| Quebec         | 46.50    | 72.0 W.   |
| Quito          | 0.7 S.   | 78.49     |
| Rio Janeiro    | 23.0     | 43.20     |
| Rome           | 41.53 N. | 12.28 E.  |
| Rotterdam      | 51.55    | 4.29      |
| St. Louis      | 38.40    | 90.12 W.  |
| St. Petersburg | 59.40    | 31.0 E.   |
| San Francisco  | 37.59    | 121.59 W. |
| Sierra Leone   | 8.45     | 13.10     |
| Singapore      | 1.27     | 103.48 E. |
| Stockholm      | 59.20    | 18.0      |
| Sydney         | 34.0 S.  | 151.12    |
| Teneriffe      | 28.30 N. | 17.0 W.   |
| Toronto        | 43.47    | 79.25     |
| Trinidad       | 10.50    | 61.15     |
| Tunis          | 36.44    | 10.5 E.   |
| Turin          | 45.5     | 7.44      |
| Valparaiso     | 33.02 S. | 71.45 W.  |
| Venice         | 45.27 N. | 12.25 E.  |
| Vera Cruz      | 19.30    | 96.40 W.  |
| Vienna         | 48.9     | 16.24 E.  |
| Warsaw         | 52.15    | 21.0      |
| Washington     | 38.55    | 77.5 W.   |

The length of a degree of longitude varies with latitude as follows :—

| Latitude | Miles | Latitude | Miles |
|----------|-------|----------|-------|
| 10       | 68.4  | 40       | 54    |
| 15       | 67.7  | 45       | 50    |
| 20       | 65.9  | 50       | 45    |
| 25       | 63.7  | 60       | 35    |
| 30       | 59.7  | 70       | 24    |
| 35       | 57    | 80       | 12    |

### LAW

The ordinary number of civil lawsuits in a year is as follows :—

|          | Lawsuits  | Per 1000 Inhabitants |
|----------|-----------|----------------------|
| England  | 1,150,000 | 42                   |
| Scotland | 75,000    | 20                   |
| Germany  | 3,239,000 | 70                   |
| Italy    | 1,390,000 | 52                   |
| France   | 708,000   | 19                   |
| Belgium  | 94,000    | 18                   |

The Queen's Bench in England in 1887 disposed of 80,000 suits; the upper courts in Scotland, 11,000. There is an arbitration tribunal between employers and workmen called "Prudhommes," which settles 52,000 cases yearly in France and 4000 in Belgium.

There are 14,000 solicitors or attorneys in England, 17,000 in France, without counting barristers. In 1866 the English law reports comprised 1308 volumes, containing 60,000 law and 28,000 equity cases; about 30 volumes are added yearly. In 1873 statute law comprised 18,000 statutes. The Russian edicts down to Alexander I. were 31,900 in number.

When Tribonian compiled the Pandects, A.D. 530, he condensed 3,000,000 sentences and 2000 volumes into 150 volumes.

### LEAD

The production of metallic lead in tons has been approximately as follows:—

|                      | 1830    | 1850    | 1880    | 1888    |
|----------------------|---------|---------|---------|---------|
| Great Britain        | 48,000  | 55,000  | 51,000  | 36,000  |
| France               | 1,100   | 7,000   | 32,000  | 30,000  |
| Germany              | 9,500   | 16,000  | 58,600  | 92,000  |
| Italy                | 8,000   | 12,000  | 33,000  | 30,000  |
| Spain                | 23,000  | 27,000  | 92,300  | 84,000  |
| Austria              | 7,000   | 11,000  | 8,900   | 10,000  |
| Greece, Belgium, &c. | 4,000   | 6,500   | 14,400  | 15,000  |
| Europe               | 100,600 | 134,500 | 290,200 | 297,000 |
| United States        | 3,700   | 36,000  | 89,000  | 160,000 |
| Total                | 104,000 | 170,500 | 379,200 | 457,000 |

Good lead ore gives 70 per cent. of lead, and in smelting it takes two tons of coal to produce three tons of lead. The Cordoba mines in Spain are said to be the richest in the world. The Missouri lead-field, near Chicago, is 1½ miles in length, the ore giving 70 per cent. lead. The importation of lead into the United States fell from 42,000 tons in 1870 to 4000 in 1880.

The production in the United States has been as follows:—

|          | 1860   | 1889    |
|----------|--------|---------|
|          | Tons   | Tons    |
| Colorado | 36,000 | 70,000  |
| Missouri | 28,000 | 34,000  |
| Various  | 25,000 | 87,000  |
| Total    | 89,000 | 191,000 |

### LEATHER

The annual consumption in the United Kingdom, and the value of manufactured articles, were approximately:—

| Year | Millions Lbs. Leather |               |       | Manufactured Value |           |            |
|------|-----------------------|---------------|-------|--------------------|-----------|------------|
|      | British Hides         | Foreign Hides | Total | Home, £            | Export, £ | Total, £   |
| 1805 | 27                    | ...           | 27    | 8,000,000          | 15,000    | 8,015,000  |
| 1820 | 36                    | 12            | 48    | 10,000,000         | 40,000    | 10,040,000 |
| 1830 | 40                    | 30            | 70    | 12,600,000         | 80,000    | 12,680,000 |
| 1840 | 45                    | 37            | 82    | 14,200,000         | 170,000   | 14,370,000 |
| 1850 | 50                    | 70            | 120   | 19,700,000         | 610,000   | 20,310,000 |
| 1860 | 55                    | 87            | 142   | 22,300,000         | 2,130,000 | 24,430,000 |
| 1870 | 60                    | 132           | 192   | 28,600,000         | 2,640,000 | 31,240,000 |
| 1881 | 65                    | 144           | 209   | 30,100,000         | 3,930,000 | 34,030,000 |
| 1888 | 66                    | 164           | 230   | 38,000,000         | 4,100,000 | 42,100,000 |

In 1835 M'Culloch estimated the manufactures thus:—  
Boots and shoes . . . . . 7,500,000  
Saddlery, &c. . . . . 6,000,000

Total . . . . . 13,500,000

There was an estimate in the *Parliamentary Gasetteer* of 1806 which put down the leather manufactures at £10,000,000; this was less than Eden's valuation in 1803, namely, £12,000,000. That of M'Pherson in 1783 was £10,500,000 (see *Manufactures*).

### LEGACY AND PROBATE

The following table shows the amount of property changing hands by death, the amount under the head of Succession before 1870 being an estimate as one-third of the amount paying legacy-duty:—

| Period  | Annual Average, £ |            |             | Ratio to Pop. per Inhabitant |
|---------|-------------------|------------|-------------|------------------------------|
|         | Legacy            | Succession | Total       |                              |
| 1811-20 | 25,500,000        | 8,500,000  | 34,000,000  | £ s. d.<br>1 18 0            |
| 1841-50 | 43,900,000        | 14,600,000 | 58,500,000  | 2 4 0                        |
| 1861-70 | 73,600,000        | 24,500,000 | 98,100,000  | 3 6 0                        |
| 1876-80 | 113,000,000       | 41,000,000 | 154,000,000 | 4 10 0                       |
| 1885-89 | 143,200,000       | 44,800,000 | 188,000,000 | 5 2 0                        |

The exact amount of all property passing through the Probate Court in 1840 was ascertained by Porter to be £54,700,000, and if we compare his statement with those for subsequent years from the *Statistical Abstract*, we find:—

|                | Total Legacy and Succession Property |               |               | Ratio |       |
|----------------|--------------------------------------|---------------|---------------|-------|-------|
|                | 1840                                 | 1875          | 1889          | 1840  | 1889  |
| England        | £ 47,100,000                         | £ 119,900,000 | £ 161,700,000 | 86.0  | 85.8  |
| Scotland       | 3,100,000                            | 14,500,000    | 17,200,000    | 5.7   | 9.1   |
| Ireland        | 4,500,000                            | 10,000,000    | 10,900,000    | 8.3   | 5.7   |
| United Kingdom | 54,700,000                           | 144,400,000   | 189,800,000   | 100.0 | 100.0 |

The returns for Scotland in 1840 did not include mortgages, and if these were added, the amount, it is thought, would have reached £4,000,000, or about 7½ per cent. of the total. Even allowing for this, the increase of wealth in Scotland since 1840 has been prodigious, namely, 330 per cent. against 244 per cent. in England.

The estates proved in the United Kingdom for legacy-duty, exclusive of succession estates, were as follows:—

| Estates          | Number, Annual Average |         | Amount, Annual Average, £ |             |
|------------------|------------------------|---------|---------------------------|-------------|
|                  | 1883-84                | 1888-89 | 1883-84                   | 1888-89     |
| Over £100,000    | 149                    | 172     | 32,700,000                | 43,500,000  |
| £50,000-£100,000 | 242                    | 261     | 16,800,000                | 18,200,000  |
| £10,000-£50,000  | 2,019                  | 2,045   | 41,300,000                | 43,500,000  |
| £1,000-£10,000   | 10,771                 | 11,285  | 34,700,000                | 36,000,000  |
| Under £1,000     | 27,594                 | 31,047  | 8,800,000                 | 10,600,000  |
| Total            | 40,775                 | 44,810  | 134,300,000               | 151,800,000 |

#### Ratio as to Value

| Estates          | 1883-84 | 1888-89 |
|------------------|---------|---------|
| Over £100,000    | 24.0    | 28.6    |
| £10,000-£100,000 | 43.5    | 40.6    |
| £1,000-£10,000   | 26.0    | 23.8    |
| Under £1,000     | 6.5     | 7.0     |
| Total            | 100.0   | 100.0   |



The number of estates proved in the three kingdoms for legacy-duty only in 1877 was as follows :—

| Amount               | England | Scotland | Ireland | United Kingdom |
|----------------------|---------|----------|---------|----------------|
| Over £20,000 . . .   | 945     | 125      | 59      | 1,129          |
| £5,000-£20,000 . . . | 2,784   | 356      | 199     | 3,339          |
| £1,000-£5,000 . . .  | 7,625   | 1,262    | 800     | 9,687          |
| Under £1,000 . . .   | 21,913  | 2,567    | 2,271   | 26,751         |
| Total . . .          | 33,267  | 4,310    | 3,329   | 40,906         |

Further details on this subject as regards the United Kingdom, France, Italy, and Belgium will be found under the title *Wealth*.

#### HOLLAND

The legacy and succession returns for the years 1880-83 gave the following averages :—

|                      | Estates |
|----------------------|---------|
| Over £40,000 . . .   | 58      |
| £4,000-£40,000 . . . | 356     |
| £1,000-£4,000 . . .  | 2,722   |
| Under £1,000 . . .   | 6,280   |
| Total . . .          | 9,416   |

#### LIBRARIES

|                          | Libraries |       | Volumes    |            |
|--------------------------|-----------|-------|------------|------------|
|                          | 1848      | 1880  | 1848       | 1880       |
| United Kingdom . . .     | 28        | 202   | 1,542,000  | 3,770,000  |
| France . . . . .         | 107       | 505   | 3,975,000  | 7,298,000  |
| Germany . . . . .        | 80        | 594   | 3,053,000  | 4,070,000  |
| Russia . . . . .         | 12        | 145   | 451,000    | 950,000    |
| Austria . . . . .        | 41        | 577   | 2,193,000  | 5,476,000  |
| Italy . . . . .          | 45        | 493   | 2,274,000  | 4,349,000  |
| Spain and Portugal . . . | 24        | 90    | 963,000    | 1,200,000  |
| Switzerland . . . . .    | 13        | 1,654 | 465,000    | 1,819,000  |
| Belgium . . . . .        | 10        | 105   | 400,000    | 610,000    |
| Holland . . . . .        | 10        | 220   | 330,000    | 800,000    |
| Scandinavia . . . . .    | 13        | 94    | 968,000    | 1,250,000  |
| Europe . . . . .         | 383       | 4,679 | 16,614,000 | 31,592,000 |
| United States . . . . .  | 20        | 59    | 600,000    | 2,263,000  |
| Total . . . . .          | 403       | 4,738 | 17,214,000 | 33,855,000 |

The above does not include any libraries with less than 10,000 volumes (except possibly those of Switzerland).

The principal libraries of the world are :—

|                          | Volumes   | MSS.   |
|--------------------------|-----------|--------|
| British Museum . . .     | 1,120,000 | 41,000 |
| Imperial, Paris . . .    | 2,078,000 | 86,000 |
| St. Petersburg . . .     | 1,045,000 | 34,000 |
| Berlin . . . . .         | 740,000   | 15,000 |
| Munich . . . . .         | 810,000   | 24,000 |
| Vienna . . . . .         | 420,000   | 21,000 |
| Dresden . . . . .        | 500,000   | 4,000  |
| Vatican . . . . .        | 340,000   | 32,000 |
| Copenhagen . . . . .     | 410,000   | 5,000  |
| Göttingen . . . . .      | 400,000   | 5,000  |
| Oxford . . . . .         | 300,000   | 22,000 |
| Brussels . . . . .       | 210,000   | 20,000 |
| St. Genevieve, Paris . . | 250,000   | 30,000 |
| Washington . . . . .     | 230,000   | ...    |
| Boston . . . . .         | 202,000   | ...    |
| Astor, New York . . .    | 160,000   | ...    |

The library of the British Museum has 32 miles of shelves filled with books, and is visited by 91,000 readers yearly. The Bibliothèque Impériale of Paris has 18 miles of books and 37,000 readers yearly.

The libraries in the United States were as follows :—

| Year           | Number | Volumes    |
|----------------|--------|------------|
| 1850 . . . . . | 15,615 | 4,640,000  |
| 1860 . . . . . | 19,581 | 8,550,000  |
| 1870 . . . . . | 56,015 | 19,460,000 |

In 1880 there were 23,000 school libraries containing 45,000,000 volumes, and 314 large public libraries, exclusive of all containing less than 10,000 volumes.

#### LIFE

The following table shows the expectation of life in various countries at different ages :—

| Age          | Years to Live |               |         |         |        |        |
|--------------|---------------|---------------|---------|---------|--------|--------|
|              | Eng-land      | United States | Belgium | Holland | Saxony | Sweden |
| 10 . . . . . | 49.2          | 48.7          | 44.3    | 46.5    | 47.0   | 48.0   |
| 20 . . . . . | 41.0          | 42.2          | 37.1    | 38.9    | 39.3   | 40.1   |
| 30 . . . . . | 33.6          | 35.3          | 31.2    | 32.1    | 32.1   | 33.2   |
| 40 . . . . . | 26.7          | 28.2          | 25.5    | 26.2    | 25.0   | 25.9   |
| 50 . . . . . | 20.2          | 20.9          | 19.6    | 20.0    | 18.0   | 19.1   |
| 60 . . . . . | 13.9          | 14.1          | 13.2    | 13.3    | 11.7   | 12.9   |
| 70 . . . . . | 8.9           | 8.5           | 8.2     | 8.0     | 6.9    | 8.0    |
| 80 . . . . . | 5.5           | 4.4           | 5.3     | 4.6     | 3.9    | 4.1    |

The expectation of life is always longer with females than males, viz. :—

| Age               | Years to Live |        |         |        |        |        |         |        |
|-------------------|---------------|--------|---------|--------|--------|--------|---------|--------|
|                   | England       |        | Holland |        | Sweden |        | Belgium |        |
|                   | Male          | Female | Male    | Female | Male   | Female | Male    | Female |
| Birth . . . . .   | 41.9          | 45.2   | 34.1    | 36.4   | 41.3   | 45.6   | ...     | ...    |
| 5 years . . . . . | 51.5          | 53.6   | 48.7    | 49.2   | 49.4   | 53.0   | ...     | ...    |
| 10 " . . . . .    | 48.2          | 50.3   | 45.9    | 46.5   | 46.5   | 50.0   | 43.8    | 44.8   |
| 20 " . . . . .    | 39.9          | 42.1   | 38.3    | 39.2   | 38.6   | 42.1   | 36.4    | 37.7   |
| 30 " . . . . .    | 33.2          | 34.1   | 31.8    | 32.4   | 31.2   | 34.5   | 30.5    | 31.9   |
| 40 " . . . . .    | 26.5          | 27.5   | 25.0    | 26.4   | 24.3   | 27.2   | 24.8    | 26.1   |
| 50 " . . . . .    | 19.9          | 20.8   | 18.5    | 19.7   | 18.0   | 20.1   | 18.9    | 20.3   |
| 60 " . . . . .    | 13.6          | 14.5   | 12.8    | 13.3   | 12.3   | 13.5   | 12.4    | 13.9   |
| 70 " . . . . .    | 8.6           | 9.1    | 7.9     | 8.1    | 7.4    | 8.0    | 8.1     | 8.3    |
| 80 " . . . . .    | 5.2           | 5.6    | 4.4     | 4.5    | 3.9    | 4.3    | 5.2     | 5.4    |
| 90 " . . . . .    | 2.8           | 3.1    | 2.4     | 2.7    | 2.4    | 2.8    | 2.9     | 3.1    |

It will be observed that the mean expectation at five years of age is greater than at birth, but after five years it diminishes. Finlayson's table of expectation for English ladies of fortune coincides closely with the result of widows in France in receipt of pensions :—

| Age          | Years of Life  |               |             |
|--------------|----------------|---------------|-------------|
|              | English Ladies | French Widows | French Male |
| 40 . . . . . | 29.9           | 29.3          | ...         |
| 50 . . . . . | 23.0           | 22.8          | 18.7        |
| 60 . . . . . | 16.2           | 16.0          | 14.3        |
| 70 . . . . . | 10.1           | 10.1          | 8.7         |
| 80 . . . . . | 5.7            | 5.9           | 4.4         |

Kasper gives the percentage of persons of various professions who reach 70 years thus :—

|                      | Per Cent. |                    | Per Cent. |                     | Per Cent. |
|----------------------|-----------|--------------------|-----------|---------------------|-----------|
| Physicians . . . . . | 24        | Lawyers . . . . .  | 29        | Merchants . . . . . | 33        |
| Teachers . . . . .   | 27        | Clerks . . . . .   | 32        | Farmers . . . . .   | 40        |
| Artists . . . . .    | 28        | Soldiers . . . . . | 32        | Clergy . . . . .    | 42        |

Expectation of life varies as follows in England with condition :—

| Age      | Years to Live |                |       |             |
|----------|---------------|----------------|-------|-------------|
|          | Gentry        | Farm Labourers | Sober | Intemperate |
| 20 . . . | 38            | 48             | 40    | 14          |
| 30 . . . | 31            | 41             | 34    | 13          |
| 40 . . . | 24            | 33             | 27    | 10          |
| 50 . . . | 18            | 25             | 20    | 8           |
| 60 . . . | 12            | 18             | 14    | 6           |

In the United States the span of life for various professions is as follows :—

|                 | Years |                 | Years |
|-----------------|-------|-----------------|-------|
| Shopmen . . .   | 41.8  | Mechanics . . . | 47.3  |
| Waggoners . . . | 43.6  | Merchants . . . | 48.4  |
| Labourers . . . | 44.6  | Lawyers . . .   | 52.6  |
| Seamen . . .    | 46.1  | Farmers . . .   | 64.2  |

Madden's table of famous men, and Neuville's average for professions at Frankfort, give the following spans of life :—

| Madden's Famous Men |       | Neuville's Frankfort |       |
|---------------------|-------|----------------------|-------|
|                     | Years |                      | Years |
| Clergymen . . .     | 67    | Physicians . . .     | 52    |
| Physicians . . .    | 68    | Lawyers . . .        | 54    |
| Lawyers . . .       | 69    | Merchants . . .      | 57    |
| Artists . . .       | 70    | Teachers . . .       | 57    |
| Naturalists . . .   | 71    | Clergy . . .         | 66    |

Many remarkable cases of longevity are recorded in all countries and all ranks of life.

1. Countess of Desmond, killed by falling from a cherry-tree in her 146th year. 2. Thomas Parr, died after a dinner-party at Lord Arundel's, aged 152. 3. Cardinal de Salis, who recommended daily exercise in all weathers, aged 110. 4. John Riva, of Venice, who chewed citron bark daily, died aged 116, leaving a son of 14 years. 5. Henry Jenkins, died aged 116. at Bolton-on-Swale in 1670. 6. Mme. Rovi, aged 164, who died in 1741, leaving a son aged 116. 7. Peter Garden, died at Edinburgh in 1775, aged 131. Bertherand's death-roll of slaves at Carthage showed 5 per cent. over 80, and 1 per cent. over 100 years. The Third Legion of Augustus had a death-record which showed that 17 per cent. passed 70 years. Moreover, Pliny says—"The year of our Lord 76 is memorable, for in that year there was a Census from which it appears that in the part of Italy lying between the Apennines and the River Po, there were found fifty-four persons 103 years old; fifty-seven 110 years; two 120 years; four 130 years; four 135 years; and three 140 years each."

In the eighteenth century Sejoncourt published a list of 49 persons who had died between the ages of 130 and 175 years. Among centenarians of recent date were Mrs. Anne Butler, daughter of Admiral Winn, died at Portsmouth, January 1883, aged 103, and Mrs. Betty Lloyd, at Ruabon, Wales, March 1883, aged 107. According to Dr. Farr's tables, of one million male and female persons born, 77 males and 147 females will reach 100 years; but the newer tables of Dr. Ogle give only 41 males and 112 females.

A meeting of 2000 persons over 70 years of age is annually held at Leicester, and of these 400 die before the next anniversary.

| Age               | Table of Survivals of a Thousand Born |         |         |         |         |         |         |         |         |             |
|-------------------|---------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-------------|
|                   | England                               | France  | Prussia | Austria | Italy   | Spain   | Sweden  | Norway  | Belgium | Switzerland |
|                   | 1881-82                               | 1880-82 | 1881-83 | 1880-82 | 1881-83 | 1880-84 | 1881-82 | 1881-82 | 1881-83 | 1881-83     |
| Number born . . . | 1,000                                 | 1,000   | 1,000   | 1,000   | 1,000   | 1,000   | 1,000   | 1,000   | 1,000   | 1,000       |
| 5 years . . .     | 762                                   | 751     | 684     | 614     | 632     | 571     | 783     | 838     | 756     | 747         |
| 10 " . . .        | 736                                   | 724     | 648     | 569     | 591     | 530     | 746     | 803     | 732     | 721         |
| 15 " . . .        | 723                                   | 706     | 632     | 551     | 572     | 514     | 727     | 783     | 718     | 707         |
| 20 " . . .        | 706                                   | 685     | 616     | 532     | 554     | 496     | 711     | 760     | 699     | 689         |
| 25 " . . .        | 685                                   | 657     | 596     | 506     | 531     | 476     | 691     | 733     | 675     | 665         |
| 30 " . . .        | 660                                   | 627     | 571     | 477     | 508     | 457     | 669     | 704     | 648     | 639         |
| 40 " . . .        | 597                                   | 566     | 514     | 423     | 462     | 412     | 621     | 644     | 589     | 578         |
| 50 " . . .        | 516                                   | 499     | 452     | 357     | 407     | 358     | 560     | 585     | 517     | 502         |
| 60 " . . .        | 405                                   | 408     | 351     | 267     | 328     | 292     | 473     | 494     | 419     | 393         |
| 70 " . . .        | 255                                   | 268     | 205     | 150     | 203     | 184     | 330     | 338     | 271     | 231         |
| 80 " . . .        | 96                                    | 104     | 65      | 44      | 65      | 69      | 139     | 161     | 101     | 69          |

The following table distinguishes the sexes in certain countries, but the figures are not so recent as those above :—

| Age               | France |         | Belgium |         | Italy |         | Denmark |         |
|-------------------|--------|---------|---------|---------|-------|---------|---------|---------|
|                   | Males  | Females | Males   | Females | Males | Females | Males   | Females |
| Number born . . . | 1,000  | 1,000   | 1,000   | 1,000   | 1,000 | 1,000   | 1,000   | 1,000   |
| 5 years . . .     | 716    | 744     | 720     | 741     | 590   | 608     | 741     | 769     |
| 10 " . . .        | 693    | 719     | 684     | 699     | 552   | 567     | 711     | 737     |
| 20 " . . .        | 660    | 680     | 640     | 650     | 518   | 528     | 676     | 698     |
| 30 " . . .        | 602    | 626     | 566     | 576     | 466   | 478     | 624     | 650     |
| 40 " . . .        | 543    | 567     | 484     | 499     | 418   | 424     | 569     | 590     |
| 50 " . . .        | 476    | 507     | 403     | 415     | 357   | 368     | 488     | 522     |
| 60 " . . .        | 383    | 425     | 319     | 337     | 279   | 294     | 376     | 429     |
| 70 " . . .        | 245    | 291     | 179     | 221     | 170   | 180     | 238     | 289     |
| 80 " . . .        | 86     | 113     | 60      | 76      | 58    | 62      | 84      | 114     |

Kasper's table of rich and poor shows survivals thus :—

| Age               | Rich  | Poor  |
|-------------------|-------|-------|
| Number born . . . | 1,000 | 1,000 |
| 5 years . . .     | 943   | 655   |
| 20 " . . .        | 886   | 566   |
| 40 " . . .        | 695   | 396   |
| 70 " . . .        | 235   | 65    |

Korösi shows that poverty and overcrowding shorten the span of life at Buda-Pesth : in healthy quarters it is 47 years, in the workmen's tenement dwellings only 32 to 37.

Evidence to the same effect will be found in other parts of this book; the reader has only to turn to the Index for the items *Infant-mortality* and *Overcrowding*.

## UNITED KINGDOM

The Registrar-General's returns show the expectation of life is now about three years longer than for the period of 17 years ending 1854, which is probably due to abolishing the duty on soap and the window-tax, as well as to water supply, drainage, &c.

| Ages      | Persons |         | Male    |         | Female  |         |
|-----------|---------|---------|---------|---------|---------|---------|
|           | 1838-54 | 1876-80 | 1838-54 | 1876-80 | 1838-54 | 1876-80 |
| 0 years . | 40.86   | 43.56   | 39.91   | 41.92   | 41.85   | 45.25   |
| 5 ..      | 50.02   | 52.56   | 49.71   | 51.47   | 50.33   | 53.65   |
| 10 ..     | 47.36   | 49.24   | 47.05   | 48.16   | 47.67   | 50.32   |
| 15 ..     | 43.54   | 45.05   | 43.18   | 43.94   | 43.90   | 46.15   |
| 20 ..     | 39.88   | 40.98   | 39.48   | 39.86   | 40.29   | 42.10   |
| 25 ..     | 30.57   | 37.21   | 36.12   | 36.05   | 37.04   | 38.36   |
| 35 ..     | 29.99   | 30.01   | 29.40   | 28.88   | 30.59   | 31.12   |
| 45 ..     | 23.41   | 23.29   | 22.76   | 22.34   | 24.06   | 24.21   |
| 55 ..     | 16.94   | 16.75   | 16.45   | 16.09   | 17.43   | 17.37   |
| 65 ..     | 11.17   | 11.19   | 10.82   | 10.79   | 11.51   | 11.55   |
| 75 ..     | 6.72    | 6.81    | 6.49    | 6.52    | 6.93    | 7.04    |

Dr. Humphrey's table of survivals for England, for the periods ending 1854 and 1880, and a table compiled for Scotland in 1879-81, compare as follows, being in favour of Scotland :—

| Age      | England |         |         |         |              |         | Scot-land |
|----------|---------|---------|---------|---------|--------------|---------|-----------|
|          | Males   |         | Females |         | General Pop. |         |           |
|          |         |         |         |         |              |         |           |
|          | 1838-54 | 1876-80 | 1838-54 | 1876-80 | 1838-54      | 1876-80 | 1879-81   |
| No. born | 1,000   | 1,000   | 1,000   | 1,000   | 1,000        | 1,000   | 1,000     |
| 5 years  | 724     | 736     | 751     | 766     | 737          | 751     | 780       |
| 10 "     | 690     | 712     | 716     | 742     | 703          | 727     | 748       |
| 15 "     | 673     | 700     | 697     | 729     | 685          | 715     | 729       |
| 20 "     | 652     | 685     | 674     | 714     | 663          | 699     | 706       |
| 25 "     | 624     | 664     | 644     | 692     | 634          | 678     | 679       |
| 35 "     | 564     | 608     | 580     | 639     | 572          | 623     | 620       |
| 45 "     | 496     | 531     | 510     | 571     | 503          | 551     | 550       |
| 55 "     | 410     | 435     | 433     | 490     | 421          | 462     | 460       |
| 65 "     | 295     | 304     | 324     | 364     | 309          | 333     | 335       |
| 75 "     | 148     | 152     | 175     | 196     | 161          | 173     | 176       |

## FRANCE

There has been a steady improvement in the span of life, which Duvillard estimated in the last century at 26 years and 2 months, and Lombard at 40 years in 1868. The tables of survivals are as follows :—

| Age         | 1750     | 1789       | 1817-32      | 1856-65   | 1880-82    |
|-------------|----------|------------|--------------|-----------|------------|
|             | St. Maur | Duvil-lard | Mont-ferrand | Bertillon | Stat. Gen. |
| Number born | 1,000    | 1,000      | 1,000        | 1,000     | 1,000      |
| 5 years     | 540      | 583        | 707          | 710       | 751        |
| 10 ..       | 484      | 551        | 668          | 681       | 724        |
| 15 ..       | 472      | 529        | 647          | 664       | 706        |
| 20 ..       | 449      | 502        | 624          | 642       | 685        |
| 25 ..       | 388      | 438        | 560          | 584       | 627        |
| 30 ..       | 314      | 369        | 510          | 533       | 566        |
| 35 ..       | 242      | 297        | 449          | 473       | 499        |
| 40 ..       | 168      | 213        | 365          | 389       | 408        |
| 45 ..       | 90       | 118        | 229          | 249       | 268        |
| 50 ..       | 23       | 35         | 76           | 89        | 104        |

Levasseur gives a table of 1474 centenarians in 20 years ending 1885, from which it appears that 28 men and 46 women die yearly over 100 years of age.

## RUSSIA

In 1867 the span of life was estimated thus :—

| Among       | Years |         | Among        | Years |         |
|-------------|-------|---------|--------------|-------|---------|
|             | Males | Females |              | Males | Females |
| Greeks      | 22.1  | 23.6    | Jews . . .   | 29.4  | 31.1    |
| Catholics   | 28.0  | 29.7    | Mussulmen.   | 26.5  | 27.1    |
| Protestants | 32.9  | 36.2    | General pop. | 23.0  | 24.6    |

## GERMANY

The German official returns for 11 years, 1871-81, give the following table of survivals :—

Of 1000 Born

| Age      | Males | Females | Age      | Males | Females |
|----------|-------|---------|----------|-------|---------|
| 1 . . .  | 747   | 783     | 30 . . . | 545   | 576     |
| 3 . . .  | 676   | 709     | 40 . . . | 488   | 516     |
| 5 . . .  | 649   | 681     | 50 . . . | 412   | 452     |
| 10 . . . | 621   | 652     | 60 . . . | 311   | 363     |
| 15 . . . | 609   | 639     | 70 . . . | 178   | 219     |
| 20 . . . | 593   | 623     | 80 . . . | 50    | 66      |

## HOLLAND AND SWEDEN

Tables of survivals show a great improvement in both these countries, as compared with former periods :—

| Age        | Holland    |           | Sweden     |         |            |
|------------|------------|-----------|------------|---------|------------|
|            | 1840-51    | 1870-80   | 1757-63    | 1861-70 | 1881-82    |
|            | Baum-hauer | Von Pesch | Var-gentin | Berg    | Stat. Gen. |
| No. born . | 1,000      | 1,000     | 1,000      | 1,000   | 1,000      |
| 10 years . | 644        | 654       | 611        | 737     | 746        |
| 20 ..      | 630        | 620       | 570        | 703     | 711        |
| 30 ..      | 568        | 566       | 519        | 656     | 669        |
| 40 ..      | 502        | 515       | 459        | 593     | 621        |
| 50 ..      | 434        | 494       | 385        | 511     | 560        |
| 60 ..      | 310        | 357       | 293        | 401     | 473        |
| 70 ..      | 182        | 224       | 175        | 246     | 330        |
| 80 ..      | 58         | 76        | 56         | 78      | 139        |

Persons dying over eighty years of age in Sweden formed the following ratio of all deaths :—

| Period            | Per 1000 |
|-------------------|----------|
| 1811-30 . . . . . | 47       |
| 1831-50 . . . . . | 53       |
| 1851-60 . . . . . | 46       |
| 1861-75 . . . . . | 58       |

## LIGHT

It requires 50 lbs. of tallow candles to produce as much light as 1000 cubic feet of gas. Dr. Frankland's table (1866) of the cost of light was as follows :—

|                                       | Cost for Ten Hours of Light |
|---------------------------------------|-----------------------------|
| One gallon paraffin oil . . . . .     | 6 pence                     |
| Equivalent amount of gas . . . . .    | 3 "                         |
| Thirty-three tallow candles . . . . . | 32 "                        |
| Sixteen paraffin " . . . . .          | 46 "                        |
| Twenty sperm " . . . . .              | 84 "                        |
| Twenty-four wax " . . . . .           | 87 "                        |

A light of 100 candle-power, says Mr. Fischer, throws out the following degrees of heat :—

|                            |       |                                 |        |
|----------------------------|-------|---------------------------------|--------|
| Electric, arc . . . . .    | 100   | Petroleum, flat . . . . .       | 7,200  |
| " incandescent . . . . .   | 410   | 100 wax candles . . . . .       | 7,960  |
| Gas, Siemens . . . . .     | 1,500 | 100 stearine candles . . . . .  | 8,940  |
| Petroleum, round . . . . . | 3,360 | Paraffin lamps . . . . .        | 9,200  |
| Gas, argand . . . . .      | 4,860 | 100 tallow candles . . . . .    | 9,700  |
| Colza . . . . .            | 6,800 | Manchester gas-burner . . . . . | 12,150 |

Light travels 185,000 miles per second.

**LIGHTHOUSES**

The number in various countries at different dates was approximately :—

|                             | 1830 | 1860  | 1885  |
|-----------------------------|------|-------|-------|
| England . . . . .           | ...  | 244   | 396   |
| Scotland . . . . .          | ...  | 130   | 193   |
| Ireland . . . . .           | ...  | 90    | 138   |
| United Kingdom . . . . .    | 260  | 464   | 727   |
| France . . . . .            | 63   | 228   | 422   |
| Germany . . . . .           | 20   | 40    | 183   |
| Russia . . . . .            | 18   | 77    | 194   |
| Austria . . . . .           | 5    | 10    | 63    |
| Italy . . . . .             | 10   | 91    | 263   |
| Spain . . . . .             | 11   | 50    | 178   |
| Portugal . . . . .          | 4    | 15    | 30    |
| Sweden and Norway . . . . . | 110  | 120   | 337   |
| Denmark . . . . .           | 70   | 77    | 63    |
| Holland . . . . .           | 10   | 58    | 102   |
| Belgium . . . . .           | 4    | 8     | 25    |
| Greece . . . . .            | ...  | ...   | 58    |
| Turkey . . . . .            | 10   | 15    | 134   |
| Europe . . . . .            | 595  | 1,253 | 2,779 |
| United States . . . . .     | 130  | 379   | 1,991 |
| Canada . . . . .            | 38   | 92    | 651   |
| Australia . . . . .         | 10   | 47    | 343   |
| India . . . . .             | 15   | 49    | 96    |
| China . . . . .             | 2    | 5     | 68    |
| Japan . . . . .             | ...  | ...   | 59    |
| Brazil . . . . .            | 5    | 16    | 57    |
| West Indies . . . . .       | 40   | 74    | 110   |
| Spanish America . . . . .   | 15   | 27    | 54    |
| Total . . . . .             | 850  | 1,942 | 6,208 |

See Sir James Douglas's report to the British Association in 1886. The cost of lighting Smeaton's Eddystone lighthouse in 1759, with a light of 67 candle-power, was

18d. per hour, a sum now sufficient to provide a light of 160,000 candle-power. Canada uses 100,000 gallons of petroleum for lighting yearly, at a cost of £4,000. Dungeness first adopted the electric light in 1862, and the French lighthouses followed in 1863.

**LIGHTNING**

According to Mr. Preece, there are 500,000 lightning conductors in the United Kingdom. The number of houses burnt yearly by lightning in Bavaria was :—

|                   |     |
|-------------------|-----|
| 1833-43 . . . . . | 32  |
| 1880-82 . . . . . | 134 |

The number of persons killed by lightning averages 23 in England, 92 in France, 165 in Germany, 908 in Russia.

**LIVING, COST OF**

The cost of a workman's food in various countries in 1880 was :—

|                         | Shillings per Week |       | Percentage of Food Cost |
|-------------------------|--------------------|-------|-------------------------|
|                         | Food               | Wages |                         |
| Great Britain . . . . . | 14                 | 31    | 45                      |
| France . . . . .        | 12                 | 21    | 57                      |
| Germany . . . . .       | 10                 | 16    | 62                      |
| Belgium . . . . .       | 12                 | 20    | 60                      |
| Italy . . . . .         | 9                  | 15    | 60                      |
| Spain . . . . .         | 10                 | 16    | 62                      |
| United States . . . . . | 16                 | 48    | 33                      |
| Australia . . . . .     | 11                 | 40    | 28                      |

The following table shows approximately the expenditure of the principal nations in the ordinary items that make up the cost of living. Food is at wholesale price in first hands (retail price being 30 per cent. higher), and taxes include all duties, tolls, and rates, direct or indirect, that go towards national or local revenues :—

|                          | Millions £ Yearly |          |            |       |           |             |          |       |
|--------------------------|-------------------|----------|------------|-------|-----------|-------------|----------|-------|
|                          | Food              | Clothing | House Rent | Taxes | Transport | Fodder, &c. | Sundries | Total |
| United Kingdom . . . . . | 372               | 66       | 135        | 119   | 113       | 89          | 242      | 1,136 |
| France . . . . .         | 361               | 64       | 93         | 144   | 96        | 74          | 98       | 930   |
| Germany . . . . .        | 400               | 53       | 68         | 109   | 103       | 87          | 160      | 980   |
| Russia . . . . .         | 360               | 51       | 34         | 72    | 94        | 128         | 190      | 929   |
| Austria . . . . .        | 235               | 30       | 27         | 55    | 59        | 44          | 121      | 571   |
| Italy . . . . .          | 144               | 24       | 22         | 81    | 33        | 22          | 24       | 350   |
| Spain . . . . .          | 112               | 16       | 18         | 37    | 27        | 15          | 50       | 275   |
| Portugal . . . . .       | 24                | 3        | 4          | 8     | 5         | 1           | 8        | 53    |
| Sweden . . . . .         | 37                | 6        | 4          | 7     | 10        | 4           | 30       | 98    |
| Norway . . . . .         | 15                | 2        | 1          | 3     | 4         | 1           | 12       | 38    |
| Denmark . . . . .        | 18                | 3        | 2          | 4     | 6         | 6           | 21       | 60    |
| Holland . . . . .        | 36                | 6        | 7          | 15    | 8         | 7           | 17       | 96    |
| Belgium . . . . .        | 56                | 12       | 6          | 11    | 17        | 12          | 41       | 155   |
| Switzerland . . . . .    | 20                | 3        | 2          | 3     | 5         | 2           | 19       | 54    |
| Europe . . . . .         | 2,190             | 339      | 423        | 668   | 580       | 492         | 1,033    | 5,725 |
| United States . . . . .  | 455               | 98       | 127        | 165   | 231       | 228         | 746      | 2,090 |
| Canada . . . . .         | 32                | 8        | 7          | 10    | 12        | 8           | 40       | 117   |
| Australia . . . . .      | 28                | 7        | 13         | 12    | 10        | 14          | 40       | 124   |
| Argentina . . . . .      | 25                | 6        | 5          | 14    | 8         | 7           | 20       | 85    |
| Total . . . . .          | 2,730             | 458      | 575        | 869   | 841       | 749         | 1,879    | 8,101 |

It is hardly necessary to say that the foregoing table is merely intended to shew comprehensively in round numbers the annual outlay of each nation under the principal headings and in the aggregate. Nothing like mathematical accuracy is to be expected, for it would be impossible. The figures, however, are not set down at random, but are estimates based on the observations of well-known writers and whatever is available in the way of official or semi-official statements. It is true that the cost of food, and indeed the outlay under any of the above heads, is likely to vary remarkably from one year to another, from which some persons may feel disposed to think that the table is of no value whatever. But this is an objection that might be made to many tables of a similar kind, whether in the present work or in those of other writers.

A statement was published in Paris in 1882 of the cost of maintenance of an artisan's family, and another by Miss Octavia Hill of a similar family in London in 1888, viz.:-

|                                | Weekly Expenditure, Pence |        |
|--------------------------------|---------------------------|--------|
|                                | Paris                     | London |
| Rent . . . . .                 | 30                        | 69     |
| Clothing . . . . .             | 24                        | 56     |
| Coal and light . . . . .       | 10                        | 16     |
| Bread . . . . .                | 90                        | 40     |
| Meat . . . . .                 | 63                        | 48     |
| Vegetables and fruit . . . . . | 21                        | 36     |
| Milk, butter, &c. . . . .      | 39                        | 23     |
| Tea and coffee . . . . .       | 14                        | 16     |
| Sugar . . . . .                | 7                         | 10     |
| Wine and liquor . . . . .      | 35                        | 10     |
| Total . . . . .                | £1 7 9                    | £1 7 0 |

The earnings in both cases are supposed to reach 30s. a week. The London artisan has to pay, moreover, 20d. a week to his insurance club: his surplus therefore is only 16d. a week.

The retail prices paid by workmen for food in 1880 were (pence):-

|                        | England | France | Germany | Italy | New York | Chicago |
|------------------------|---------|--------|---------|-------|----------|---------|
| Beef, lb. . . . .      | 10.0    | 9.5    | 9.0     | 8.0   | 6.0      | 4.0     |
| Bread, „ . . . .       | 2.0     | 1.6    | 2.0     | 3.0   | 2.0      | 2.0     |
| Butter, „ . . . .      | 17.0    | 13.0   | 11.0    | 14.0  | 14.0     | 12.0    |
| Eggs, dozen . . . . .  | 11.0    | 9.0    | 10.0    | 9.0   | 14.0     | 9.0     |
| Milk, quart . . . . .  | 4.0     | ...    | 2.0     | 4.0   | 5.0      | 3.0     |
| Sugar, lb. . . . .     | 4.0     | 5.0    | 5.0     | 4.0   | 5.0      | 5.0     |
| Coffee, „ . . . .      | 15.0    | 15.0   | 17.0    | 16.0  | 13.0     | 14.0    |
| Rice, „ . . . .        | 3.0     | ...    | 4.0     | 3.0   | 5.0      | 5.0     |
| Pork, „ . . . .        | 7.0     | 7.0    | 8.0     | 7.0   | 5.0      | 3.0     |
| Potatoes, cwt. . . . . | 6.0     | 4.0    | 4.0     | 8.0   | 11.0     | 6.0     |

### GREAT BRITAIN

The cost of living at various epochs, from estimates at the respective dates, is shown thus:-

#### Gentleman's Family in London

|                          | 1792 | 1823 | 1845 | 1883 |
|--------------------------|------|------|------|------|
| Rent . . . . .           | £60  | £90  | £100 | £120 |
| Taxes . . . . .          | 18   | 40   | 30   | 40   |
| Servants (2) . . . . .   | 18   | 24   | 30   | 40   |
| Clothing . . . . .       | 60   | 70   | 80   | 100  |
| Bread . . . . .          | 25   | 26   | 25   | 20   |
| Meat . . . . .           | 25   | 30   | 50   | 80   |
| Groceries . . . . .      | 22   | 35   | 40   | 60   |
| Wines . . . . .          | 23   | 39   | 40   | 40   |
| Dairy . . . . .          | 50   | 70   | 70   | 90   |
| Coal and light . . . . . | 30   | 38   | 30   | 25   |
| Washing . . . . .        | 16   | 22   | 30   | 40   |
| Sundries . . . . .       | 58   | 81   | 95   | 110  |
| Total . . . . .          | 405  | 565  | 620  | 765  |

Family of five persons, besides two servants.

The period between 1792 and 1823 shows a rise of 40 per cent. in 31 years; that from 1845 to 1883 one of 23 per cent. in 38 years.

### Tradesman's Family (Bristol)

|                     | 1792 | 1823 | 1845 | 1883 |
|---------------------|------|------|------|------|
| Rent . . . . .      | £10  | £15  | £18  | £20  |
| Clothing . . . . .  | 10   | 12   | 12   | 15   |
| Bread . . . . .     | 20   | 21   | 20   | 16   |
| Meat . . . . .      | 10   | 14   | 20   | 28   |
| Groceries . . . . . | 10   | 15   | 20   | 22   |
| Sundries . . . . .  | 10   | 13   | 15   | 19   |
| Total . . . . .     | 70   | 90   | 105  | 120  |

### English Labourer and Mechanic

|                          | Labourer |      |      | Mechanic |      |      |
|--------------------------|----------|------|------|----------|------|------|
|                          | 1792     | 1823 | 1883 | 1792     | 1823 | 1883 |
| Bread, meat, &c. . . . . | £16      | £17  | £20  | £18      | £20  | £22  |
| Groceries . . . . .      | 2        | 3    | 5    | 4        | 6    | 8    |
| Rent . . . . .           | 2        | 3    | 4    | 3        | 4    | 6    |
| Clothing, &c. . . . .    | 7        | 8    | 8    | 17       | 22   | 24   |
| Total . . . . .          | 27       | 31   | 37   | 42       | 52   | 60   |

In 1881 Professor Leone Levi estimated the annual expenditure of the people of the United Kingdom thus:-

|                                   | Quantity  | £           | Per Inhabitant |
|-----------------------------------|-----------|-------------|----------------|
| Meat, tons . . . . .              | 1,400,000 | 99,800,000  | £ 5 17 0       |
| Fish, „ . . . .                   | 300,000   | 14,500,000  | 0 8 2          |
| Sugar, „ . . . .                  | 1,000,000 | 27,000,000  | 0 15 4         |
| Potatoes, tons . . . . .          | 4,600,000 | 32,200,000  | 0 18 3         |
| Bread, „ . . . .                  | 6,300,000 | 77,500,000  | 2 4 0          |
| Butter and cheese, tons . . . . . | 350,000   | 36,000,000  | 1 0 6          |
| Milk and eggs . . . . .           | ...       | 42,000,000  | 1 4 0          |
| Fruit and vegetables . . . . .    | ...       | 28,100,000  | 0 16 0         |
| Tea and coffee . . . . .          | ...       | 18,300,000  | 0 10 0         |
| Wine and liquor . . . . .         | ...       | 124,000,000 | 3 11 0         |
| Food . . . . .                    | ...       | 499,400,000 | 14 4 9         |
| House-rent . . . . .              | ...       | 77,000,000  | 2 4 0          |
| Coal and light . . . . .          | ...       | 28,700,000  | 0 16 0         |
| Taxes . . . . .                   | ...       | 47,500,000  | 1 7 0          |
| Textiles and clothing . . . . .   | ...       | 142,800,000 | 4 2 0          |
| Science and books . . . . .       | ...       | 12,000,000  | 0 7 0          |
| Amusements . . . . .              | ...       | 12,600,000  | 0 7 4          |
| Education . . . . .               | ...       | 11,000,000  | 0 6 6          |
| Tobacco . . . . .                 | ...       | 13,100,000  | 0 7 8          |
| Furniture and plate . . . . .     | ...       | 16,000,000  | 0 9 0          |
| Churches . . . . .                | ...       | 12,000,000  | 0 7 0          |
| Water-supply . . . . .            | ...       | 5,900,000   | 0 3 6          |
| Total . . . . .                   | ...       | 878,000,000 | 25 1 9         |

### FRANCE

The cost of maintaining a small family of the middle class has been at various dates as follows:-

| Year           | Per Annum, £ |       |
|----------------|--------------|-------|
|                | France       | Paris |
| 1789 . . . . . | 15           | 29    |
| 1840 . . . . . | 19           | 48    |
| 1860 . . . . . | 44           | 114   |
| 1880 . . . . . | 51           | 135   |

In the seventeenth century the maintenance of a noble family cost £600 per annum, but 10 francs at that time contained as much silver as 19 at present, and £600 was therefore in reality £1100, irrespective of the superior purchasing power at that period. In 1679 Madame de Maintenon writes to her sister, whose family consisted of

her husband, herself, seven male and three female servants, "You can live like a princess on £600 a year," viz.:-

|                    | House Expenses |                    | Per Annum |
|--------------------|----------------|--------------------|-----------|
| Meat . . . . .     | £44            | Food, &c. . . . .  | £240      |
| Bread . . . . .    | 20             | Rent . . . . .     | 40        |
| Wine . . . . .     | 20             | Wages . . . . .    | 40        |
| Butter . . . . .   | 36             | Opera, &c. . . . . | 120       |
| Sundries . . . . . | 120            | Dress, &c. . . . . | 160       |
| Total . . . . .    | 240            | Total . . . . .    | 600       |

The expenditure of the population of Paris in 1826 was:-

|                           | Per Inhabitant | Amount     |
|---------------------------|----------------|------------|
|                           | £ s. d.        | £          |
| Food . . . . .            | 14 2 0         | 12,350,000 |
| Taxes . . . . .           | 5 9 0          | 4,760,000  |
| Rent . . . . .            | 4 11 3         | 4,000,000  |
| Clothing . . . . .        | 2 16 5         | 2,470,000  |
| Furniture . . . . .       | 2 14 6         | 2,400,000  |
| Fuel and light . . . . .  | 2 14 0         | 2,380,000  |
| Servants . . . . .        | 1 16 8         | 1,610,000  |
| Cabs and horses . . . . . | 1 15 6         | 1,540,000  |
| Instruction . . . . .     | 1 11 3         | 1,370,000  |
| Washing . . . . .         | 1 8 9          | 1,260,000  |
| Sundries . . . . .        | 1 9 5          | 1,290,000  |
| Total . . . . .           | 40 8 9         | 35,430,000 |

The chief items of food were:-

|                         | Per Inhabitant | £ s. d. |
|-------------------------|----------------|---------|
| Bread, lbs. . . . .     | 400            | 2 12 5  |
| Wine, gallons . . . . . | 25             | 3 2 0   |
| Meat, lbs. . . . .      | 165            | 3 19 0  |
| Dairy . . . . .         | ...            | 1 0 6   |
| Sugar, lbs. . . . .     | 26             | 1 0 0   |
| Sundries . . . . .      | ...            | 2 8 0   |
| Total . . . . .         | ...            | 14 2 0  |

The Industrial Committee of Mulhouse reported that of every 100 francs earned by a workman, 20 went for bread, 15 for groceries, 18 for milk, &c., 8 for meat, 15 for rent, and 16 for clothes, leaving 8 francs for sundries.

#### GERMANY

In 1850 the annual maintenance of a peasant family of five persons in Prussia cost as follows:-

|                          | £ s. d. |
|--------------------------|---------|
| Food . . . . .           | 16 0 0  |
| Clothing . . . . .       | 5 8 0   |
| Rent . . . . .           | 2 14 0  |
| Coal and light . . . . . | 2 14 0  |
| Taxes . . . . .          | 1 5 0   |
| Sundries . . . . .       | 3 9 0   |
| Total . . . . .          | 31 10 0 |

Engel estimates the annual cost of maintenance for a peasant family in Germany thus:-

|                                  | £  |
|----------------------------------|----|
| Man . . . . .                    | 19 |
| Wife . . . . .                   | 16 |
| Three children . . . . .         | 21 |
| Family of five persons . . . . . | 56 |

He considers that a child of 10 years represents an outlay of £80, a youth of 15 one of £140.

Roth estimates that a child of 10 has cost £132, and one of 13 no less than £186.

Engel's figures are preferable.

The students of Heidelberg University in 1871 were able to maintain themselves at an average outlay of £31

per annum, but this rose to £58 in 1875, and to £69 in 1878.

#### RUSSIA

The income and expenditure of a fisherman's family yearly is as follows:-

| Income                   | £ s. d. | Expenditure          | £ s. d. |
|--------------------------|---------|----------------------|---------|
| Game, 200 lbs. . . . .   | 2 10 0  | Rye, 1 ton . . . . . | 7 0 0   |
| Caviar, 200 lbs. . . . . | 2 10 0  | Taxes . . . . .      | 2 6 0   |
| Fish . . . . .           | 5 0 0   | Clothing . . . . .   | 2 10 0  |
| Woodcutting . . . . .    | 2 10 0  | Sundries . . . . .   | 0 14 0  |
| Total . . . . .          | 12 10 0 | Total . . . . .      | 12 10 0 |

As regards the income and expenditure of the ordinary Moujik or peasant, Strebinski writes as follows: "The surplus grain which he has for sale brings him in £10 sterling, which goes thus:-

|                    | £ s. d. |
|--------------------|---------|
| Rent . . . . .     | 3 12 0  |
| Taxes . . . . .    | 0 16 0  |
| Clothing . . . . . | 2 10 0  |
| Sundries . . . . . | 3 2 0   |
| Total . . . . .    | 10 0 0  |

"His agricultural capital is (exclusive of cattle) about £33 sterling, viz.:-

|                             | £ s. d. |
|-----------------------------|---------|
| House . . . . .             | 18 0 0  |
| Barn . . . . .              | 7 0 0   |
| Carts and harness . . . . . | 3 0 0   |
| Implements, &c. . . . .     | 5 8 0   |
| Total . . . . .             | 33 8 0  |

#### ITALY

The Piedmontese peasant, who earns 18s. a week, spends 13s. on food; the labourer of the island of Sardinia earns only 9s., and spends 7s. on food, viz.:-

|                    | Piedmont, Pence Weekly | Island of Sardinia, Pence Weekly |
|--------------------|------------------------|----------------------------------|
| Bread . . . . .    | 16                     | 20                               |
| Meat . . . . .     | 42                     | 5                                |
| Wine . . . . .     | 40                     | 6                                |
| Sundries . . . . . | 58                     | 47                               |
| Total . . . . .    | 156                    | 84                               |

#### LOCAL TAXATION

The amount annually levied by local authorities in taxes, tolls, &c., was approximately in the various countries as follows, 1886-87:-

|                          | £          |                         | £          |
|--------------------------|------------|-------------------------|------------|
| England . . . . .        | 38,010,000 | Russia . . . . .        | 11,200,000 |
| Scotland . . . . .       | 4,440,000  | Austria . . . . .       | 5,300,000  |
| Ireland . . . . .        | 3,330,000  | Italy . . . . .         | 27,200,000 |
| United Kingdom . . . . . | 45,780,000 | Holland . . . . .       | 2,100,000  |
| France . . . . .         | 40,800,000 | Belgium . . . . .       | 2,250,000  |
| Germany . . . . .        | 44,000,000 | United States . . . . . | 84,200,000 |

Local taxation of the United Kingdom and France compare as follows:-

| Year           | United Kingdom, £ | France, £  | Shillings per Inhab. |        |
|----------------|-------------------|------------|----------------------|--------|
|                |                   |            | United Kingdom       | France |
| 1830 . . . . . | 10,820,000        | 7,100,000  | 9                    | 4      |
| 1840 . . . . . | 10,240,000        | 8,800,000  | 8                    | 5      |
| 1850 . . . . . | 11,050,000        | 11,700,000 | 8                    | 7      |
| 1860 . . . . . | 14,950,000        | 18,100,000 | 10                   | 10     |
| 1870 . . . . . | 24,300,000        | 21,300,000 | 16                   | 12     |
| 1882 . . . . . | 38,100,000        | 32,400,000 | 22                   | 17     |
| 1887 . . . . . | 45,800,000        | 40,800,000 | 24                   | 21     |

# LOCAL TAXATION

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# LOCAL TAXATION

The finances of various cities in 1880-81 showed thus :—

|                     | Annual<br>Expendi-<br>ture,<br>£ | Debt,<br>£ | £ per Inhabitant |      |
|---------------------|----------------------------------|------------|------------------|------|
|                     |                                  |            | Expen-<br>diture | Debt |
| Antwerp . . .       | 376,000                          | ...        | 2.1              | ...  |
| Berlin . . .        | 2,200,000                        | 5,610,000  | 2.0              | 5.1  |
| Birmingham . . .    | 1,610,000                        | 6,110,000  | 4.0              | 15.0 |
| Boston . . .        | ...                              | 6,200,000  | ...              | 16.5 |
| Bradford . . .      | 1,100,000                        | 3,400,000  | 6.0              | 19.0 |
| Breslau . . .       | 361,000                          | 1,270,000  | 1.5              | 5.3  |
| Brighton . . .      | 210,000                          | 700,000    | 1.6              | 5.5  |
| Bristol . . .       | 405,000                          | 600,000    | 2.0              | 2.9  |
| Brooklyn . . .      | ...                              | 7,900,000  | ...              | 14.9 |
| Bucharest . . .     | 337,000                          | 570,000    | 1.5              | 1.8  |
| Buda-Pesth . . .    | 672,000                          | 1,280,000  | 2.2              | 4.3  |
| Christiania . . .   | 250,000                          | 345,000    | 3.3              | 4.5  |
| Copenhagen . . .    | 325,000                          | 850,000    | 1.6              | 4.1  |
| Florence . . .      | 950,000                          | 5,540,000  | 5.7              | 33.5 |
| Frankfort . . .     | 422,000                          | 1,460,000  | 3.5              | 12.1 |
| Genoa . . .         | 466,000                          | 1,600,000  | 2.6              | 9.0  |
| Leeds . . .         | 1,300,000                        | 3,500,000  | 4.2              | 11.3 |
| Leipzig . . .       | 312,000                          | 740,000    | 2.3              | 5.5  |
| Lige . . .          | 309,000                          | 1,500,000  | 2.7              | 13.5 |
| Liverpool . . .     | 3,200,000                        | 21,600,000 | 5.9              | 39.6 |
| London . . .        | 11,300,000                       | 20,600,000 | 2.9              | 5.3  |
| Manchester . . .    | 1,900,000                        | 6,200,000  | 3.3              | 10.9 |
| Milan . . .         | ...                              | 3,050,000  | ...              | 9.3  |
| Munich . . .        | 395,000                          | 1,500,000  | 1.8              | 7.0  |
| Naples . . .        | ...                              | 4,860,000  | ...              | 9.9  |
| Newcastle . . .     | 400,000                          | 700,000    | 2.7              | 4.8  |
| New York . . .      | ...                              | 23,100,000 | ...              | 19.1 |
| Palermo . . .       | 320,000                          | 540,000    | 1.3              | 2.2  |
| Paris . . .         | 10,440,000                       | 85,300,000 | 4.7              | 34.2 |
| Philadelphia . . .  | ...                              | 3,400,000  | ...              | 4.1  |
| Rome . . .          | 820,000                          | 2,340,000  | 2.7              | 7.8  |
| San Francisco . . . | 970,000                          | 750,000    | 4.1              | 3.2  |
| St. Louis . . .     | ...                              | 4,800,000  | ...              | 14.0 |
| Sheffield . . .     | 410,000                          | 500,000    | 1.4              | 1.8  |
| Stockholm . . .     | 360,000                          | 480,000    | 2.3              | 3.0  |
| Stuttgart . . .     | 120,000                          | 400,000    | 1.1              | 3.7  |
| Trieste . . .       | 373,000                          | 500,000    | 3.7              | 4.9  |
| Turin . . .         | 520,000                          | 510,000    | 2.7              | 2.7  |
| Venice . . .        | 182,000                          | 430,000    | 1.4              | 3.3  |
| Vienna . . .        | 2,700,000                        | 8,470,000  | 2.5              | 7.8  |

The following is a synopsis of local revenues :—

## ENGLAND

|                          | 1868       | 1880       | 1887       |
|--------------------------|------------|------------|------------|
|                          | £          | £          | £          |
| Rates . . .              | 16,400,000 | 25,700,000 | 32,800,000 |
| Tolls . . .              | 4,350,000  | 4,600,000  | 5,250,000  |
| Loans . . .              | 5,520,000  | 13,720,000 | 8,940,000  |
| Government subsidy . . . | 950,000    | 2,700,000  | 3,980,000  |
| Sundries . . .           | 3,220,000  | 6,290,000  | 3,940,000  |
| Total . . .              | 30,440,000 | 53,010,000 | 54,910,000 |

## SCOTLAND

|                          | 1868      | 1880      | 1887      |
|--------------------------|-----------|-----------|-----------|
|                          | £         | £         | £         |
| Rates . . .              | 1,500,000 | 2,600,000 | 3,400,000 |
| Tolls . . .              | 500,000   | 1,060,000 | 1,030,000 |
| Loans . . .              | 250,000   | 1,120,000 | 1,800,000 |
| Government subsidy . . . | 200,000   | 550,000   | 710,000   |
| Sundries . . .           | 550,000   | 740,000   | 370,000   |
| Total . . .              | 3,000,000 | 6,070,000 | 7,310,000 |

## IRELAND

|                          | 1868      | 1880      | 1887      |
|--------------------------|-----------|-----------|-----------|
|                          | £         | £         | £         |
| Rates . . .              | 2,280,000 | 2,650,000 | 2,840,000 |
| Tolls . . .              | 280,000   | 510,000   | 490,000   |
| Loans . . .              | 240,000   | 260,000   | 480,000   |
| Government subsidy . . . | 80,000    | 100,000   | 120,000   |
| Sundries . . .           | 180,000   | 350,000   | 285,000   |
| Total . . .              | 3,060,000 | 3,870,000 | 4,215,000 |

## UNITED KINGDOM

|                          | 1868       | 1880       | 1887       |
|--------------------------|------------|------------|------------|
|                          | £          | £          | £          |
| Rates . . .              | 20,180,000 | 30,950,000 | 39,040,000 |
| Tolls . . .              | 5,130,000  | 6,170,000  | 6,770,000  |
| Loans . . .              | 6,010,000  | 15,100,000 | 11,220,000 |
| Government subsidy . . . | 1,230,000  | 3,350,000  | 4,810,000  |
| Sundries . . .           | 3,950,000  | 7,380,000  | 4,595,000  |
| Total . . .              | 36,500,000 | 62,950,000 | 66,435,000 |

Local expenditure was as follows :—

## ENGLAND

|                           | 1868       | 1880       | 1887       |
|---------------------------|------------|------------|------------|
|                           | £          | £          | £          |
| Poor relief . . .         | 7,500,000  | 8,040,000  | 8,200,000  |
| Police and works . . .    | 15,350,000 | 32,200,000 | 32,200,000 |
| Schools . . .             | ...        | 3,650,000  | 5,400,000  |
| Roads and bridges . . .   | 2,600,000  | 2,200,000  | 2,100,000  |
| Harbours and lights . . . | 2,700,000  | 3,200,000  | 3,800,000  |
| Sundries . . .            | 2,300,000  | 2,200,000  | 2,700,000  |
| Total . . .               | 30,450,000 | 51,490,000 | 54,400,000 |

## SCOTLAND

|                           | 1868      | 1880      | 1887      |
|---------------------------|-----------|-----------|-----------|
|                           | £         | £         | £         |
| Poor relief . . .         | 870,000   | 880,000   | 880,000   |
| Police and works . . .    | 970,000   | 2,300,000 | 3,100,000 |
| Schools . . .             | ...       | 1,200,000 | 1,400,000 |
| Roads and bridges . . .   | 320,000   | 350,000   | 690,000   |
| Harbours and lights . . . | 240,000   | 1,000,000 | 1,060,000 |
| Sundries . . .            | 180,000   | 190,000   | 150,000   |
| Total . . .               | 2,580,000 | 5,920,000 | 7,280,000 |

## IRELAND

|                           | 1868      | 1880      | 1887      |
|---------------------------|-----------|-----------|-----------|
|                           | £         | £         | £         |
| Poor relief . . .         | 840,000   | 1,000,000 | 1,100,000 |
| Roads and bridges . . .   | 1,120,000 | 1,140,000 | 1,180,000 |
| Harbours and lights . . . | 460,000   | 530,000   | 520,000   |
| Sundries . . .            | 680,000   | 1,090,000 | 1,490,000 |
| Total . . .               | 3,100,000 | 3,760,000 | 4,290,000 |

## UNITED KINGDOM

|                           | 1868       | 1880       | 1887       |
|---------------------------|------------|------------|------------|
|                           | £          | £          | £          |
| Poor relief . . .         | 9,210,000  | 9,920,000  | 10,180,000 |
| Police and works . . .    | 16,320,000 | 34,500,000 | 35,300,000 |
| Schools . . .             | ...        | 4,850,000  | 6,800,000  |
| Roads and bridges . . .   | 4,040,000  | 3,690,000  | 3,970,000  |
| Harbours and lights . . . | 3,400,000  | 4,730,000  | 5,380,000  |
| Sundries . . .            | 3,160,000  | 3,480,000  | 4,340,000  |
| Total . . .               | 36,130,000 | 61,170,000 | 65,970,000 |

Schools and police in Ireland, as well as other items, are defrayed out of the Imperial Treasury at a cost of £3,015,000, of which £1,600,000 are for police and £900,000 for schools, bringing up all local expenditure in Ireland to £7,100,000.

Local taxation in England and Wales was as follows :—

| Year       | £         | Year       | £          |
|------------|-----------|------------|------------|
| 1688 . . . | 780,000   | 1840 . . . | 8,020,000  |
| 1730 . . . | 1,380,000 | 1850 . . . | 8,910,000  |
| 1770 . . . | 1,690,000 | 1862 . . . | 12,210,000 |
| 1790 . . . | 2,420,000 | 1868 . . . | 16,100,000 |
| 1803 . . . | 5,350,000 | 1880 . . . | 31,060,000 |
| 1813 . . . | 8,650,000 | 1886 . . . | 37,300,000 |

The expenditure in England and Wales for support of the poor was as follows:—

| Period            | Annual Average, £ | Rental Valuation, £* | Poor-Rate per £, Pence | Poor-Rate per Inhab., Pence |
|-------------------|-------------------|----------------------|------------------------|-----------------------------|
| 1702-14 . . . . . | 910,000           | 14,200,000           | 16                     | 41                          |
| 1760-75 . . . . . | 1,520,000         | 24,900,000           | 15                     | 58                          |
| 1783-93 . . . . . | 2,050,000         | 30,300,000           | 16                     | 66                          |
| 1803 . . . . .    | 4,080,000         | 35,100,000           | 27                     | 107                         |
| 1815 . . . . .    | 6,100,000         | 53,800,000           | 27                     | 133                         |
| 1816-20 . . . . . | 7,310,000         | 58,200,000           | 30                     | 152                         |
| 1830-35 . . . . . | 6,742,000         | 75,900,000           | 22                     | 116                         |
| 1842-50 . . . . . | 5,290,000         | 90,400,000           | 14                     | 74                          |
| 1851-60 . . . . . | 5,510,000         | 109,600,000          | 12                     | 69                          |
| 1861-70 . . . . . | 6,740,000         | 134,300,000          | 12                     | 77                          |
| 1871-80 . . . . . | 7,710,000         | 167,200,000          | 11                     | 75                          |
| 1880 . . . . .    | 8,015,000         | 191,150,000          | 10                     | 74                          |

The above shows only the rates expended on the poor, but the poor-rate often rose 50 per cent. higher, as it

\* This table must not be confused with poor-law assessment, which was always less; for instance, in 1880 the assessed gross rental was only £158,000,000, and the taxable rental £134,000,000.

included police and other items. The valuation included many items of real estate not liable to poor-rate, and in 1880 was made up thus:—

|                       |              |
|-----------------------|--------------|
| Houses . . . . .      | £ 96,500,000 |
| Lands . . . . .       | 51,700,000   |
| Railways . . . . .    | 24,500,000   |
| Mines . . . . .       | 10,300,000   |
| Gasworks, &c. . . . . | 8,150,000    |

Total . . . . . £ 191,150,000

Local debts in Great Britain in 1880 were as follows:—

|                    |              |
|--------------------|--------------|
| Sanitary . . . . . | £ 56,700,000 |
| Docks . . . . .    | 23,200,000   |
| Sundry . . . . .   | 57,000,000   |
| Scotch . . . . .   | 16,300,000   |

Total . . . . . £ 153,200,000

In 1888 the local debts were known to exceed 200 millions sterling. Those of England and Wales rose as follows:—

| Year           | London, £  | Provinces, £ | Total, £    |
|----------------|------------|--------------|-------------|
| 1882 . . . . . | 32,200,000 | 119,500,000  | 151,700,000 |
| 1885 . . . . . | 35,900,000 | 137,300,000  | 173,200,000 |
| 1888 . . . . . | 39,700,000 | 152,500,000  | 192,200,000 |

## FRANCE

The local taxes at various dates stood thus:—

|                         | 1806      | 1837      | 1864       | 1882       | 1888       |
|-------------------------|-----------|-----------|------------|------------|------------|
| Paris . . . . .         | £ 736,000 | 2,760,000 | 5,370,000  | 9,805,000  | 10,200,000 |
| Thirty cities . . . . . | 490,000   | 1,490,000 | 2,460,000  | 4,230,000  | 30,600,000 |
| Communes . . . . .      | 800,000   | 4,030,000 | 12,300,000 | 18,405,000 |            |
| Total . . . . .         | 2,026,000 | 8,290,000 | 20,130,000 | 32,440,000 | 40,800,000 |

The following statement of Octroi for all France was published in 1886:—

| Year           | Towns Taxed | Amount, £ |           |           |         |           |            |
|----------------|-------------|-----------|-----------|-----------|---------|-----------|------------|
|                |             | Liquor    | Food      | Fuel      | Fodder  | Sundries  | Total      |
| 1831 . . . . . | 1,467       | 880,000   | 700,000   | 300,000   | 120,000 | 200,000   | 2,200,000  |
| 1840 . . . . . | 1,435       | 1,280,000 | 880,000   | 400,000   | 160,000 | 380,000   | 3,100,000  |
| 1850 . . . . . | 1,436       | 1,680,000 | 1,150,000 | 450,000   | 200,000 | 320,000   | 3,800,000  |
| 1860 . . . . . | 1,460       | 2,300,000 | 1,640,000 | 700,000   | 300,000 | 860,000   | 5,800,000  |
| 1870 . . . . . | 1,516       | 3,200,000 | 1,800,000 | 650,000   | 300,000 | 750,000   | 6,700,000  |
| 1880 . . . . . | 1,541       | 4,900,000 | 3,000,000 | 1,200,000 | 600,000 | 1,340,000 | 11,040,000 |
| 1885 . . . . . | 1,529       | 4,900,000 | 3,100,000 | 1,300,000 | 600,000 | 1,150,000 | 11,050,000 |

Octroi is the principal municipal tax, and presses most heavily on the working-classes, as it augments the cost of food, fuel, and other necessities. In sixty years this tax increased five-fold, while the population of the cities so taxed had only doubled, the ratio per inhabitant being now 20 shillings yearly as compared with 8 shillings in 1823. The following table shows the aggregate amount collected for Octroi in French towns at various dates:—

| Year           | Amount, £  | Population Taxed | Per Inhab., Shillings |
|----------------|------------|------------------|-----------------------|
| 1823 . . . . . | 2,470,000  | 5,998,000        | 8                     |
| 1833 . . . . . | 2,640,000  | 6,306,000        | 8                     |
| 1843 . . . . . | 3,302,000  | 7,297,000        | 9                     |
| 1853 . . . . . | 3,617,000  | 7,330,000        | 10                    |
| 1863 . . . . . | 6,298,000  | 9,582,000        | 13                    |
| 1873 . . . . . | 8,451,000  | 10,517,000       | 16                    |
| 1880 . . . . . | 11,040,000 | 11,255,000       | 20                    |

The Octroi of Paris contributes one-half of the total, that is, it is equal to the aggregate of all other French

cities. It was at various dates as follows:—

| Year           | Amount, £ | Population | Per Head, Shillings |
|----------------|-----------|------------|---------------------|
| 1801 . . . . . | 441,000   | 553,000    | 16                  |
| 1821 . . . . . | 1,040,000 | 724,000    | 29                  |
| 1845 . . . . . | 1,370,000 | 986,000    | 28                  |
| 1867 . . . . . | 4,030,000 | 1,732,000  | 46                  |
| 1880 . . . . . | 5,640,000 | 2,180,000  | 52                  |
| 1889 . . . . . | 6,030,000 | 2,400,000  | 50                  |

In all French cities this tax has grown faster than population. The figures of all four cities in 1880 compare with 1867 thus:—

|                      | Octroi, £ |           | Shillings per Inhab. |      |
|----------------------|-----------|-----------|----------------------|------|
|                      | 1867      | 1880      | 1867                 | 1880 |
| Paris . . . . .      | 4,030,000 | 5,640,000 | 46                   | 52   |
| Marseilles . . . . . | 307,000   | 490,000   | 21                   | 28   |
| Lyons . . . . .      | 244,000   | 480,000   | 16                   | 25   |
| Rouen . . . . .      | 102,000   | 155,000   | 21                   | 29   |



The aggregate population of the 1529 towns and cities is 12,000,000, and the amount paid in Octroi in 1885 showed thus :—

|                        | Amount, £         | Pence per Head |
|------------------------|-------------------|----------------|
| Fine . . . . .         | 2,840,000         | 57             |
| Leibol, &c. . . . .    | 1,000,000         | 20             |
| Al . . . . .           | 240,000           | 5              |
| Food . . . . .         | 3,100,000         | 62             |
| Fuel . . . . .         | 1,300,000         | 26             |
| Odder . . . . .        | 600,000           | 12             |
| Tricks, &c. . . . .    | 1,000,000         | 20             |
| Sundries . . . . .     | 970,000           | 20             |
| <b>Total . . . . .</b> | <b>11,050,000</b> | <b>212</b>     |

The above is for all, including Paris; but the Octroi of Paris was much above the average, namely, 60 francs or 18s. per head, the average for the other 1528 towns being 14 francs or 11s. per head.

## GERMANY

Local expenditure in Prussia was as follows :—

|                            | 1869              | 1876              |
|----------------------------|-------------------|-------------------|
| Schools . . . . .          | £ 1,900,000       | £ 3,500,000       |
| Streets . . . . .          | 1,700,000         | 3,000,000         |
| Interest on debt . . . . . | 2,500,000         | 4,800,000         |
| Poor . . . . .             | 2,300,000         | 2,700,000         |
| Police, &c. . . . .        | 3,400,000         | 5,900,000         |
| <b>Total . . . . .</b>     | <b>11,800,000</b> | <b>19,900,000</b> |

Municipal expenditure in 1876 at Berlin, Breslau, and Cologne was as follows :—

|                            | Berlin           | Breslau        | Cologne        |
|----------------------------|------------------|----------------|----------------|
| Schools . . . . .          | £ 230,000        | £ 55,000       | £ 32,000       |
| Streets . . . . .          | 400,000          | 27,000         | 10,000         |
| Interest on debt . . . . . | 300,000          | 80,000         | 70,000         |
| Poor . . . . .             | 270,000          | 13,000         | 25,000         |
| Police, &c. . . . .        | 420,000          | 65,000         | 23,000         |
| <b>Total . . . . .</b>     | <b>1,620,000</b> | <b>240,000</b> | <b>160,000</b> |

The average municipal expenditure was as follows :—

| Year           | Shillings per Inhabitant |         |         |           |
|----------------|--------------------------|---------|---------|-----------|
|                | Berlin                   | Breslau | Cologne | Frankfort |
| 1869 . . . . . | 15                       | 11      | 12      | 18        |
| 1876 . . . . . | 27                       | 18      | 21      | 20        |

All local taxation in Germany may be estimated at 18s. per inhabitant, say 44 millions sterling.

## AUSTRIA-HUNGARY

The municipal finances of Prague in 1884 showed :—

| Receipts, £            | Expenses, £                     |
|------------------------|---------------------------------|
| House-tax . . . . .    | Water supply . . . . .          |
| Tolls . . . . .        | Schools and hospitals . . . . . |
| Sundries . . . . .     | Sundries . . . . .              |
| <b>Total . . . . .</b> | <b>Total . . . . .</b>          |

## BELGIUM

The district finances in 1887 showed thus :—

| Receipts, £             | Expenditure, £         |
|-------------------------|------------------------|
| Tobacco, &c. . . . .    | Schools . . . . .      |
| Dog-tax . . . . .       | Roads . . . . .        |
| Sundries . . . . .      | Sundries . . . . .     |
| State subsidy . . . . . |                        |
| <b>Total . . . . .</b>  | <b>Total . . . . .</b> |

The above does not include city finances. Those of Brussels in 1884 showed :—

| Receipts, £                    | Expenses, £            |
|--------------------------------|------------------------|
| Gas and water rates . . . . .  | Schools . . . . .      |
| Municipal properties . . . . . | Debt . . . . .         |
| Tolls . . . . .                | Police, &c. . . . .    |
| Sundries . . . . .             | Sundries . . . . .     |
| <b>Total . . . . .</b>         | <b>Total . . . . .</b> |

## ITALY

Local taxation, according to official returns, showed thus :—

| Year           | £          | Shillings per Inhabitant |
|----------------|------------|--------------------------|
| 1867 . . . . . | 12,900,000 | 10.0                     |
| 1877 . . . . . | 20,100,000 | 15.0                     |
| 1885 . . . . . | 27,200,000 | 18.0                     |

The average per inhabitant, distinguishing urban from rural communes, was as follows :—

| Year           | Shillings per Inhabitant |       |
|----------------|--------------------------|-------|
|                | Urban                    | Rural |
| 1867 . . . . . | 18                       | 6     |
| 1877 . . . . . | 27                       | 9     |

Urban taxes in 1877 comprised: Octroi, £5,100,000; legacy dues, £1,700,000; sundries, £5,200,000; making a total of £12,000,000.

The average Octroi per head in 1877 was :—

## Shillings per Inhabitant

|                  |    |                   |    |                    |    |
|------------------|----|-------------------|----|--------------------|----|
| Naples . . . . . | 12 | Milan . . . . .   | 14 | Rome . . . . .     | 22 |
| Turin . . . . .  | 12 | Palermo . . . . . | 16 | Florence . . . . . | 24 |
| Venice . . . . . | 14 | Leghorn . . . . . | 16 | Genoa . . . . .    | 26 |

Local debts in 1885 amounted to £41,500,000 sterling.

## UNITED STATES

The taxes in the several States for local purposes (not municipal) were in 1889 as follows :—

|                           | Tax, £            | Population in 1890 | Shillings per Head |
|---------------------------|-------------------|--------------------|--------------------|
| New England . . . . .     | 1,660,000         | 4,690,000          | 7.0                |
| Middle States . . . . .   | 4,060,000         | 14,110,000         | 5.9                |
| Southern States . . . . . | 3,640,000         | 18,280,000         | 4.0                |
| Western States . . . . .  | 5,740,000         | 25,400,000         | 4.5                |
| <b>Total . . . . .</b>    | <b>15,200,000</b> | <b>62,480,000</b>  | <b>4.9</b>         |

In some of the principal States the taxes were in 1889 thus :—

|                         | Tax, £            | Population        | Shillings per Head |
|-------------------------|-------------------|-------------------|--------------------|
| New York . . . . .      | 1,900,000         | 5,980,000         | 6.2                |
| Pennsylvania . . . . .  | 1,740,000         | 5,250,000         | 6.7                |
| Massachusetts . . . . . | 1,050,000         | 2,230,000         | 9.6                |
| Ohio . . . . .          | 1,040,000         | 3,670,000         | 5.7                |
| Illinois . . . . .      | 780,000           | 3,820,000         | 4.1                |
| Kentucky . . . . .      | 780,000           | 1,850,000         | 8.4                |
| Various . . . . .       | 7,910,000         | 39,680,000        | 4.0                |
| <b>Total . . . . .</b>  | <b>15,200,000</b> | <b>62,480,000</b> | <b>4.9</b>         |

Municipal taxes ranged ordinarily from 2 to 3 per cent. on all assessed properties, making up a total of about 37 millions sterling, or £3 per inhabitant yearly. These added to state taxes made up altogether £52,200,000 of local taxation, or 17s. per head of the total population. Compared with 1860 we find :—

| Year           | Local Taxes, £ | Population | Shillings per Head |
|----------------|----------------|------------|--------------------|
| 1860 . . . . . | 19,600,000     | 31,400,000 | 13                 |
| 1889 . . . . . | 52,200,000     | 62,480,000 | 17                 |

The aggregate of state and municipal debts at various dates was as follows :—

|                       | 1850       | 1870        | 1880        | £ per Inhabitant |      |      |
|-----------------------|------------|-------------|-------------|------------------|------|------|
|                       |            |             |             | 1850             | 1870 | 1880 |
| New York . . . .      | 4,800,000  | 29,100,000  | 45,500,000  | 1.6              | 6.5  | 9.0  |
| Pennsylvania . . . .  | 8,800,000  | 16,900,000  | 22,100,000  | 3.9              | 4.5  | 5.1  |
| Massachusetts . . . . | 1,200,000  | 12,700,000  | 19,000,000  | 1.2              | 8.0  | 10.5 |
| Maryland . . . . .    | 3,100,000  | 5,400,000   | 2,300,000   | 5.3              | 7.0  | 2.4  |
| Virginia . . . . .    | 2,900,000  | 10,200,000  | 9,000,000   | 2.1              | 6.0  | 4.3  |
| Ohio . . . . .        | 3,300,000  | 4,000,000   | 10,200,000  | 1.7              | 1.5  | 3.3  |
| Various . . . . .     | 15,800,000 | 80,600,000  | 109,500,000 | 1.3              | 3.3  | 3.3  |
| Total . . . . .       | 39,900,000 | 158,200,000 | 217,600,000 | 1.8              | 4.1  | 4.3  |

The local debts of 1880 were made up thus :—

|                       | State      | City, &c.   | Total       |
|-----------------------|------------|-------------|-------------|
|                       | £          | £           | £           |
| New York . . . .      | 1,600,000  | 43,900,000  | 45,500,000  |
| Pennsylvania . . . .  | 2,600,000  | 19,500,000  | 22,100,000  |
| Massachusetts . . . . | 4,200,000  | 14,800,000  | 19,000,000  |
| Maryland . . . . .    | 1,600,000  | 700,000     | 2,300,000   |
| Virginia . . . . .    | 6,100,000  | 2,900,000   | 9,000,000   |
| Ohio . . . . .        | 1,200,000  | 9,000,000   | 10,200,000  |
| Missouri . . . . .    | 3,400,000  | 8,400,000   | 11,800,000  |
| New Jersey . . . . .  | 100,000    | 10,200,000  | 10,300,000  |
| Louisiana . . . . .   | 4,900,000  | 4,100,000   | 9,000,000   |
| Illinois . . . . .    | ...        | 9,400,000   | 9,400,000   |
| Tennessee . . . . .   | 5,700,000  | 2,100,000   | 7,800,000   |
| Various . . . . .     | 15,700,000 | 45,500,000  | 61,200,000  |
| Total . . . . .       | 47,100,000 | 170,500,000 | 217,600,000 |

The amount of state debt, exclusive of city and county debts, in 1888 was as follows :—

|                        | Debt, £    | Shillings per Inhabitant |
|------------------------|------------|--------------------------|
| New York . . . . .     | 1,400,000  | 5.0                      |
| Pennsylvania . . . .   | 3,100,000  | 12.0                     |
| Massachusetts . . . .  | 6,500,000  | 3.1                      |
| Virginia . . . . .     | 6,400,000  | 3.0                      |
| Tennessee . . . . .    | 3,600,000  | 2.0                      |
| Louisiana . . . . .    | 2,500,000  | 2.1                      |
| North Carolina . . . . | 3,000,000  | 1.8                      |
| Various . . . . .      | 19,700,000 | 10.0                     |
| Total . . . . .        | 46,200,000 | 15.0                     |

In 1883 the public debt of 138 cities and towns summed up 99 millions sterling.

## LONDON

In 1885 London had 555,000 houses, with 4,120,000 inhabitants, covering an area of 117 square miles or 75,000 acres, that is 56 persons per acre. There were 400,000 foot-passengers and 80,000 vehicles passing daily over the bridges, and 370,000 passengers in the Underground Railway. There were 1830 miles of streets, and 2300 miles of sewers, the latter ranging from 1 foot to 12 feet in diameter. The sewage reservoirs (12 miles below London) discharged 150 million gallons daily into the Thames at ebb-tide. Water supply was 140 million gallons daily, or 34 per inhabitant, for which the companies charged £1,500,000, or 1½d. (1.60) per ton. Gas consumption amounted to 20 milliards of cubic feet, at 3s. per 1000 feet, say £3,000,000 per annum, consuming

2 millions tons coal, and conveyed by 2500 miles of pipes some 4 feet in diameter. Fire-brigade had 58 engines, 124 escapes, 580 firemen, costing £100,000 per annum, and using 17 million gallons water. Police, 13,000 men, or 1 in 316 inhabitants. Parks, 42, covering 4490 acres. Markets, 14, covering 15 acres; the meat consumption including 330,000 oxen, 2,100,000 sheep, and amounting altogether to 210,000 tons per annum. There are 220 deaths and 360 births daily, being a natural increase of 140 persons, but the increase of population averages 200 daily, the difference being caused by immigration. Of all deaths, 21 per cent. occur in hospital, and almost 4 per cent. (3.7) are violent deaths, say ten daily. There are 5550 coroners' inquests yearly, and 3580 persons killed or wounded by cabs. About 120 adults are missing every year, and 50 dead bodies are not identified. The number of stray dogs taken up is 29,500 per annum. The foreign trade of London, that is, imports and exports, exceeds 200 millions sterling per annum. There are 11,000 cabs and 2000 omnibuses, which carry 78 million passengers yearly. The growth of the Metropolis has been as follows :—

| Year         | Population | Houses  | Miles of Streets | Valuation, £ |
|--------------|------------|---------|------------------|--------------|
| 1801 . . . . | 959,000    | 130,000 | 470              | 3,700,000    |
| 1821 . . . . | 1,379,000  | 170,000 | 610              | 5,300,000    |
| 1841 . . . . | 1,948,000  | 256,000 | 905              | 9,600,000    |
| 1861 . . . . | 2,804,000  | 369,000 | 1,290            | 16,800,000   |
| 1885 . . . . | 4,120,000  | 555,000 | 1,830            | 35,600,000   |

Municipal expenditure in 1881 was £11,000,000, and debt £21,000,000. Paris, with half the population, spends the same amount yearly, and has a debt of £90,000,000 sterling. The rental valuation of London in 1888 was £38,100,000.

## LOTTERIES

The Spanish lottery gave a net profit of £403,000 in 1882.

The Italian and Austrian lotteries produced as follows :—

|                  | Italy      |            | Austria    |            |
|------------------|------------|------------|------------|------------|
|                  | 1868       | 1877       | 1868       | 1877       |
| Receipts . . . . | £2,420,000 | £2,705,000 | £1,380,000 | £2,172,000 |
| Expenses . . . . | 1,670,000  | 1,713,000  | 850,000    | 1,100,000  |
| Profit . . . . . | 750,000    | 992,000    | 530,000    | 1,072,000  |

## M.

## MACHINERY

The following examples show the economy of labour resulting from machinery:—

1. Arkwright's spinning-jenny enabled one operative in 1815 to produce as much yarn as 200 could a few years before.

2. The crane of Cologne Cathedral in 1870, with two men, did the same work in one hour, in lifting stone, as required 60 men to work 12 hours in the Middle Ages; that is, one man now is equal to 180 of the olden time.

3. The American boot-making machine enables one man to turn out 300 pair of boots daily; one factory near Boston makes as many boots as 32,000 bootmakers in Paris. In 1880 there were 3100 of these machines at work, producing 150 million pair of boots yearly.

4. Altmann's American reaper cuts and binds grain at 45 minutes per acre. D. Glynn of California cuts, threshes, winnows, and bags with each of his machines 60 acres of grain daily.

5. The United States in 1888 produced 600,000 sewing-machines, which could do the work of 7,200,000 women.

6. In the Western States of America one man can raise as much wheat as will feed 1000 persons for 12 months; a second can thresh, winnow, and bag it, and a third convey it to market.

7. A girl 12 years of age in a Lancashire mill can turn out 35 yards of printed calico daily, her work in one year sufficing to clothe yearly 1200 persons in the East.

The export of machinery from Great Britain is large. In 1888 Russia took 300 steam-threshers and 250 portable steam-engines.

The Trade Returns show the value of British machinery exported thus:—

|                |             |                |             |
|----------------|-------------|----------------|-------------|
| 1853 . . . . . | £ 2,000,000 | 1870 . . . . . | £ 5,300,000 |
| 1860 . . . . . | 3,800,000   | 1888 . . . . . | 13,000,000  |

## MAIZE

The crop of 1887 was stated thus:—

|                         | Acres       | Bushels       |
|-------------------------|-------------|---------------|
| France . . . . .        | 1,480,000   | 26,000,000    |
| Russia . . . . .        | 1,360,000   | 13,000,000    |
| Austria . . . . .       | 5,410,000   | 90,000,000    |
| Italy . . . . .         | 4,680,000   | 75,000,000    |
| Spain . . . . .         | 2,000,000   | 40,000,000    |
| Portugal . . . . .      | 200,000     | 4,000,000     |
| Roumania, &c. . . . .   | 2,000,000   | 40,000,000    |
| Europe . . . . .        | 27,130,000  | 288,000,000   |
| United States . . . . . | 72,390,000  | 1,412,000,000 |
| Canada . . . . .        | 180,000     | 9,000,000     |
| Australia . . . . .     | 250,000     | 7,000,000     |
| Egypt . . . . .         | 680,000     | 10,000,000    |
| Algeria . . . . .       | 400,000     | 10,000,000    |
| Argentina . . . . .     | 1,700,000   | 17,000,000    |
| Total . . . . .         | 102,730,000 | 1,753,000,000 |

The United States crop in 1888 reached 1988 million bushels, or 49,700,000 tons. Spallart estimated the crop for the whole world thus:—

| Year              | Millions of Bushels |
|-------------------|---------------------|
| 1871-80 . . . . . | 1,528               |
| 1883-84 . . . . . | 2,035               |
| 1887 . . . . .    | 1,479               |

## MANUFACTURES

The following table shows approximately the value of all manufactures in 1888:—

|                       | Million £ Sterling Yearly |           |          |                  |         |          |       | Per Inhabitant, £ |
|-----------------------|---------------------------|-----------|----------|------------------|---------|----------|-------|-------------------|
|                       | Textiles                  | Hard-ware | Clothing | Beer and Spirits | Leather | Sundries | Total |                   |
| U. Kingdom            | 170                       | 155       | 66       | 75               | 42      | 312      | 820   | 21.5              |
| France . . . . .      | 108                       | 42        | 64       | 21               | 52      | 198      | 485   | 12.7              |
| Germany . . . . .     | 82                        | 91        | 53       | 71               | 53      | 233      | 583   | 12.3              |
| Russia . . . . .      | 52                        | 14        | 51       | 20               | 51      | 175      | 363   | 4.3               |
| Austria . . . . .     | 36                        | 15        | 30       | 23               | 39      | 110      | 253   | 5.1               |
| Italy . . . . .       | 21                        | 4         | 24       | 4                | 17      | 51       | 121   | 4.1               |
| Spain . . . . .       | 16                        | 4         | 16       | 1                | 12      | 36       | 85    | 5.0               |
| Portugal . . . . .    | 2                         | 1         | 3        | ...              | 3       | 7        | 16    | 3.6               |
| Sweden . . . . .      | 2                         | 6         | 6        | 6                | 8       | 22       | 50    | 10.5              |
| Norway . . . . .      | 1                         | 1         | 2        | 3                | 4       | 8        | 19    | 9.5               |
| Denmark . . . . .     | 1                         | 1         | 3        | 4                | 6       | 11       | 26    | 13.0              |
| Holland . . . . .     | 3                         | 1         | 6        | 5                | 6       | 14       | 35    | 8.0               |
| Belgium . . . . .     | 16                        | 17        | 12       | 13               | 6       | 38       | 102   | 17.0              |
| Switzerland . . . . . | 11                        | 2         | 3        | 2                | 2       | 12       | 32    | 11.0              |
| Europe . . . . .      | 521                       | 354       | 339      | 248              | 301     | 1,227    | 2,990 | 9.0               |
| U. States . . . . .   | 112                       | 194       | 98       | 61               | 104     | 874      | 1,443 | 24.0              |
| Australia . . . . .   | 7                         | 15        | 4        | 3                | 6       | 6        | 41    | 11.5              |
| Total . . . . .       | 640                       | 563       | 441      | 312              | 411     | 2,107    | 4,474 | 11.2              |

The latest official return of the manufactures of Canada gives a total of 64 millions sterling. The following table shows approximately the value of manufactures produced yearly in the several countries at various dates:—

|                     | Millions £ Sterling |      |      |       |       |       |
|---------------------|---------------------|------|------|-------|-------|-------|
|                     | 1780                | 1800 | 1820 | 1840  | 1860  | 1888  |
| U. Kingdom          | 177                 | 230  | 290  | 387   | 577   | 820   |
| France . . . . .    | 147                 | 190  | 220  | 264   | 380   | 485   |
| Germany . . . . .   | 50                  | 60   | 85   | 150   | 310   | 583   |
| Russia . . . . .    | 10                  | 15   | 20   | 40    | 155   | 363   |
| Austria . . . . .   | 30                  | 50   | 80   | 142   | 200   | 253   |
| Italy . . . . .     | 10                  | 15   | 25   | 40    | 80    | 121   |
| Spain . . . . .     | 10                  | 20   | 30   | 45    | 60    | 85    |
| Belgium . . . . .   | ...                 | ...  | ...  | 60    | 90    | 102   |
| U. States . . . . . | 15                  | 25   | 55   | 96    | 392   | 1,443 |
| Various . . . . .   | 31                  | 45   | 60   | 90    | 160   | 363   |
| Total . . . . .     | 480                 | 650  | 865  | 1,314 | 2,404 | 4,618 |

**Hardware.**—The hardware manufactures of the world may be approximately summed up thus:—

|                   | Millions £ Sterling |       |        |      |     |      |       |
|-------------------|---------------------|-------|--------|------|-----|------|-------|
|                   | Iron                | Steel | Copper | Lead | Tin | Zinc | Total |
| U. Kingdom        | 50                  | 84    | 10     | 3    | 5   | 3    | 155   |
| France . . . . .  | 20                  | 16    | 3      | 1    | 1   | 1    | 42    |
| Germany . . . . . | 40                  | 38    | 3      | 3    | 1   | 6    | 91    |
| Russia . . . . .  | 5                   | 7     | 1      | 1    | ... | ...  | 14    |
| Austria . . . . . | 6                   | 8     | ...    | 1    | ... | ...  | 15    |
| Italy . . . . .   | 3                   | 1     | ...    | ...  | ... | ...  | 4     |
| Spain . . . . .   | 3                   | 1     | ...    | ...  | ... | ...  | 4     |
| Sweden . . . . .  | 4                   | 2     | ...    | ...  | ... | ...  | 6     |
| Belgium . . . . . | 8                   | 6     | 1      | 1    | 1   | 1    | 17    |
| United States     | 72                  | 95    | 14     | 7    | 4   | 2    | 194   |
| Various . . . . . | 17                  | 20    | 3      | 1    | 1   | 1    | 43    |
| Total . . . . .   | 228                 | 278   | 35     | 18   | 13  | 13   | 585   |

For details regarding the above metals, see each under its own title. The total value of hardware manufactures at various dates was approximately as follows:—

| Year       | Millions £ Sterling |        |         |        |         |       |       |        |         |           |         | Total |
|------------|---------------------|--------|---------|--------|---------|-------|-------|--------|---------|-----------|---------|-------|
|            | U. Kingdom          | France | Germany | Russia | Austria | Italy | Spain | Sweden | Belgium | U. States | Various |       |
| 1780 . . . | 15                  | 8      | 3       | 2      | 2       | 1     | 1     | 1      | ...     | 2         | 2       | 37    |
| 1800 . . . | 20                  | 9      | 4       | 3      | 3       | 1     | 1     | 1      | ...     | 3         | 3       | 48    |
| 1820 . . . | 30                  | 10     | 6       | 4      | 4       | 2     | 2     | 2      | ...     | 7         | 5       | 72    |
| 1840 . . . | 40                  | 12     | 7       | 5      | 5       | 2     | 2     | 3      | 2       | 10        | 7       | 95    |
| 1860 . . . | 85                  | 30     | 40      | 11     | 12      | 3     | 3     | 4      | 9       | 29        | 17      | 245   |
| 1888 . . . | 155                 | 42     | 91      | 14     | 15      | 4     | 4     | 6      | 17      | 194       | 43      | 585   |

The production of the principal metals at various dates was approximately as follows:—

| Year       | Tons       |         |         |        |         |            |
|------------|------------|---------|---------|--------|---------|------------|
|            | Iron       | Copper  | Lead    | Tin    | Zinc    | Total      |
| 1780 . . . | 270,000    | 6,000   | 50,000  | 2,000  | 2,000   | 330,000    |
| 1800 . . . | 460,000    | 8,000   | 60,000  | 3,000  | 3,000   | 534,000    |
| 1820 . . . | 1,010,000  | 10,000  | 70,000  | 4,000  | 3,000   | 1,097,000  |
| 1840 . . . | 2,680,000  | 25,000  | 120,000 | 6,000  | 12,000  | 2,843,000  |
| 1860 . . . | 7,180,000  | 70,000  | 220,000 | 8,000  | 65,000  | 7,543,000  |
| 1888 . . . | 24,800,000 | 190,000 | 410,000 | 35,000 | 240,000 | 25,675,000 |

It appears that the production of metals has multiplied fifty-fold since 1800.

*Textile Manufactures.*—The consumption of fibre by all nations has been approximately as follows:—

| Year   | Millions of Lbs. |       |       |      |       |      |        |
|--------|------------------|-------|-------|------|-------|------|--------|
|        | Cotton           | Wool  | Flax  | Hemp | Jute  | Silk | Total  |
| 1780 . | 220              | 440   | 500   | 350  | ...   | 30   | 1,540  |
| 1800 . | 303              | 460   | 600   | 400  | ...   | 30   | 1,793  |
| 1820 . | 402              | 520   | 700   | 450  | ...   | 33   | 2,105  |
| 1840 . | 1,210            | 604   | 800   | 500  | ...   | 35   | 3,239  |
| 1850 . | 1,335            | 886   | 900   | 600  | 60    | 37   | 3,818  |
| 1860 . | 2,451            | 1,074 | 925   | 700  | 130   | 40   | 5,320  |
| 1870 . | 2,675            | 1,579 | 1,200 | 750  | 410   | 42   | 6,655  |
| 1880 . | 3,501            | 1,915 | 1,120 | 820  | 900   | 45   | 8,301  |
| 1887 . | 4,433            | 2,242 | 1,230 | 880  | 1,310 | 50   | 10,145 |

Reducing to tons the total weight of fibre consumed in 100 years down to 1880, we find it was approximately as follows:—

|           |       | Tons Aggregate |            |            |            |           |           |             |
|-----------|-------|----------------|------------|------------|------------|-----------|-----------|-------------|
|           |       | Cotton         | Wool       | Flax       | Hemp       | Jute      | Silk      | Total       |
| 1781-1800 | . . . | 2,200,000      | 4,100,000  | 4,900,000  | 3,400,000  | ...       | 270,000   | 14,870,000  |
| 1801-20   | . . . | 2,500,000      | 4,400,000  | 5,800,000  | 3,800,000  | ...       | 270,000   | 16,770,000  |
| 1821-40   | . . . | 4,560,000      | 5,500,000  | 6,700,000  | 4,200,000  | ...       | 300,000   | 21,260,000  |
| 1841-50   | . . . | 5,220,000      | 3,600,000  | 3,700,000  | 2,500,000  | 200,000   | 160,000   | 15,380,000  |
| 1851-60   | . . . | 8,260,000      | 4,400,000  | 4,100,000  | 2,900,000  | 600,000   | 170,000   | 20,430,000  |
| 1861-70   | . . . | 8,190,000      | 5,900,000  | 4,800,000  | 3,200,000  | 2,000,000 | 170,000   | 24,260,000  |
| 1871-80   | . . . | 12,860,000     | 7,700,000  | 5,200,000  | 3,400,000  | 3,500,000 | 180,000   | 32,840,000  |
| 100 years | . . . | 43,790,000     | 35,600,000 | 35,200,000 | 23,400,000 | 6,300,000 | 1,520,000 | 145,810,000 |

The total output of textile manufactures in 107 years was approximately as follows:—

| Period          | Millions £ Sterling |         |         |         |         |         |         |         |         |           |        |
|-----------------|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|--------|
|                 | U. Kingdom          | France  | Germany | Russia  | Austria | Italy   | Spain   | Belgium | Various | U. States | Total  |
| 1781-1800 . . . | 620                 | 480     | 160     | 70      | 100     | 50      | 90      | ...     | 110     | 50        | 1,730  |
| 1801-20 . . .   | 980                 | 680     | 210     | 90      | 140     | 70      | 120     | ...     | 160     | 80        | 2,530  |
| 1821-40 . . .   | 1,538               | 921     | 334     | 172     | 243     | 101     | 172     | 60      | 192     | 208       | 3,941  |
| 1841-50 . . .   | 970                 | 634     | 318     | 250     | 199     | 74      | 94      | 54      | 101     | 261       | 2,955  |
| 1851-60 . . .   | 1,265               | 740     | 396     | 294     | 242     | 94      | 115     | 59      | 126     | 375       | 3,706  |
| 1861-70 . . .   | 1,546               | 958     | 486     | 352     | 279     | 128     | 134     | 108     | 163     | 628       | 4,782  |
| 1871-80 . . .   | 1,872               | 945     | 607     | 486     | 331     | 156     | 158     | 151     | 198     | 706       | 5,610  |
| 1881-87 . . .   | 1,218               | 672     | 520     | 361     | 256     | 131     | 110     | 106     | 214     | 651       | 4,239  |
| 107 years . . . | 10,009              | 6,030   | 3,031   | 2,075   | 1,790   | 804     | 993     | 538     | 1,264   | 2,959     | 29,493 |
|                 | 1781-1800           | 1801-20 | 1821-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-87 | Total   |           |        |
| Cottons . . .   | 140                 | 660     | 1,506   | 1,055   | 1,440   | 1,810   | 2,234   | 1,782   | 10,627  |           |        |
| Woollens . . .  | 1,040               | 1,100   | 1,280   | 1,064   | 1,243   | 1,661   | 1,921   | 1,366   | 10,675  |           |        |
| Linens . . .    | 255                 | 370     | 550     | 372     | 431     | 544     | 575     | 397     | 3,494   |           |        |
| Silks . . .     | 205                 | 340     | 480     | 311     | 406     | 522     | 559     | 475     | 3,557   |           |        |
| Sundries . . .  | 30                  | 60      | 125     | 153     | 186     | 245     | 321     | 219     | 1,339   |           |        |
| Total . . .     | 1,730               | 2,530   | 3,941   | 2,955   | 3,706   | 4,782   | 5,610   | 4,239   | 29,493  |           |        |

## MANUFACTURES

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## MANUFACTURES

The value of all textile manufactures in each country at various dates from 1780 was as follows, approximately:—

|                  | Millions £ Sterling |      |      |      |      |      |      |      |      |  |
|------------------|---------------------|------|------|------|------|------|------|------|------|--|
|                  | 1780                | 1800 | 1820 | 1840 | 1850 | 1860 | 1870 | 1880 | 1887 |  |
| U. Kingdom .     | 26                  | 36   | 67   | 92   | 108  | 143  | 174  | 184  | 170  |  |
| France . . .     | 21                  | 27   | 42   | 52   | 70   | 88   | 109  | 110  | 108  |  |
| Germany . . .    | 7                   | 9    | 12   | 22   | 30   | 39   | 53   | 72   | 82   |  |
| Russia . . .     | 3                   | 4    | 5    | 14   | 22   | 29   | 40   | 49   | 52   |  |
| Austria . . .    | 4                   | 6    | 9    | 18   | 20   | 24   | 29   | 34   | 36   |  |
| Italy . . .      | 2                   | 3    | 4    | 6    | 9    | 13   | 15   | 20   | 21   |  |
| Spain . . .      | 4                   | 5    | 7    | 11   | 12   | 14   | 15   | 17   | 16   |  |
| Belgium . . .    | ...                 | ...  | ...  | 8    | 11   | 12   | 17   | 17   | 16   |  |
| Switzerland, &c. | 5                   | 6    | 7    | 8    | 10   | 13   | 15   | 17   | 15   |  |
| Europe . . .     | 72                  | 96   | 153  | 231  | 292  | 375  | 467  | 520  | 516  |  |
| United States .  | 2                   | 3    | 5    | 15   | 28   | 45   | 70   | 98   | 112  |  |
| Total . . .      | 74                  | 99   | 158  | 246  | 320  | 420  | 537  | 618  | 628  |  |

The value of fibre consumed by various nations since 1840 was approximately as follows:—

## UNITED KINGDOM

| Period       | Millions £ Sterling |      |      |                 |       |
|--------------|---------------------|------|------|-----------------|-------|
|              | Cotton              | Wool | Silk | Flax, Hemp, &c. | Total |
| 1841-50 . .  | 112                 | 91   | 65   | 73              | 341   |
| 1851-60 . .  | 241                 | 119  | 68   | 66              | 494   |
| 1861-70 . .  | 430                 | 140  | 55   | 91              | 716   |
| 1871-80 . .  | 390                 | 156  | 32   | 108             | 686   |
| 1881-87 . .  | 252                 | 97   | 16   | 60              | 425   |
| 47 years . . | 1,425               | 603  | 236  | 398             | 2,662 |

## FRANCE

|              |     |     |     |     |       |
|--------------|-----|-----|-----|-----|-------|
| 1841-50 . .  | 33  | 86  | 86  | 63  | 268   |
| 1851-60 . .  | 50  | 96  | 120 | 53  | 319   |
| 1861-70 . .  | 95  | 111 | 166 | 62  | 434   |
| 1871-80 . .  | 71  | 113 | 125 | 70  | 379   |
| 1881-87 . .  | 56  | 72  | 72  | 40  | 240   |
| 47 years . . | 305 | 478 | 569 | 288 | 1,640 |

## GERMANY

|              |     |     |     |     |     |
|--------------|-----|-----|-----|-----|-----|
| 1841-50 . .  | 23  | 53  | 13  | 31  | 120 |
| 1851-60 . .  | 40  | 65  | 18  | 29  | 152 |
| 1861-70 . .  | 81  | 73  | 23  | 33  | 210 |
| 1871-80 . .  | 86  | 81  | 40  | 40  | 247 |
| 1881-87 . .  | 73  | 57  | 38  | 25  | 193 |
| 47 years . . | 303 | 329 | 132 | 158 | 922 |

## RUSSIA

|              |     |     |    |     |     |
|--------------|-----|-----|----|-----|-----|
| 1841-50 . .  | 14  | 49  | 1  | 30  | 94  |
| 1851-60 . .  | 22  | 54  | 2  | 33  | 111 |
| 1861-70 . .  | 40  | 56  | 4  | 42  | 142 |
| 1871-80 . .  | 62  | 72  | 6  | 53  | 193 |
| 1881-87 . .  | 54  | 41  | 5  | 37  | 137 |
| 47 years . . | 192 | 272 | 18 | 195 | 677 |

## AUSTRIA

|              |     |     |    |     |     |
|--------------|-----|-----|----|-----|-----|
| 1841-50 . .  | 11  | 33  | 6  | 28  | 78  |
| 1851-60 . .  | 22  | 35  | 8  | 26  | 91  |
| 1861-70 . .  | 41  | 34  | 11 | 30  | 116 |
| 1871-80 . .  | 49  | 36  | 14 | 36  | 135 |
| 1881-87 . .  | 38  | 25  | 10 | 24  | 97  |
| 47 years . . | 161 | 163 | 49 | 144 | 517 |

## ITALY

| Period       | Millions £ Sterling |      |      |                 |       |
|--------------|---------------------|------|------|-----------------|-------|
|              | Cotton              | Wool | Silk | Flax, Hemp, &c. | Total |
| 1841-50 . .  | 3                   | 13   | 6    | 10              | 32    |
| 1851-60 . .  | 6                   | 15   | 7    | 11              | 39    |
| 1861-70 . .  | 15                  | 17   | 11   | 14              | 57    |
| 1871-80 . .  | 23                  | 20   | 9    | 17              | 69    |
| 1881-87 . .  | 25                  | 12   | 5    | 12              | 54    |
| 47 years . . | 72                  | 77   | 38   | 64              | 251   |

## SPAIN

|              |    |     |    |    |     |
|--------------|----|-----|----|----|-----|
| 1841-50 . .  | 6  | 17  | 2  | 9  | 34  |
| 1851-60 . .  | 12 | 22  | 3  | 7  | 44  |
| 1861-70 . .  | 21 | 24  | 3  | 7  | 55  |
| 1871-80 . .  | 26 | 26  | 4  | 7  | 63  |
| 1881-87 . .  | 21 | 14  | 3  | 5  | 43  |
| 47 years . . | 86 | 103 | 15 | 35 | 239 |

## BELGIUM

|              |    |    |     |    |     |
|--------------|----|----|-----|----|-----|
| 1841-50 . .  | 7  | 5  | ... | 6  | 18  |
| 1851-60 . .  | 8  | 6  | 1   | 7  | 22  |
| 1861-70 . .  | 15 | 18 | 1   | 11 | 45  |
| 1871-80 . .  | 15 | 29 | 3   | 16 | 63  |
| 1881-87 . .  | 13 | 15 | 2   | 13 | 43  |
| 47 years . . | 58 | 73 | 7   | 53 | 191 |

## SCANDINAVIA, SWITZERLAND, &amp;c.

|              |     |     |    |    |     |
|--------------|-----|-----|----|----|-----|
| 1841-50 . .  | 9   | 19  | 7  | 7  | 42  |
| 1851-60 . .  | 15  | 23  | 9  | 7  | 54  |
| 1861-70 . .  | 26  | 29  | 3  | 10 | 68  |
| 1871-80 . .  | 36  | 29  | 6  | 10 | 81  |
| 1881-87 . .  | 60  | 18  | 4  | 7  | 89  |
| 47 years . . | 146 | 118 | 29 | 41 | 334 |

## UNITED STATES

|              |     |     |    |    |       |
|--------------|-----|-----|----|----|-------|
| 1841-50 . .  | 49  | 30  | 2  | 7  | 88    |
| 1851-60 . .  | 84  | 38  | 4  | 12 | 138   |
| 1861-70 . .  | 223 | 62  | 14 | 17 | 316   |
| 1871-80 . .  | 157 | 101 | 15 | 24 | 297   |
| 1881-87 . .  | 150 | 83  | 20 | 16 | 269   |
| 47 years . . | 663 | 314 | 55 | 76 | 1,108 |

## THE WORLD

|              |       |       |       |       |       |
|--------------|-------|-------|-------|-------|-------|
| 1841-50 . .  | 267   | 396   | 188   | 264   | 1,115 |
| 1851-60 . .  | 500   | 473   | 240   | 251   | 1,464 |
| 1861-70 . .  | 987   | 564   | 291   | 317   | 2,159 |
| 1871-80 . .  | 915   | 663   | 254   | 381   | 2,213 |
| 1881-87 . .  | 742   | 434   | 175   | 239   | 1,590 |
| 47 years . . | 3,411 | 2,530 | 1,148 | 1,452 | 8,541 |

The value of goods manufactured from the above fibres in 47 years was approximately, in millions sterling:—

| Period       | Cottons | Woollens | Linens | Silks | Hemp, &c. | Total  |
|--------------|---------|----------|--------|-------|-----------|--------|
| 1841-50 . .  | 1,055   | 1,064    | 372    | 311   | 153       | 2,955  |
| 1851-60 . .  | 1,440   | 1,243    | 431    | 406   | 186       | 3,706  |
| 1861-70 . .  | 1,810   | 1,661    | 544    | 522   | 245       | 4,782  |
| 1871-80 . .  | 2,234   | 1,921    | 575    | 559   | 321       | 5,610  |
| 1881-87 . .  | 1,782   | 1,366    | 397    | 475   | 219       | 4,239  |
| 47 years . . | 8,321   | 7,255    | 2,319  | 2,273 | 1,124     | 21,292 |

|                 | Millions £ Aggregate |          |        |       |           | Total  |
|-----------------|----------------------|----------|--------|-------|-----------|--------|
|                 | Cottons              | Woollens | Linens | Silks | Hemp, &c. |        |
| U. Kingdom      | 3,726                | 1,768    | 572    | 435   | 370       | 6,871  |
| France . . .    | 771                  | 1,368    | 505    | 1,132 | 173       | 3,949  |
| Germany . . .   | 727                  | 948      | 290    | 280   | 82        | 2,327  |
| Russia . . .    | 461                  | 780      | 260    | 37    | 205       | 1,743  |
| Austria . . .   | 382                  | 484      | 217    | 99    | 125       | 1,307  |
| Italy . . .     | 163                  | 195      | 90     | 72    | 63        | 583    |
| Spain . . .     | 202                  | 293      | 58     | 32    | 26        | 611    |
| Belgium . . .   | 141                  | 190      | 115    | 17    | 15        | 478    |
| Scandinavia . . | 52                   | 126      | ...    | ...   | ...       | 178    |
| U. States . . . | 1,411                | 911      | 132    | 115   | 52        | 2,621  |
| Various . . .   | 285                  | 192      | 80     | 54    | 13        | 624    |
| Total . . .     | 8,321                | 7,255    | 2,319  | 2,273 | 1,124     | 21,292 |

The following table shows approximately the value of goods manufactured in each decade :—

| Period   | Millions £ Aggregate |          |        |       |                 | Total |
|----------|----------------------|----------|--------|-------|-----------------|-------|
|          | Cottons              | Woollens | Linens | Silks | Hemp, Jute, &c. |       |
| 1841-50  | 469                  | 249      | 103    | 108   | 41              | 970   |
| 1851-60  | 677                  | 311      | 113    | 115   | 49              | 1,265 |
| 1861-70  | 813                  | 412      | 147    | 96    | 78              | 1,546 |
| 1871-80  | 1,071                | 476      | 132    | 71    | 122             | 1,872 |
| 1881-87  | 696                  | 320      | 77     | 45    | 80              | 1,218 |
| 47 years | 3,726                | 1,768    | 572    | 435   | 370             | 6,871 |

| FRANCE   |     |       |     |       |     |       |
|----------|-----|-------|-----|-------|-----|-------|
| 1841-50  | 136 | 233   | 105 | 140   | 20  | 634   |
| 1851-60  | 158 | 252   | 105 | 200   | 25  | 740   |
| 1861-70  | 180 | 325   | 120 | 298   | 35  | 958   |
| 1871-80  | 165 | 328   | 110 | 288   | 54  | 945   |
| 1881-87  | 132 | 230   | 65  | 206   | 39  | 672   |
| 47 years | 771 | 1,368 | 505 | 1,132 | 173 | 3,949 |

| GERMANY  |     |     |     |     |    |       |
|----------|-----|-----|-----|-----|----|-------|
| 1841-50  | 92  | 142 | 50  | 22  | 12 | 318   |
| 1851-60  | 125 | 171 | 55  | 30  | 15 | 396   |
| 1861-70  | 147 | 215 | 65  | 41  | 18 | 486   |
| 1871-80  | 195 | 235 | 70  | 85  | 22 | 607   |
| 1881-87  | 168 | 185 | 50  | 102 | 15 | 520   |
| 47 years | 727 | 948 | 290 | 280 | 82 | 2,327 |

| RUSSIA   |     |     |     |    |     |       |
|----------|-----|-----|-----|----|-----|-------|
| 1841-50  | 56  | 132 | 25  | 2  | 35  | 250   |
| 1851-60  | 69  | 141 | 40  | 4  | 40  | 294   |
| 1861-70  | 75  | 166 | 60  | 6  | 45  | 352   |
| 1871-80  | 138 | 211 | 75  | 12 | 50  | 486   |
| 1881-87  | 123 | 130 | 60  | 13 | 35  | 361   |
| 47 years | 461 | 780 | 260 | 37 | 205 | 1,743 |

| AUSTRIA  |     |     |     |    |     |       |
|----------|-----|-----|-----|----|-----|-------|
| 1841-50  | 44  | 90  | 35  | 10 | 20  | 199   |
| 1851-60  | 69  | 93  | 40  | 15 | 25  | 242   |
| 1861-70  | 77  | 107 | 45  | 20 | 30  | 279   |
| 1871-80  | 108 | 110 | 55  | 28 | 30  | 331   |
| 1881-87  | 84  | 84  | 42  | 26 | 20  | 256   |
| 47 years | 382 | 484 | 217 | 99 | 125 | 1,307 |

| ITALY    |                      |          |        |       |                 |       |
|----------|----------------------|----------|--------|-------|-----------------|-------|
| Period   | Millions £ Aggregate |          |        |       |                 | Total |
|          | Cottons              | Woollens | Linens | Silks | Hemp, Jute, &c. |       |
| 1841-50  | 12                   | 32       | 10     | 10    | 10              | 74    |
| 1851-60  | 18                   | 34       | 15     | 15    | 12              | 94    |
| 1861-70  | 27                   | 46       | 20     | 20    | 15              | 128   |
| 1871-80  | 51                   | 49       | 25     | 16    | 15              | 156   |
| 1881-87  | 55                   | 34       | 20     | 11    | 11              | 131   |
| 47 years | 163                  | 195      | 90     | 72    | 63              | 583   |

| SPAIN    |     |     |    |    |    |     |
|----------|-----|-----|----|----|----|-----|
| 1841-50  | 24  | 47  | 14 | 4  | 5  | 94  |
| 1851-60  | 36  | 56  | 13 | 5  | 5  | 115 |
| 1861-70  | 39  | 71  | 12 | 6  | 6  | 134 |
| 1871-80  | 57  | 75  | 11 | 9  | 6  | 158 |
| 1881-87  | 46  | 44  | 8  | 8  | 4  | 110 |
| 47 years | 202 | 293 | 58 | 32 | 26 | 611 |

| BELGIUM  |     |     |     |    |    |     |
|----------|-----|-----|-----|----|----|-----|
| 1841-50  | 28  | 11  | 10  | 3  | 2  | 54  |
| 1851-60  | 25  | 13  | 15  | 3  | 3  | 59  |
| 1861-70  | 29  | 47  | 25  | 4  | 3  | 108 |
| 1871-80  | 33  | 75  | 35  | 4  | 4  | 151 |
| 1881-87  | 26  | 44  | 30  | 3  | 3  | 106 |
| 47 years | 141 | 190 | 115 | 17 | 15 | 478 |

| UNITED STATES |       |     |     |     |    |       |
|---------------|-------|-----|-----|-----|----|-------|
| 1841-50       | 160   | 81  | 10  | 5   | 5  | 261   |
| 1851-60       | 218   | 117 | 20  | 10  | 10 | 375   |
| 1861-70       | 396   | 190 | 30  | 20  | 12 | 628   |
| 1871-80       | 337   | 282 | 42  | 30  | 15 | 706   |
| 1881-87       | 320   | 241 | 30  | 50  | 10 | 651   |
| 47 years      | 1,411 | 911 | 132 | 115 | 52 | 2,621 |

The net product of these manufactures in 47 years was approximately thus :—

|                 | Millions £ Sterling |              |             |
|-----------------|---------------------|--------------|-------------|
|                 | Fibre               | Manufactures | Net Product |
| Cotton . . . .  | 3,411               | 8,321        | 4,910       |
| Wool . . . . .  | 2,530               | 7,255        | 4,725       |
| Flax . . . . .  | 963                 | 2,319        | 1,356       |
| Silk . . . . .  | 1,148               | 2,273        | 1,125       |
| Hemp and jute . | 489                 | 1,124        | 635         |
| Total . . . .   | 8,541               | 21,292       | 12,751      |

The net product to the several countries was as follows :—

|                   | Millions £ Sterling |              |             |
|-------------------|---------------------|--------------|-------------|
|                   | Fibre               | Manufactures | Net Product |
| United Kingdom    | 2,662               | 6,871        | 4,209       |
| France . . . .    | 1,640               | 3,949        | 2,309       |
| Germany . . . .   | 922                 | 2,327        | 1,405       |
| Russia . . . . .  | 677                 | 1,743        | 1,066       |
| Austria . . . .   | 517                 | 1,307        | 790         |
| Italy . . . . .   | 251                 | 583          | 332         |
| Spain . . . . .   | 239                 | 611          | 372         |
| Belgium . . . .   | 191                 | 478          | 287         |
| United States . . | 1,108               | 2,621        | 1,513       |
| Various . . . .   | 334                 | 802          | 468         |
| Total . . . .     | 8,541               | 21,292       | 12,751      |

The weight of fibre consumed in 1888 was approximately as follows:—

|                          | Millions of Lbs. |       |       |      |               |        | Lbs. per Inhabitant |
|--------------------------|------------------|-------|-------|------|---------------|--------|---------------------|
|                          | Cotton           | Wool  | Flax  | Silk | Hemp and Jute | Total  |                     |
| United Kingdom . . . . . | 1,530            | 412   | 191   | 3    | 690           | 2,826  | 75                  |
| France . . . . .         | 310              | 421   | 203   | 15   | 246           | 1,195  | 41                  |
| Germany . . . . .        | 378              | 349   | 143   | 7    | 90            | 967    | 20                  |
| Russia . . . . .         | 369              | 145   | 240   | 1    | 140           | 895    | 11                  |
| Austria . . . . .        | 235              | 90    | 127   | 2    | 130           | 584    | 16                  |
| Italy . . . . .          | 152              | 52    | 60    | 1    | 120           | 385    | 13                  |
| Spain . . . . .          | 120              | 60    | 22    | 1    | 20            | 223    | 13                  |
| Belgium . . . . .        | 52               | 100   | 112   | ...  | 20            | 284    | 48                  |
| Switzerland, &c. . . . . | 76               | 75    | 40    | 1    | 30            | 222    | 12                  |
| Europe . . . . .         | 3,222            | 1,704 | 1,138 | 31   | 1,486         | 7,581  | 24                  |
| United States . . . . .  | 1,010            | 434   | 92    | 4    | 330           | 1,870  | 30                  |
| India, &c. . . . .       | 313              | 104   | ...   | 15   | 374           | 806    | ...                 |
| Total . . . . .          | 4,545            | 2,242 | 1,230 | 50   | 2,190         | 10,257 | ...                 |

The value of textiles produced in 1887 was approximately as follows:—

|                         | Millions £ Sterling |          |        |       |          |       |
|-------------------------|---------------------|----------|--------|-------|----------|-------|
|                         | Cottons             | Woollens | Linens | Silks | Sundries | Total |
| U. Kingdom . . . . .    | 101                 | 43       | 9      | 6     | 11       | 170   |
| France . . . . .        | 19                  | 46       | 9      | 29    | 5        | 108   |
| Germany . . . . .       | 23                  | 35       | 7      | 15    | 2        | 82    |
| Russia . . . . .        | 22                  | 14       | 9      | 2     | 5        | 52    |
| Austria . . . . .       | 14                  | 9        | 6      | 4     | 3        | 36    |
| Italy . . . . .         | 9                   | 6        | 3      | 2     | 2        | 21    |
| Spain . . . . .         | 7                   | 6        | 1      | 1     | 1        | 16    |
| Scandinavia . . . . .   | 2                   | 2        | ...    | ...   | 1        | 5     |
| Belgium . . . . .       | 3                   | 6        | 5      | 1     | 1        | 16    |
| Switzerland . . . . .   | 3                   | 1        | ...    | 6     | ...      | 10    |
| Europe . . . . .        | 203                 | 167      | 49     | 66    | 31       | 516   |
| United States . . . . . | 60                  | 39       | 4      | 7     | 2        | 112   |
| India, &c. . . . .      | 16                  | 1        | ...    | 23    | 8        | 48    |
| Total . . . . .         | 279                 | 207      | 53     | 96    | 41       | 676   |

The consumption of textile manufactures in 1888 was approximately as follows:—

|                           | Millions £ Sterling |          |       |        |               |       |
|---------------------------|---------------------|----------|-------|--------|---------------|-------|
|                           | Cottons             | Woollens | Silks | Linens | Hemp and Jute | Total |
| U. Kingdom . . . . .      | 30                  | 27       | 15    | 3      | 9             | 84    |
| France . . . . .          | 18                  | 31       | 22    | 6      | 4             | 81    |
| Germany . . . . .         | 20                  | 25       | 6     | 7      | 2             | 60    |
| Russia . . . . .          | 28                  | 14       | 2     | 9      | 4             | 57    |
| Austria . . . . .         | 14                  | 9        | 4     | 5      | 2             | 34    |
| Italy . . . . .           | 11                  | 7        | 2     | 3      | 2             | 25    |
| Spain . . . . .           | 7                   | 7        | 2     | 1      | 1             | 18    |
| Scandinavia . . . . .     | 4                   | 5        | 1     | 1      | 1             | 12    |
| Holland . . . . .         | 2                   | 1        | 1     | 1      | 1             | 6     |
| Belgium . . . . .         | 3                   | 6        | 1     | 1      | 1             | 12    |
| Other countries . . . . . | 3                   | 5        | 1     | 2      | 5             | 16    |
| Europe . . . . .          | 140                 | 137      | 57    | 39     | 32            | 405   |
| United States . . . . .   | 66                  | 44       | 14    | 8      | 5             | 137   |
| Other countries . . . . . | 73                  | 26       | 25    | 6      | 6             | 136   |
| Total . . . . .           | 279                 | 207      | 96    | 53     | 43            | 678   |

#### UNITED KINGDOM

The value of British manufactures, that is, of the gross annual product, without deducting raw material or anything else, has been estimated as follows at various epochs:—

| Year              | Millions £ | Writers              |
|-------------------|------------|----------------------|
| 1783 . . . . .    | 57         | M'Pherson            |
| 1803-10 . . . . . | 105        | Eden, Stevenson, &c. |
| 1835 . . . . .    | 149        | Lavergne             |
| 1850 . . . . .    | 180        | Poole                |
| 1888 . . . . .    | 820        | Mulhall              |

The earlier estimates were too low, as they omitted beer, flour, clothing, and other large items.

If we study the consumption of raw material, and the prices current at the several periods, we may construct the following approximate table:—

|                           | Millions £ Sterling |      |      |      |      |
|---------------------------|---------------------|------|------|------|------|
|                           | 1780                | 1810 | 1840 | 1860 | 1888 |
| Woollens . . . . .        | 17                  | 18   | 22   | 34   | 43   |
| Cottons . . . . .         | 2                   | 20   | 48   | 81   | 101  |
| Linens, jute, &c. . . . . | 4                   | 13   | 13   | 16   | 20   |
| Silks . . . . .           | 3                   | 5    | 9    | 12   | 6    |
| Leather . . . . .         | 11                  | 14   | 18   | 30   | 42   |
| Clothing . . . . .        | 20                  | 30   | 40   | 55   | 66   |
| Liquor and food . . . . . | 55                  | 60   | 87   | 94   | 116  |
| Hardware . . . . .        | 15                  | 25   | 40   | 85   | 155  |
| Furniture . . . . .       | 5                   | 7    | 10   | 15   | 20   |
| Printing . . . . .        | 1                   | 2    | 3    | 9    | 16   |
| Sundries . . . . .        | 44                  | 66   | 97   | 146  | 235  |
| Total . . . . .           | 177                 | 260  | 387  | 577  | 820  |

The textile manufactures have been greatly developed in the present century, the consumption of fibre in the United Kingdom showing thus:—

| Year           | Millions of Lbs. Weight |      |      |      |      | Total |
|----------------|-------------------------|------|------|------|------|-------|
|                | Cotton                  | Wool | Flax | Hemp | Jute |       |
| 1801 . . . . . | 54                      | 117  | 48   | 82   | ...  | 301   |
| 1810 . . . . . | 114                     | 123  | 60   | 107  | ...  | 404   |
| 1820 . . . . . | 123                     | 125  | 87   | 95   | ...  | 430   |
| 1830 . . . . . | 246                     | 150  | 138  | 59   | ...  | 593   |
| 1840 . . . . . | 448                     | 173  | 210  | 67   | ...  | 898   |
| 1850 . . . . . | 565                     | 185  | 240  | 122  | 42   | 1,163 |
| 1860 . . . . . | 1,140                   | 234  | 228  | 78   | 86   | 1,766 |
| 1870 . . . . . | 1,101                   | 309  | 291  | 160  | 324  | 2,185 |
| 1880 . . . . . | 1,404                   | 338  | 227  | 165  | 404  | 2,538 |
| 1887 . . . . . | 1,499                   | 378  | 190  | 196  | 494  | 2,757 |

The following table shows the approximate value of all British and Irish textile industries during the past 100 years at various dates :—

| Year | Millions £ Sterling |          |        |       |           |       |
|------|---------------------|----------|--------|-------|-----------|-------|
|      | Cottons             | Woollens | Linens | Silks | Jute, &c. | Total |
| 1780 | 2                   | 17       | 2      | 3     | 2         | 26    |
| 1800 | 8                   | 18       | 4      | 4     | 2         | 36    |
| 1810 | 20                  | 18       | 5      | 5     | 8         | 56    |
| 1820 | 33                  | 19       | 6      | 7     | 2         | 67    |
| 1830 | 39                  | 20       | 8      | 8     | 2         | 77    |
| 1840 | 48                  | 22       | 11     | 9     | 2         | 92    |
| 1850 | 49                  | 28       | 13     | 12    | 6         | 108   |
| 1860 | 81                  | 34       | 12     | 12    | 4         | 143   |
| 1870 | 91                  | 48       | 14     | 9     | 12        | 174   |
| 1880 | 105                 | 48       | 12     | 7     | 12        | 184   |
| 1887 | 101                 | 43       | 9      | 6     | 11        | 170   |

The total consumption of fibre, excluding silk, in the factories during forty-five years, down to 1885, was as follows :—

|                 | Tons       |            |            |
|-----------------|------------|------------|------------|
|                 | 1841-70    | 1871-85    | Total      |
| Cotton . . . .  | 9,650,000  | 8,950,000  | 18,600,000 |
| Wool . . . .    | 3,150,000  | 2,430,000  | 5,580,000  |
| Flax and hemp . | 4,600,000  | 2,700,000  | 7,300,000  |
| Jute . . . .    | 1,300,000  | 2,700,000  | 4,000,000  |
| Total . . . .   | 18,700,000 | 16,780,000 | 35,480,000 |

The output of stuffs and cloths in English statute miles was approximately as follows :—

|                  | 1841-70           | 1871-85           | Total             |
|------------------|-------------------|-------------------|-------------------|
|                  | Millions of Yards | Millions of Yards | Millions of Yards |
| Cottons . . . .  | 43,750,000        | 45,620,000        | 89,370,000        |
| Woollens . . . . | 3,420,000         | 2,860,000         | 6,280,000         |
| Linens . . . .   | 5,460,000         | 2,500,000         | 7,960,000         |
| Jute . . . .     | 1,700,000         | 2,100,000         | 3,800,000         |
| Total . . . .    | 54,330,000        | 53,080,000        | 107,410,000       |

The output of fifteen years ending 1885 was almost equal to that of thirty years ending 1870.

In the following table are shown the cost of fibre, and value of the manufactures :—

| Period           | Millions £ Sterling |              |            |
|------------------|---------------------|--------------|------------|
|                  | Raw Fibre           | Manufactures | Net Result |
| 1841-50 . . . .  | 341                 | 970          | 629        |
| 1851-60 . . . .  | 494                 | 1,265        | 771        |
| 1861-70 . . . .  | 716                 | 1,546        | 830        |
| 1871-80 . . . .  | 686                 | 1,872        | 1,186      |
| 1881-87 . . . .  | 425                 | 1,218        | 793        |
| 47 years . . . . | 2,662               | 6,871        | 4,209      |

|                | Millions £ Sterling |              |            |
|----------------|---------------------|--------------|------------|
|                | Raw fibre           | Manufactures | Net Result |
| Cotton . . . . | 1,425               | 3,726        | 2,301      |
| Wool . . . .   | 603                 | 1,768        | 1,165      |
| Silk . . . .   | 236                 | 435          | 199        |
| Flax . . . .   | 240                 | 572          | 332        |
| Hemp, jute . . | 158                 | 370          | 212        |
| Total . . . .  | 2,662               | 6,871        | 4,209      |

The annual product of each operative, as well in the

gross as the net result, after deducting cost of raw material, are shown as follows :—

|                 | Gross, £ | Net, £ |
|-----------------|----------|--------|
| Cotton . . . .  | 178      | 101    |
| Woollen . . . . | 155      | 108    |
| Linens . . . .  | 95       | 60     |
| Jute . . . .    | 230      | 154    |
| Silk . . . .    | 161      | 99     |

In the preceding tables, the value of manufactures includes not only stuffs, but also yarns exported to other countries.

The export of yarn showed thus :—

| Year         | Millions of Lbs. Yarn |         |        |      |       |
|--------------|-----------------------|---------|--------|------|-------|
|              | Cotton                | Woollen | Linens | Jute | Total |
| 1841 . . . . | 119                   | 4       | 18     | ...  | 141   |
| 1851 . . . . | 144                   | 14      | 19     | ...  | 177   |
| 1861 . . . . | 178                   | 28      | 26     | 2    | 234   |
| 1871 . . . . | 194                   | 44      | 36     | 14   | 288   |
| 1885 . . . . | 246                   | 44      | 17     | 31   | 338   |
| 1889 . . . . | 252                   | 45      | 14     | 34   | 345   |

|          | Aggregate in Tons Yarn |         |         |         |           |
|----------|------------------------|---------|---------|---------|-----------|
|          | Cotton                 | Woollen | Linens  | Jute    | Total     |
| 1841-50  | 580,000                | 40,000  | 80,000  | ...     | 700,000   |
| 1851-60  | 710,000                | 90,000  | 100,000 | ...     | 900,000   |
| 1861-70  | 830,000                | 160,000 | 135,000 | 40,000  | 1,165,000 |
| 1871-80  | 990,000                | 180,000 | 120,000 | 70,000  | 1,360,000 |
| 1881-89  | 1,010,000              | 175,000 | 70,000  | 105,000 | 1,360,000 |
| 49 years | 4,120,000              | 645,000 | 505,000 | 215,000 | 5,485,000 |

The following table shows the consumption of fibre in the United Kingdom, and in the whole world in 1840 and 1887.

|                | 1840             |           | 1887             |           |
|----------------|------------------|-----------|------------------|-----------|
|                | Millions of Lbs. |           | Millions of Lbs. |           |
|                | United Kingdom   | The World | United Kingdom   | The World |
| Cotton . . . . | 448              | 1,210     | 1,499            | 4,433     |
| Wool . . . .   | 173              | 694       | 378              | 2,242     |
| Flax . . . .   | 210              | 800       | 190              | 1,230     |
| Hemp . . . .   | 67               | 500       | 196              | 880       |
| Jute . . . .   | ...              | ...       | 494              | 1,310     |
| Total . . . .  | 898              | 3,204     | 2,757            | 10,095    |

In 1840 the United Kingdom consumed 28 per cent., and in 1887 27½ per cent. of all the fibre in the world. As regards iron, leather, timber, &c., details of these industries will be found under their respective titles.

The gross value of British manufactures has increased in far greater ratio than the number of hands employed, as we see by comparing the Factory Returns, and Booth's Digest of the Censuses, with the approximate values already stated, viz. :—

| Year         | Engaged in Manufactures |           |           | Manu-<br>factures,<br>Millions £ | Value<br>per Oper-<br>ative, £ |
|--------------|-------------------------|-----------|-----------|----------------------------------|--------------------------------|
|              | In Mills                | Artisans  | Total     |                                  |                                |
| 1840 . . . . | 424,000                 | 2,713,000 | 3,137,000 | 400                              | 127                            |
| 1860 . . . . | 776,000                 | 3,388,000 | 4,164,000 | 583                              | 140                            |
| 1888 . . . . | 1,034,000               | 3,501,000 | 4,535,000 | 820                              | 181                            |

Owing to machinery, two workpeople can now produce manufactures to the same value as three could in 1841; but if the volume, instead of the value of merchandise were considered, we should find that two now produce more than five did fifty years ago.



In 1835 the textile factories had 355,000 hands :—

|                | Cotton  | Woollen | Silk   | Flax, &c. | Total   |
|----------------|---------|---------|--------|-----------|---------|
| England . . .  | 183,000 | 66,000  | 30,000 | 16,000    | 295,000 |
| Scotland . . . | 33,000  | 3,000   | 1,000  | 13,000    | 50,000  |
| Ireland . . .  | 4,000   | 2,000   | ...    | 4,000     | 10,000  |
| U. Kingdom     | 220,000 | 71,000  | 31,000 | 33,000    | 355,000 |
| Males . . .    | 101,000 | 37,000  | 10,000 | 10,000    | 158,000 |
| Females . . .  | 119,000 | 34,000  | 21,000 | 23,000    | 197,000 |
| Total . . .    | 220,000 | 71,000  | 31,000 | 33,000    | 355,000 |

In 1885 the factories had 1,034,000 hands, as follows :—

|                     | Men     | Women   | Children | Total     |
|---------------------|---------|---------|----------|-----------|
| England . . .       | 301,000 | 437,000 | 76,000   | 814,000   |
| Scotland . . .      | 41,000  | 101,000 | 10,000   | 152,000   |
| Ireland . . .       | 19,000  | 44,000  | 5,000    | 68,000    |
| United Kingdom      | 361,000 | 582,000 | 91,000   | 1,034,000 |
| Cotton . . .        | 172,000 | 282,000 | 50,000   | 504,000   |
| Woollen . . .       | 113,000 | 146,000 | 23,000   | 282,000   |
| Flax and hemp . . . | 33,000  | 80,000  | 9,000    | 122,000   |
| Jute . . .          | 11,000  | 26,000  | 5,000    | 42,000    |
| Silk . . .          | 12,000  | 28,000  | 3,000    | 43,000    |
| Hosiery, &c. . .    | 20,000  | 20,000  | 1,000    | 41,000    |
| Total . . .         | 361,000 | 582,000 | 91,000   | 1,034,000 |

The value of hardware manufactures may be estimated approximately as follows :—

|                                | Tons      | Value, £    |
|--------------------------------|-----------|-------------|
| Pig iron exported . . .        | 1,200,000 | 3,000,000   |
| Iron wares, home use . . .     | 1,800,000 | 27,000,000  |
| Steel exported . . .           | 300,000   | 3,000,000   |
| Steel, home manufactures . . . | 2,700,000 | 81,000,000  |
| Iron wares exported . . .      | 2,000,000 | 20,000,000  |
| Lead manufactures . . .        | 100,000   | 3,000,000   |
| Copper . . .                   | 100,000   | 10,000,000  |
| Tin . . .                      | 20,000    | 5,000,000   |
| Zinc . . .                     | 70,000    | 2,800,000   |
| Total . . .                    | ...       | 154,800,000 |

#### FRANCE

The value of manufactures produced annually has been preceding years thus :—

| Year           | Millions £ Sterling | Writer  |
|----------------|---------------------|---------|
| 1788 . . . . . | 37                  | Tolosan |
| 1819 . . . . . | 73                  | Chaptal |
| 1835 . . . . . | 158                 | ...     |
| 1878 . . . . . | 390                 | Kolb    |
| 1888 . . . . . | 485                 | Mulhall |

Several items seem to have been omitted in the early estimates. The following is an approximate table :—

|                    | Millions £ Sterling |      |      |      |
|--------------------|---------------------|------|------|------|
|                    | 1788                | 1835 | 1888 | 1888 |
| Textiles . . . . . | 21                  | 47   | 96   | 108  |
| Hardware . . . . . | 8                   | 10   | 31   | 42   |
| Food . . . . .     | 52                  | 82   | 112  | 114  |
| Clothing . . . . . | 22                  | 44   | 56   | 64   |
| Leather . . . . .  | 20                  | 24   | 40   | 52   |
| Sundries . . . . . | 24                  | 57   | 92   | 105  |
| Total . . . . .    | 147                 | 264  | 427  | 485  |

The tables of Tolosan and Chaptal showed as follows :—

|                     | 1788       | 1819       |
|---------------------|------------|------------|
| Textiles . . . . .  | 17,400,000 | 27,000,000 |
| Hardware . . . . .  | 1,400,000  | 8,400,000  |
| Jewellery . . . . . | 4,500,000  | 5,000,000  |
| Skins . . . . .     | 2,600,000  | 5,700,000  |
| Sundries . . . . .  | 11,300,000 | 26,700,000 |
| Total . . . . .     | 37,200,000 | 72,800,000 |

The following estimate of French manufactures was published in 1835 :—

|                                 | Number | Value, £    |
|---------------------------------|--------|-------------|
| Mills . . . . .                 | 82,900 | 49,800,000  |
| Factories . . . . .             | 38,300 | 76,600,000  |
| Foundries . . . . .             | 4,425  | 10,600,000  |
| Steam-engines . . . . .         | 1,448  | 2,900,000   |
| Workshops and waggons . . . . . | ...    | 17,700,000  |
| Total . . . . .                 | ...    | 157,600,000 |

| Product, £         | Balance-sheet, £                         |
|--------------------|------------------------------------------|
| Silks . . . . .    | Raw material . . . . . 56,100,000        |
| Woollens . . . . . | Wages . . . . . 60,800,000               |
| Cottons . . . . .  | Wear and tear . . . . . 20,900,000       |
| Linens . . . . .   | Interest on capital . . . . . 13,100,000 |
| Iron . . . . .     | Net profit . . . . . 6,700,000           |
| Sundries . . . . . |                                          |
| Total . . . . .    | 157,600,000                              |

An incomplete official report in 1854 showed the following averages for seven previous years :—

|                    | Factories | Engines | Operatives | Manufactures, £ |
|--------------------|-----------|---------|------------|-----------------|
| Textiles . . . . . | 12,858    | 934     | 695,000    | 65,600,000      |
| Food . . . . .     | 41,762    | 429     | 136,000    | 62,800,000      |
| Sundries . . . . . | 4,687     | 426     | 118,000    | 9,800,000       |
| Total . . . . .    | 59,307    | 1,789   | 949,000    | 138,200,000     |

Another report in 1866 gave the average for five preceding years thus :—

|                    | Factories | Engines | Operatives | Manufactures, £ |
|--------------------|-----------|---------|------------|-----------------|
| Textiles . . . . . | 12,480    | 777     | 685,000    | 93,300,000      |
| Food . . . . .     | 52,845    | 2,131   | 174,000    | 112,100,000     |
| Sundries . . . . . | 8,553     | 1,369   | 179,000    | 22,200,000      |
| Total . . . . .    | 73,878    | 4,277   | 1,038,000  | 227,600,000     |

Kolb mentions a report in 1878 showing 123,000 factories employing 1,783,000 operatives, turning out products to the value of 390 millions sterling per annum, of which textiles stood for 105 millions sterling.

Respecting these factories we find :—

| Worked by       | Number | Horse-Power |
|-----------------|--------|-------------|
| Steam . . . . . | 16,500 | 220,000     |
| Water . . . . . | 52,700 | 298,000     |
| Wind . . . . .  | 11,300 | 40,000      |
| Total . . . . . | 80,500 | 558,000     |

The *Statesman's Year-Book* for 1890 gives the following :—

|                  | Factories | Operatives | Horse-Power | Spindles  | Power-Looms | Hand-Looms |
|------------------|-----------|------------|-------------|-----------|-------------|------------|
| Cotton . . . . . | 1,000     | 119,000    | 62,400      | 5,100,000 | 72,000      | 30,000     |
| Wool . . . . .   | 1,926     | 115,000    | 42,800      | 3,300,000 | 46,000      | 28,000     |
| Silk . . . . .   | 1,172     | 110,000    | ...         | 1,100,000 | 51,000      | 56,000     |
| Total . . . . .  | 4,098     | 344,000    | 105,200     | 9,500,000 | 169,000     | 114,000    |

There are also 365 flax, hemp, and jute factories, consuming 310,000 tons fibre yearly.

In 1875 an estimate of French manufactures was published, differing but slightly from the figures given by Kolb; it was as follows :—

|                               | Hands     | Product, £  |
|-------------------------------|-----------|-------------|
| Textiles . . . . .            | 770,000   | 137,000,000 |
| Flour-mills . . . . .         | 120,000   | 80,000,000  |
| Clothing . . . . .            | 156,000   | 52,000,000  |
| Leather . . . . .             | 300,000   | 36,000,000  |
| Metals and minerals . . . . . | 330,000   | 36,000,000  |
| Soap, candles, &c. . . . .    | 100,000   | 30,000,000  |
| Sugar, beer, &c. . . . .      | 70,000    | 26,000,000  |
| Fancy goods . . . . .         | 90,000    | 19,000,000  |
| Total . . . . .               | 1,936,000 | 416,000,000 |

The value of textile manufactures was approximately as follows, in millions £ sterling :—

|                     | 1810 | 1840 | 1860 | 1880 |
|---------------------|------|------|------|------|
| Woollens . . . . .  | 16   | 17   | 31   | 45   |
| Cottons . . . . .   | 4    | 12   | 16   | 16   |
| Silks . . . . .     | 5    | 9    | 24   | 29   |
| Linens, &c. . . . . | 7    | 12   | 14   | 17   |
| Total . . . . .     | 32   | 50   | 85   | 107  |

The balance-sheet of textile industries for forty-seven years, ending 1887, may be summed up thus :—

|                    | Millions £ |              |             |
|--------------------|------------|--------------|-------------|
|                    | Fibre      | Manufactures | Net Product |
| Silk . . . . .     | 569        | 1,132        | 563         |
| Cotton . . . . .   | 305        | 771          | 466         |
| Wool . . . . .     | 478        | 1,368        | 890         |
| Flax, &c. . . . .  | 288        | 678          | 390         |
| Total . . . . .    | 1,640      | 3,949        | 2,309       |
| 1841-50 . . . . .  | 268        | 634          | 366         |
| 1851-60 . . . . .  | 319        | 740          | 421         |
| 1861-70 . . . . .  | 434        | 958          | 524         |
| 1871-80 . . . . .  | 379        | 945          | 566         |
| 1881-87 . . . . .  | 240        | 672          | 432         |
| 47 years . . . . . | 1,640      | 3,949        | 2,309       |

Production and consumption in 1887 compared thus :—

|                    | Millions £ |             |
|--------------------|------------|-------------|
|                    | Production | Consumption |
| Cottons . . . . .  | 19         | 18          |
| Woollens . . . . . | 46         | 31          |
| Silks . . . . .    | 29         | 22          |
| Linens . . . . .   | 9          | 6           |
| Sundries . . . . . | 5          | 4           |
| Total . . . . .    | 108        | 81          |

The metallic industries may be estimated approximately thus :—

|                   | Tons Consumed | Value of Product, £ |
|-------------------|---------------|---------------------|
| Steel . . . . .   | 530,000       | 15,900,000          |
| Iron . . . . .    | 1,300,000     | 19,500,000          |
| Copper . . . . .  | 35,000        | 3,500,000           |
| Lead, &c. . . . . | ...           | 3,100,000           |
| Total . . . . .   | ...           | 42,000,000          |

#### GERMANY

In 1805 the manufactures of Prussia were estimated by Oddy as follows :—

|                        |           |                         |           |
|------------------------|-----------|-------------------------|-----------|
| Woollens . . . . .     | 1,700,000 | Hardware . . . . .      | 1,300,000 |
| Linens . . . . .       | 1,800,000 | Furniture . . . . .     | 1,000,000 |
| Silks . . . . .        | 700,000   | Leather . . . . .       | 400,000   |
| Cottons . . . . .      | 500,000   | Sundry . . . . .        | 300,000   |
| All textiles . . . . . | 4,700,000 | Miscellaneous . . . . . | 2,900,000 |

This made a grand total of only £7,600,000, but it omitted beer, food, clothing, and other large items. In 1843 the following estimate, likewise for Prussia, was published :—

|                    |            |                   |           |
|--------------------|------------|-------------------|-----------|
| Cottons . . . . .  | 5,000,000  | Linens . . . . .  | 2,800,000 |
| Woollens . . . . . | 17,400,000 | Tobacco . . . . . | 2,400,000 |
| Silks . . . . .    | 3,600,000  | Beer, &c. . . . . | 4,800,000 |

This summed up 36 millions sterling, but was also very defective.

The Census returns show the number of hands employed in manufactures in 1846 was 842,000, and in 1861 amounted to 1,093,000. That of 1869 for all Germany was as follows :—

|                        | Factory Hands | Artisans  | Total     | Number of Factories |
|------------------------|---------------|-----------|-----------|---------------------|
| Prussia . . . . .      | 680,000       | 1,794,000 | 2,474,000 | 79,529              |
| Hanover . . . . .      | 46,000        | 170,000   | 216,000   | 6,949               |
| Bavaria . . . . .      | 164,000       | 512,000   | 676,000   | 37,997              |
| Saxony . . . . .       | 214,000       | 413,000   | 627,000   | 11,357              |
| Wurtemberg . . . . .   | 86,000        | 235,000   | 321,000   | 19,231              |
| Baden . . . . .        | 63,000        | 156,000   | 219,000   | 6,764               |
| Small States . . . . . | 168,000       | 500,000   | 668,000   | 28,803              |
| Total . . . . .        | 1,421,000     | 3,780,000 | 5,201,000 | 190,600             |

The hands and horse-power in 1880 were as follows :—

|                     | Hands     | Horse-Power |
|---------------------|-----------|-------------|
| Textiles . . . . .  | 910,000   | 391,000     |
| Clothing . . . . .  | 1,260,000 | 21,000      |
| Food . . . . .      | 744,000   | 176,000     |
| Wood . . . . .      | 470,000   | 52,000      |
| Machinery . . . . . | 356,000   | 195,000     |
| Metals . . . . .    | 460,000   | 106,000     |
| Building . . . . .  | 534,000   | 22,000      |
| Sundries . . . . .  | 983,000   | 320,000     |
| Total . . . . .     | 5,717,000 | 1,283,000   |

The Census of 1880 gave the following tables :—

|                    | Hands Engaged in Factories |         |           | Manufacturing Population         |
|--------------------|----------------------------|---------|-----------|----------------------------------|
|                    | Males                      | Females | Total     |                                  |
| Textiles . . . . . | 195,000                    | 190,000 | 385,000   | Prussia . . . . . 9,394,000      |
| Hardware . . . . . | 312,000                    | 15,000  | 327,000   | Bavaria . . . . . 1,492,000      |
| Food . . . . .     | 219,000                    | 46,000  | 265,000   | Saxony . . . . . 1,696,000       |
| Printing . . . . . | 29,000                     | 7,000   | 36,000    | Wurtemberg . . . . . 674,000     |
| Various . . . . .  | 444,000                    | 70,000  | 514,000   | Small States . . . . . 2,802,000 |
| Total . . . . .    | 1,199,000                  | 328,000 | 1,527,000 | Total . . . . . 16,058,000       |

In 1876 Engel found 28,985 factories had steam-power with an aggregate of 888,000 horse-power.

The number of persons engaged in certain industries in 1880 was as follows :—

|                        | Textiles | Iron    | Machinery | Leather | Wood    | Paper   |
|------------------------|----------|---------|-----------|---------|---------|---------|
| Prussia . . . . .      | 452,000  | 201,000 | 194,000   | 67,000  | 243,000 | 49,000  |
| Bavaria . . . . .      | 65,000   | 37,000  | 18,000    | 11,000  | 57,000  | 8,000   |
| Saxony . . . . .       | 166,000  | 27,000  | 42,000    | 9,000   | 41,000  | 18,000  |
| Wurtemberg . . . . .   | 36,000   | 18,000  | 17,000    | 7,000   | 26,000  | 6,000   |
| Small States . . . . . | 191,000  | 101,000 | 83,000    | 28,000  | 103,000 | 20,000  |
| Total . . . . .        | 910,000  | 384,000 | 354,000   | 122,000 | 470,000 | 101,000 |

The production and consumption of textile goods in Germany in 1887 represented approximately the following values :—

|                    | Millions £ Sterling |             | Spindles in Factories |
|--------------------|---------------------|-------------|-----------------------|
|                    | Manufacture         | Consumption |                       |
| Cottons . . . . .  | 23                  | 20          | 4,900,000             |
| Woolens . . . . .  | 35                  | 25          | 2,000,000             |
| Linsens . . . . .  | 7                   |             | 300,000               |
| Silks . . . . .    | 15                  | 7           | 900,000               |
| Sundries . . . . . | 2                   | 2           | 100,000               |
| Total . . . . .    | 82                  | 60          | 8,200,000             |

The following table gives approximately the value of all textiles manufactured at various dates, in millions £ sterling :—

|                      | 1810 | 1840 | 1860 | 1880 | 1887 |
|----------------------|------|------|------|------|------|
| Woolens . . . . .    | 3    | 8    | 16   | 28   | 35   |
| Cottons . . . . .    | 1    | 5    | 9    | 20   | 23   |
| Silks . . . . .      | 1    | 2    | 4    | 11   | 15   |
| Linsens, &c. . . . . | 4    | 6    | 8    | 9    | 9    |
| Total . . . . .      | 9    | 21   | 37   | 68   | 82   |

The balance-sheet of textile industries for 47 years to 1887 may be summed up thus :—

|                    | Millions £ Sterling |              |             |
|--------------------|---------------------|--------------|-------------|
|                    | Fibre               | Manufactures | Net Product |
| Cotton . . . . .   | 303                 | 727          | 424         |
| Wool . . . . .     | 329                 | 948          | 619         |
| Silk . . . . .     | 132                 | 280          | 148         |
| Flax, &c. . . . .  | 158                 | 372          | 214         |
| Total . . . . .    | 922                 | 2,327        | 1,405       |
| 1841-50 . . . . .  | 120                 | 318          | 198         |
| 1851-60 . . . . .  | 152                 | 396          | 244         |
| 1861-70 . . . . .  | 210                 | 486          | 276         |
| 1871-80 . . . . .  | 247                 | 607          | 360         |
| 1881-87 . . . . .  | 193                 | 520          | 327         |
| 47 years . . . . . | 922                 | 2,327        | 1,405       |

Hardware manufactures in 1888 were estimated thus :—

|                         | Tons      | Manufactures, Value, £ |
|-------------------------|-----------|------------------------|
| Steel . . . . .         | 1,400,000 | 37,800,000             |
| Iron . . . . .          | 3,000,000 | 40,500,000             |
| Copper . . . . .        | 32,000    | 3,200,000              |
| Lead, zinc, &c. . . . . | 250,000   | 9,500,000              |
| Total . . . . .         | 3,682,000 | 91,000,000             |

#### RUSSIA

The number of factories at various dates was :—

|                     | 1812  | 1824  | 1839  | 1864   |
|---------------------|-------|-------|-------|--------|
| Tanneries . . . . . | 1,150 | 1,784 | 1,918 | ...    |
| Tallow . . . . .    | 181   | 1,023 | 998   | 1,254  |
| Cotton . . . . .    | 129   | 484   | 467   | 423    |
| Woollen . . . . .   | 136   | 324   | 616   | 536    |
| Linen . . . . .     | 170   | 214   | 267   | 599    |
| Silk . . . . .      | 105   | 184   | 227   | 326    |
| Iron . . . . .      | 33    | 170   | 486   | ...    |
| Sundries . . . . .  | 423   | 1,103 | 1,876 | 12,315 |
| Total . . . . .     | 2,327 | 5,286 | 6,855 | 15,453 |

| Year           | Number of Factories | Operatives | Product, £  |
|----------------|---------------------|------------|-------------|
| 1812 . . . . . | 2,327               | 69,000     | ...         |
| 1824 . . . . . | 5,286               | 250,000    | 5,100,000   |
| 1839 . . . . . | 6,855               | 413,000    | 12,400,000  |
| 1851 . . . . . | 9,256               | 457,000    | 15,700,000  |
| 1864 . . . . . | 15,453              | 465,000    | 52,000,000  |
| 1879 . . . . . | 27,927              | 685,000    | 90,900,000  |
| 1882 . . . . . | 56,905              | 955,000    | 112,600,000 |
| 1888 . . . . . | 83,182              | 1,134,000  | 136,000,000 |

|                        | 1824        | 1835        |
|------------------------|-------------|-------------|
| Woolens . . . . .      | £ 2,600,000 | £ 3,800,000 |
| Cottons . . . . .      | 1,600,000   | 2,500,000   |
| Linsens . . . . .      | 500,000     | 700,000     |
| Silks . . . . .        | 400,000     | 700,000     |
| All textiles . . . . . | 5,100,000   | 7,700,000   |

Schubert's tables for 1828 give the output of the factories thus:—

|              | Yards      |                 | Tons   |
|--------------|------------|-----------------|--------|
| Cottons . .  | 60,000,000 | Tobacco . . .   | 28,000 |
| Linens . .   | 20,000,000 | Sugar . . . .   | 17,000 |
| Woollens . . | 16,000,000 | Soap and potash | 22,000 |
| Total . .    | 96,000,000 | Total . .       | 67,000 |

Moreover, the tanneries turned out 3,500,000 tanned hides. There were 100 steam-engines at work in the Empire.

In 1835 it was estimated that the factories contained 280,000 hands, and that 800,000 artisans worked on their own account, making a total manufacturing strength of 1,080,000 persons.

In 1839 the seats of factories were:—

|                    | Factories | Operatives |
|--------------------|-----------|------------|
| Moscow . . . . .   | 1,058     | 83,000     |
| Vladimir . . . . . | 315       | 84,000     |
| Perm . . . . .     | 352       | 37,000     |
| Kaluga . . . . .   | 164       | 20,000     |
| Tula . . . . .     | 124       | 17,000     |
| Various . . . . .  | 4,842     | 172,000    |
| Total . . . . .    | 6,855     | 413,000    |

In 1864 the following table was published:—

|                  | Factories | Operatives | Output, £  |
|------------------|-----------|------------|------------|
| Woollens . .     | 536       | 92,000     | 5,900,000  |
| Cottons . .      | 423       | 58,000     | 6,100,000  |
| Linens . .       | 599       | 44,000     | 5,300,000  |
| Silks . .        | 326       | 9,000      | 900,000    |
| All textiles . . | 1,884     | 203,000    | 18,200,000 |
| Sugar . .        | 432       | 55,000     | 4,900,000  |
| Tallow . .       | 1,254     | 7,000      | 2,100,000  |
| Liquor . .       | 1,446     | 31,000     | 8,300,000  |
| Sawmills . .     | 2,508     | 12,000     | 2,600,000  |
| Sundries . .     | 7,929     | 157,000    | 15,900,000 |
| Total . .        | 15,453    | 465,000    | 52,000,000 |

At the same time Buschen valued all the manufactures of Russia at 136 millions sterling, viz:—

| Textiles         | £          | Miscellaneous    | £          |
|------------------|------------|------------------|------------|
| Linens . . . .   | 18,200,000 | Hardware . . .   | 10,800,000 |
| Cottons . . . .  | 15,800,000 | Liquor . . . . . | 52,000,000 |
| Woollens . . . . | 7,100,000  | Leather . . . .  | 8,900,000  |
| Hemp . . . . .   | 6,300,000  | Tallow . . . . . | 3,200,000  |
| Silks . . . . .  | 2,300,000  | Sundries . . . . | 11,600,000 |
| Total . .        | 49,700,000 | Total . .        | 86,500,000 |

The above of course includes not only factories but also the product of the labours of artisans.

An official statement in 1882 shows that the output of the mills had more than doubled since 1864, viz:—

|                    | 1864       | 1882        |
|--------------------|------------|-------------|
|                    | £          | £           |
| Textiles . . . . . | 18,200,000 | 31,300,000  |
| Sugar . . . . .    | 4,900,000  | 14,100,000  |
| Liquor . . . . .   | 8,300,000  | 19,500,000  |
| Sundries . . . . . | 20,600,000 | 47,700,000  |
| Total . . . . .    | 52,000,000 | 112,600,000 |

The manufacture of liquor stands officially thus:—

|                 | Factories | Gallons     | Value, £   |
|-----------------|-----------|-------------|------------|
| Whisky . . . .  | 2,377     | 91,000,000  | 13,800,000 |
| Beer . . . . .  | 1,870     | 75,500,000  | 5,700,000  |
| Total . . . . . | 4,247     | 166,500,000 | 19,500,000 |

It is believed that the illicit distillation of whisky is large, and that in reality Russians consume 160 million gallons of whisky yearly. The above is irrespective of Poland, whose manufactures in 1882 reached £14,700,000, and Finland £1,500,000. If these were added, the grand total of factory products would be £128,800,000. The following table shows approximately the value of textile manufactures at stated periods, in millions sterling:—

|                  | 1830 | 1840 | 1860 | 1870 | 1880 |
|------------------|------|------|------|------|------|
| Woollens . . . . | 3    | 5    | 8    | 10   | 14   |
| Cottons . . . .  | 1    | 4    | 7    | 12   | 14   |
| Linens . . . . . | 1    | 2    | 5    | 7    | 8    |
| Silks, &c. . . . | ...  | 4    | 5    | 6    | 6    |
| Total . . . . .  | 5    | 15   | 25   | 35   | 42   |

The balance-sheet of textile industries for 47 years may be summed up thus:—

|                   | Millions £ Sterling |              |       |
|-------------------|---------------------|--------------|-------|
|                   | Fibre               | Manufactures | Net   |
| Cotton . . . . .  | 192                 | 461          | 269   |
| Wool . . . . .    | 272                 | 780          | 508   |
| Silk . . . . .    | 18                  | 37           | 19    |
| Flax, &c. . . . . | 195                 | 465          | 270   |
| Total . . . . .   | 677                 | 1,743        | 1,066 |
| 1841-50 . . . .   | 94                  | 250          | 156   |
| 1851-60 . . . .   | 111                 | 294          | 183   |
| 1861-70 . . . .   | 142                 | 352          | 210   |
| 1871-80 . . . .   | 193                 | 486          | 293   |
| 1881-87 . . . .   | 137                 | 361          | 224   |
| 47 years . . . .  | 677                 | 1,743        | 1,066 |

The production and consumption of textiles in 1887 was approximately as follows, in millions sterling:—

|                  | Production | Consumption |
|------------------|------------|-------------|
| Cottons . . . .  | 22         | 28          |
| Woollens . . . . | 14         | 14          |
| Linens . . . . . | 9          | 9           |
| Silks, &c. . . . | 7          | 6           |
| Total . . . . .  | 52         | 57          |

The hardware industry may be estimated thus:—

|                     | Tons    | Manufactures, Value, £ |
|---------------------|---------|------------------------|
| Iron . . . . .      | 400,000 | 5,400,000              |
| Steel . . . . .     | 260,000 | 7,000,000              |
| Copper, lead, &c. . | 26,000  | 1,100,000              |
| Total . . . . .     | 686,000 | 13,500,000             |

The above is 50 per cent. over the Government valuation for metallic manufactures in 1886, namely, 86 millions roubles; these industries employ 85,400 hands.

## AUSTRIA

In 1805 the textile factories employed 170,000 hands. Becher's table in 1834 was as follows:—

| Factories     | No. | Factories     | No. | Factories    | No.   |
|---------------|-----|---------------|-----|--------------|-------|
| Leather . . . | 580 | Chemicals . . | 82  | Iron . . .   | 700   |
| Flax and hemp | 869 | Spirits . . . | 250 | Steel . . .  | 210   |
| Cotton . . .  | 298 | Glass . . .   | 210 | Copper . . . | 185   |
| Wool . . .    | 165 | Pottery . . . | 165 | Sundry . . . | 8,432 |

He summed up the whole manufacturing industry thus:—

|                               |             |
|-------------------------------|-------------|
| Number of factories . . . . . | 11,064      |
| Operatives . . . . .          | 2,330,000   |
| Product, £ . . . . .          | 142,000,000 |

There was a rapid increase of textile industry after Becher's time, as shown by the number of looms in factories:—

| Year           | Steam-Looms | Hand-Looms |
|----------------|-------------|------------|
| 1850 . . . . . | 1,140       | 100,000    |
| 1860 . . . . . | 10,360      | 80,000     |
| 1870 . . . . . | 16,650      | 70,000     |
| 1875 . . . . . | 23,000      | 55,000     |

In the last-mentioned year there were in Austria proper, without Hungary, 6400 factories, using 11,400 steam-engines.

In 1887 the principal manufacturing companies in Vienna had the following capital:—

|                    |           |                   |           |
|--------------------|-----------|-------------------|-----------|
| Mining . . . . .   | 7,200,000 | Paper-mills . . . | 1,500,000 |
| Textiles . . . . . | 2,300,000 | Breweries . . .   | 1,400,000 |
| Sugar . . . . .    | 2,300,000 | Ironworks . . .   | 1,200,000 |

In 1888 the principal textile industries showed thus:—

|                  | Factories | Operatives | Spindles  | Power-Looms |
|------------------|-----------|------------|-----------|-------------|
| Cotton . . . . . | 1,900     | 96,000     | 2,350,000 | 42,000      |
| Wool . . . . .   | 2,707     | 59,000     | 650,000   | 17,500      |
| Linen . . . . .  | 348       | 60,000     | 400,000   | 5,000       |
| Total . . . . .  | 4,955     | 215,000    | 3,400,000 | 64,500      |

At the same time Hungary had 988 mills, with 90,000 operatives and 63,000 horse-power. The following table shows the production of textiles (excluding Lombardy) in the Empire at various dates, in millions £ sterling:—

|                    | 1830 | 1850 | 1860 | 1870 | 1880 |
|--------------------|------|------|------|------|------|
| Woollens . . . . . | 4    | 6    | 7    | 8    | 9    |
| Cottons . . . . .  | 3    | 5    | 6    | 8    | 10   |
| Linens . . . . .   | 3    | 4    | 4    | 5    | 6    |
| Silks, &c. . . . . | 3    | 3    | 5    | 5    | 6    |
| Total . . . . .    | 13   | 18   | 22   | 26   | 31   |

The balance-sheet of textile industries for 47 years may be summed up thus:—

|                    | Millions £ Sterling |              |     |
|--------------------|---------------------|--------------|-----|
|                    | Fibre               | Manufactures | Net |
| Cotton . . . . .   | 161                 | 382          | 221 |
| Wool . . . . .     | 163                 | 484          | 321 |
| Silk . . . . .     | 49                  | 99           | 50  |
| Flax, &c. . . . .  | 144                 | 342          | 198 |
| Total . . . . .    | 517                 | 1,307        | 790 |
| 1841-50 . . . . .  | 78                  | 199          | 121 |
| 1851-60 . . . . .  | 91                  | 242          | 151 |
| 1861-70 . . . . .  | 116                 | 279          | 163 |
| 1871-80 . . . . .  | 135                 | 331          | 196 |
| 1881-87 . . . . .  | 97                  | 256          | 159 |
| 47 years . . . . . | 517                 | 1,307        | 790 |

The production and consumption in 1887 were approximately as follows:—

|                    | Millions £ Sterling |             |
|--------------------|---------------------|-------------|
|                    | Production          | Consumption |
| Cottons . . . . .  | 14                  | 14          |
| Woollens . . . . . | 9                   | 9           |
| Linens . . . . .   | 6                   | 5           |
| Silks, &c. . . . . | 7                   | 6           |
| Total . . . . .    | 36                  | 34          |

The number of hands engaged in manufactures in 1880, and that of the manufacturing population, are shown thus:—

|                   | Principals | Dependents | Total     |
|-------------------|------------|------------|-----------|
| Austria . . . . . | 576,000    | 4,134,000  | 4,710,000 |
| Hungary . . . . . | 381,000    | 408,000    | 789,000   |
| Total . . . . .   | 957,000    | 4,542,000  | 5,499,000 |

Hardware manufactures may be estimated thus:—

|                     | Tons Consumed | Manufactures, Value £ |
|---------------------|---------------|-----------------------|
| Iron . . . . .      | 460,000       | 6,200,000             |
| Steel . . . . .     | 280,000       | 7,600,000             |
| Copper, &c. . . . . | ...           | 1,200,000             |
| Total . . . . .     | ...           | 15,000,000            |

## ITALY

In the 18th century the woollen factories of Florence had 30,000 operatives. After a long period of depression, industry began to revive, and in 1840 the kingdom of Sardinia had:—

|                    | Factories | Workmen | Women  | Total  |
|--------------------|-----------|---------|--------|--------|
| Cottons . . . . .  | 312       | 7,900   | 9,000  | 16,900 |
| Silks . . . . .    | 590       | 4,900   | 10,000 | 14,900 |
| Woollens . . . . . | 62        | 3,400   | 2,000  | 5,400  |
| Total . . . . .    | 964       | 16,200  | 21,000 | 37,200 |

In 1877 the official report was as follows:—

|                      | Men     | Women and Children | All Hands | Spindles  |
|----------------------|---------|--------------------|-----------|-----------|
| Silk . . . . .       | 16,000  | 184,000            | 200,000   | 2,083,000 |
| Cotton . . . . .     | 16,000  | 38,000             | 54,000    | 880,000   |
| Woollen . . . . .    | 12,000  | 13,000             | 25,000    | 305,000   |
| Linen and hemp . . . | 11,000  | 11,000             | 22,000    | 60,000    |
| Paper . . . . .      | 7,000   | 10,000             | 17,000    | ...       |
| Leather . . . . .    | 10,000  | 1,000              | 11,000    | ...       |
| Sundries . . . . .   | 32,000  | 21,000             | 53,000    | ...       |
| Total . . . . .      | 104,000 | 278,000            | 382,000   | ...       |

|                       | Number of Spindles |           |         |        |           |
|-----------------------|--------------------|-----------|---------|--------|-----------|
|                       | Cotton             | Silk      | Wool    | Linen  | Total     |
| Piedmont . . . . .    | 312,000            | 357,000   | 135,000 | 2,000  | 806,000   |
| Lombardy . . . . .    | 220,000            | 1,638,000 | 10,000  | 32,000 | 1,900,000 |
| Liguria . . . . .     | 104,000            | 13,000    | 12,000  | 3,000  | 132,000   |
| Venice . . . . .      | 39,000             | 54,000    | 69,000  | 4,000  | 166,000   |
| Other provinces . . . | 205,000            | 21,000    | 79,000  | 18,000 | 323,000   |
| Total . . . . .       | 880,000            | 2,083,000 | 305,000 | 59,000 | 3,327,000 |

The distribution of power was as follows :—

|               | Horse-Power |        |        | Number of Power-Looms |
|---------------|-------------|--------|--------|-----------------------|
|               | Steam       | Water  | Total  |                       |
| Cotton . . .  | 3,000       | 10,000 | 13,000 | 42,000                |
| Wool . . .    | 1,100       | 6,200  | 7,300  | 6,600                 |
| Linen . . .   | 500         | 2,500  | 3,000  | 800                   |
| Paper . . .   | 300         | 13,700 | 14,000 | ...                   |
| Silk, &c. . . | 10,000      | 7,000  | 17,000 | 1,500                 |
| Total . . .   | 14,900      | 39,400 | 54,300 | 50,900                |

The increase of steam-power since 1878 has been remarkable, the consumption of coal having trebled in nine years, viz. :—

| Year           | Tons      |
|----------------|-----------|
| 1862 . . . . . | 446,000   |
| 1878 . . . . . | 1,325,000 |
| 1887 . . . . . | 3,580,000 |

The following table shows approximately the production of textile industries in millions £ sterling :—

|                | 1850 | 1860 | 1870 | 1880 |
|----------------|------|------|------|------|
| Woollens . . . | 3    | 4    | 4    | 5    |
| Cottons . . .  | 2    | 3    | 4    | 6    |
| Silks, &c. . . | 3    | 5    | 6    | 7    |
| Total . . .    | 8    | 12   | 14   | 18   |

The production and consumption in 1887 were approximately :—

|                    | Millions £ Sterling |             |
|--------------------|---------------------|-------------|
|                    | Production          | Consumption |
| Cottons . . . . .  | 9                   | 11          |
| Woollens . . . . . | 5                   | 7           |
| Linens . . . . .   | 3                   | 3           |
| Silks, &c. . . . . | 4                   | 4           |
| Total . . . . .    | 21                  | 25          |

The balance-sheet of textile industries for 47 years may be summed up thus :—

|                | Millions £ Sterling |              |     |
|----------------|---------------------|--------------|-----|
|                | Fibre               | Manufactures | Net |
| Cotton . . .   | 72                  | 163          | 91  |
| Wool . . .     | 77                  | 195          | 118 |
| Silk . . .     | 38                  | 72           | 34  |
| Flax, &c. . .  | 64                  | 153          | 89  |
| Total . . .    | 251                 | 583          | 332 |
| 1841-50 . . .  | 32                  | 74           | 42  |
| 1851-60 . . .  | 39                  | 94           | 55  |
| 1861-70 . . .  | 57                  | 128          | 71  |
| 1871-80 . . .  | 69                  | 156          | 87  |
| 1881-87 . . .  | 54                  | 131          | 77  |
| 47 years . . . | 251                 | 583          | 332 |

Hardware manufactures may be summed up thus :—

|                   | Tons Consumed | Manufactures, Value, £ |
|-------------------|---------------|------------------------|
| Iron . . . . .    | 260,000       | 3,500,000              |
| Steel . . . . .   | 20,000        | 600,000                |
| Lead, &c. . . . . | ...           | 200,000                |
| Total . . . . .   | ...           | 4,300,000              |

Italy has a manufacturing population of 4,494,000 souls, the number of operatives and artisans being approximately 2,281,000.

#### SPAIN

Manufacturing industry has progressed but little, if it has not positively declined. Seville had 16,000 silk-loom in the sixteenth century; at present there are only 3000 in all Spain. Toledo, so famous for its swords, has still one small factory with 300 workmen. Cotton-mills were introduced so far back as 1769, yet the whole number of operatives in this industry does not exceed 53,000. According to a Government report, in 1826 the value of textile and other manufactures produced yearly was £14,700,000 sterling; much too low an estimate. A semi-official statement published in 1873 showed 563 textile factories in the kingdom, with an aggregate capital of £21,000,000 sterling, counting 48,000 looms, 1,220,000 spindles, 93,000 operatives, and 17,000 horse-power. By placing a fictitious value on the articles manufactured, the output of the mills was raised to £21,000,000 sterling, which was 50 per cent. over the reality.

The statement was as follows :—

|                | Operatives | Looms  | Output, £  |
|----------------|------------|--------|------------|
| Cottons . . .  | 53,000     | 33,000 | 12,400,000 |
| Woollens . . . | 25,000     | 7,000  | 4,300,000  |
| Silks . . .    | 9,000      | 3,000  | 2,800,000  |
| Linens . . .   | 6,000      | 5,000  | 1,100,000  |
| Total . . .    | 93,000     | 48,000 | 20,600,000 |

The production and consumption of textiles in 1887 were approximately as follows :—

|                            | Millions £ |             |
|----------------------------|------------|-------------|
|                            | Production | Consumption |
| Cottons . . . . .          | 7          | 7           |
| Woollens . . . . .         | 6          | 7           |
| Linens, silks, &c. . . . . | 3          | 4           |
| Total . . . . .            | 16         | 18          |

The balance-sheet of textile industries for 47 years may be summed up thus :—

|                | Millions £ Sterling |              |     |
|----------------|---------------------|--------------|-----|
|                | Fibre               | Manufactures | Net |
| Cotton . . .   | 86                  | 202          | 116 |
| Wool . . .     | 103                 | 293          | 190 |
| Silk . . .     | 15                  | 32           | 17  |
| Flax, &c. . .  | 35                  | 84           | 49  |
| Total . . .    | 239                 | 611          | 372 |
| 1841-50 . . .  | 34                  | 94           | 60  |
| 1851-60 . . .  | 44                  | 115          | 71  |
| 1861-70 . . .  | 55                  | 134          | 79  |
| 1871-80 . . .  | 63                  | 158          | 95  |
| 1881-87 . . .  | 43                  | 110          | 67  |
| 47 years . . . | 239                 | 611          | 372 |

Hardware manufacture may be estimated thus :—

|                     | Tons Consumed | Manufactures, Value, £ |
|---------------------|---------------|------------------------|
| Iron . . . . .      | 210,000       | 2,800,000              |
| Steel . . . . .     | 30,000        | 900,000                |
| Copper, &c. . . . . | ...           | 300,000                |
| Total . . . . .     | ...           | 4,000,000              |

In 1873 the Government estimated all Spanish manufactures at £60,000,000 sterling: much too low a figure.

## SCANDINAVIA

In 1765 the Government of Sweden, finding the nobles unable to keep up agriculture, passed a law to close most of the factories, which caused the skilled workmen in steel-works and silk-mills to migrate into Russia. The law was repealed in 1785, but the mischief was done.

The factory statistics show thus:—

| Year       | Factories | Product, £ |
|------------|-----------|------------|
| 1772 . . . | 886       | ..         |
| 1830 . . . | 1,857     | 700,000    |
| 1840 . . . | 2,176     | 1,200,000  |
| 1850 . . . | 2,513     | 2,100,000  |
| 1865 . . . | 2,315     | 4,200,000  |
| 1876 . . . | 2,825     | 9,600,000  |

A statement published in 1837 was as follows:—

|                  | Woollens | Cottons, &c. | All Textiles |
|------------------|----------|--------------|--------------|
| Factories . . .  | 109      | 1,940        | 2,049        |
| Operatives . . . | 3,000    | 10,300       | 13,300       |
| Output, £ . . .  | 300,000  | 760,000      | 1,060,000    |

The statement for 1865 was as follows:—

| Textiles           | £         | Miscellaneous | £         |
|--------------------|-----------|---------------|-----------|
| Cottons . . .      | 490,000   | Sugar . . .   | 730,000   |
| Woollens . . .     | 480,000   | Tobacco . . . | 360,000   |
| Silks, linens, &c. | 470,000   | Hardware, &c. | 1,680,000 |
| All textiles . . . | 1,440,000 | Total . . .   | 2,770,000 |

According to Knut Bonde, the factories represented about half the manufactures produced, the total value having been £1,400,000 in 1824, and £4,800,000 in 1850. The hands employed in factories were 13,300 in 1837, and 53,000 in 1876.

In the latter year the factories were as follows:—

| Worked by     | Number | Horse-Power |
|---------------|--------|-------------|
| Steam . . .   | 684    | 28,000      |
| Water . . .   | 637    | ...         |
| Animals . . . | 1,504  | ...         |
| Total . . .   | 2,825  | ...         |

In later years a valuable industry has sprung up at Jönköping in the manufacture of wooden matches, of which 450 millions are exported yearly, weighing 15,000 tons.

In 1880 Denmark had 720 factories, with 25,000 operatives and 10,000 horse-power. The textile products of all Scandinavia hardly reach four millions sterling per annum.

Hardware manufactures in Sweden may be estimated thus:—

|             | Tons Consumed | Manufactures, Value £ |
|-------------|---------------|-----------------------|
| Iron . . .  | 300,000       | 4,100,000             |
| Steel . . . | 80,000        | 2,200,000             |
| Total . . . | 380,000       | 6,300,000             |

Those of Norway are about £400,000, and of Denmark £600,000.

## BELGIUM

In 1830, when Belgium threw off the Dutch yoke, her factories were already flourishing, for they counted 12,000 steam-engines, with an aggregate of 20,000 horse-power. Since then her steam-power in fixed engines for factories and mines has grown prodigiously, viz:—

| Year       | Horse-Power |
|------------|-------------|
| 1830 . . . | 20,000      |
| 1838 . . . | 25,300      |
| 1860 . . . | 162,000     |
| 1880 . . . | 209,000     |

In 1838 the following table was published:—

|               | Textile Factories |            |            |
|---------------|-------------------|------------|------------|
|               | Capital, £        | Operatives | Product, £ |
| Cotton . . .  | 2,400,000         | 122,000    | 3,400,000  |
| Woollen . . . | 3,000,000         | 40,000     | 1,000,000  |
| Hosiery . . . | ...               | 50,000     | ...        |

Besides the foregoing, the linen factories turned out 750,000 pieces yearly, and the production of lace was valued at £350,000.

There were also 175 foundries, with 14,000 operatives, turning out 150,000 tons pig iron.

The production of textiles was approximately as follows:—

| Year       | Millions £ |         |             |       |
|------------|------------|---------|-------------|-------|
|            | Woollens   | Cottons | Linens, &c. | Total |
| 1840 . . . | 2          | 3       | 1           | 6     |
| 1860 . . . | 3          | 3       | 2           | 8     |
| 1880 . . . | 6          | 3       | 8           | 17    |

Production and consumption in 1887 were approximately:—

|                | Millions £ |             |
|----------------|------------|-------------|
|                | Production | Consumption |
| Cottons . . .  | 3          | 3           |
| Woollens . . . | 6          | 6           |
| Linens . . .   | 5          | 1           |
| Silks, &c. . . | 2          | 1           |
| Total . . .    | 16         | 11          |

The following table combines the official reports of 1846 and 1880:—

|                        | 1846       |             | 1880       |             |                   |
|------------------------|------------|-------------|------------|-------------|-------------------|
|                        | Operatives | Horse-Power | Operatives | Horse-Power | Product, Value, £ |
| Coal-mines . . .       | 46,200     | 22,500      | 97,700     | 87,400      | 6,200,000         |
| Ironworks . . .        | 42,300     | 5,700       | 70,000     | 38,500      | 14,100,000        |
| Potteries . . .        | 35,800     | 1,200       | 51,500     | 7,700       | 3,800,000         |
| Cotton-mills . . .     | 14,700     | 1,600       | 17,500     | 9,900       | 2,700,000         |
| Woollen-mills . . .    | 18,200     | 1,600       | 25,000     | 13,100      | 6,000,000         |
| Flax, &c., mills . . . | 60,700     | 1,100       | 50,900     | 9,800       | 5,400,000         |
| Food . . .             | 29,900     | 2,000       | 57,600     | 54,700      | 31,600,000        |
| Sundries . . .         | 67,000     | 1,300       | 58,600     | 21,300      | 17,200,000        |
| Total . . .            | 314,800    | 37,000      | 428,800    | 242,400     | 87,000,000        |

Motive power in 1880 was as follows:—

| By          | Factories | Horse-Power |
|-------------|-----------|-------------|
| Steam . . . | 8,433     | 209,500     |
| Water . . . | 2,436     | 19,600      |
| Wind . . .  | 2,158     | 13,300      |
| Total . . . | 13,027    | 242,400     |

In 1880 the ratio of horse-power was 56 to every 100 operatives, whereas in 1846 it was less than 12. Horse-power grew seven-fold in thirty-four years.

The balance-sheet of textile industries for 47 years may be summed up thus :—

|                    | Millions £ Sterling |              |     |
|--------------------|---------------------|--------------|-----|
|                    | Fibre               | Manufactures | Net |
| Cotton . . . . .   | 58                  | 141          | 83  |
| Wool . . . . .     | 73                  | 190          | 117 |
| Silk . . . . .     | 7                   | 17           | 10  |
| Flax, &c. . . . .  | 53                  | 130          | 77  |
| Total . . . . .    | 191                 | 478          | 287 |
| 1841-50 . . . . .  | 18                  | 54           | 36  |
| 1851-60 . . . . .  | 22                  | 59           | 37  |
| 1861-70 . . . . .  | 45                  | 108          | 63  |
| 1871-80 . . . . .  | 63                  | 151          | 88  |
| 1881-87 . . . . .  | 43                  | 106          | 63  |
| 47 years . . . . . | 191                 | 478          | 287 |

The hardware industries may be estimated thus :—

|                           | Tons Consumed | Manufactures, Value, £ |
|---------------------------|---------------|------------------------|
| Iron . . . . .            | 600,000       | 8,100,000              |
| Steel . . . . .           | 230,000       | 6,200,000              |
| Zinc, copper, &c. . . . . | ...           | 2,200,000              |
| Total . . . . .           | ...           | 16,500,000             |

According to the Census of 1880 there were 953,000 persons engaged in manufactures, and the gross value of their products was 87 millions sterling. The statement at page 365 gives 102 millions for 1888.

#### SWITZERLAND

In 1887 the Factory Report showed thus :—

|                         | Factories | Operatives |
|-------------------------|-----------|------------|
| Cotton . . . . .        | 398       | 36,400     |
| Silk . . . . .          | 246       | 26,500     |
| Wool, flax, &c. . . . . | 77        | 4,200      |
| Lace . . . . .          | 1,240     | 23,300     |
| Watches . . . . .       | 201       | 11,100     |
| Sundries . . . . .      | 925       | 49,200     |

The total was 3087 factories with 151,000 operatives.

The manufactures, between the above factories and the work done outside, represented approximately the following values :—

| Textiles             | £          | Miscellaneous      | £          |
|----------------------|------------|--------------------|------------|
| Silks . . . . .      | 5,800,000  | Hardware . . . . . | 1,600,000  |
| Cottons . . . . .    | 3,100,000  | Watches . . . . .  | 3,800,000  |
| Woolens, &c. . . . . | 1,400,000  | Lace . . . . .     | 4,200,000  |
|                      |            | Sundries . . . . . | 15,400,000 |
| Total . . . . .      | 10,300,000 | Total . . . . .    | 25,000,000 |

#### UNITED STATES

Reduced to English money, the principal manufactures may be summed up thus :—

|                    | Census Values, Millions of £ Sterling |      |      |      |       | Approximate Value in 1888 |
|--------------------|---------------------------------------|------|------|------|-------|---------------------------|
|                    | 1810                                  | 1840 | 1860 | 1870 | 1880  |                           |
| Textiles . . . . . | 10                                    | 14   | 38   | 55   | 80    | 112                       |
| Hardware . . . . . | 4                                     | 10   | 29   | 92   | 129   | 194                       |
| Food . . . . .     | 8                                     | 18   | 64   | 110  | 168   | 202                       |
| Clothing . . . . . | 3                                     | 8    | 15   | 27   | 50    | 98                        |
| Leather . . . . .  | 4                                     | 7    | 34   | 56   | 83    | 104                       |
| Lumber . . . . .   | 1                                     | 3    | 20   | 42   | 49    | 63                        |
| Sundries . . . . . | 1                                     | 36   | 192  | 323  | 558   | 670                       |
| Total . . . . .    | 31                                    | 96   | 392  | 705  | 1,117 | 1,443                     |

The principal manufactures were as follows, in millions of dollars. The paper value of 1870 is reduced to its proper equivalent in gold :—

|                            | Millions of Dollars |      |       |       |       |       |
|----------------------------|---------------------|------|-------|-------|-------|-------|
|                            | 1810                | 1840 | 1860  | 1870  | 1880  |       |
| Flour . . . . .            | 21                  | 71   | 136   | 224   | 356   | 595   |
| Iron . . . . .             | 17                  | 37   | 49    | 71    | 287   | 336   |
| Leather . . . . .          | 18                  | 33   | 92    | 162   | 271   | 397   |
| Lumber . . . . .           | 6                   | 15   | 59    | 96    | 202   | 233   |
| Cottons . . . . .          | 30                  | 46   | 66    | 115   | 142   | 211   |
| Machinery . . . . .        | ...                 | 11   | 28    | 47    | 111   | 214   |
| Clothing . . . . .         | ...                 | 36   | 48    | 70    | 130   | 242   |
| Sugar . . . . .            | ...                 | ...  | 10    | 38    | 96    | 155   |
| Woolens . . . . .          | 17                  | 21   | 48    | 69    | 121   | 161   |
| Liquor . . . . .           | 16                  | 15   | 22    | 43    | 75    | 144   |
| Cabinet-work . . . . .     | ...                 | 18   | 18    | 24    | 55    | 83    |
| Printing . . . . .         | ...                 | ...  | 12    | 42    | 46    | 91    |
| Implements . . . . .       | ...                 | ...  | 7     | 18    | 42    | 69    |
| Paper . . . . .            | ...                 | ...  | 10    | 18    | 39    | 55    |
| Soap and candles . . . . . | ...                 | ...  | 10    | 17    | 18    | 27    |
| Sundries . . . . .         | 27                  | 155  | 404   | 832   | 1,395 | 2,447 |
| Total . . . . .            | 152                 | 458  | 1,019 | 1,886 | 3,386 | 5,370 |

There was no Census of manufactures in 1820; that of 1830 took only the number of hands engaged. The Census of 1810 gave the following; the values being reduced to English money :—

| States                | Textile Goods | Sundries    | Total       | Ratio |
|-----------------------|---------------|-------------|-------------|-------|
| New England . . . . . | £ 2,600,000   | £ 4,900,000 | £ 7,500,000 | 23.8  |
| Middle . . . . .      | 3,500,000     | 12,300,000  | 15,800,000  | 50.0  |
| South . . . . .       | 3,560,000     | 4,640,000   | 8,200,000   | 25.9  |
| West . . . . .        | 40,000        | 60,000      | 100,000     | 3     |
| Total . . . . .       | 9,700,000     | 21,900,000  | 31,600,000  | 100.0 |

The Census of 1840 gave the following :—

|                     | Hands   | Value, £   | Product per Hand, £ |
|---------------------|---------|------------|---------------------|
| Cottons . . . . .   | 72,100  | 9,700,000  | 136                 |
| Woolens . . . . .   | 21,300  | 4,300,000  | 206                 |
| Mixed . . . . .     | 38,400  | 9,700,000  | 247                 |
| Hardware . . . . .  | 44,100  | 7,700,000  | 175                 |
| Machinery . . . . . | 13,000  | 2,300,000  | 177                 |
| Flour . . . . .     | 60,800  | 14,800,000 | 244                 |
| Houses . . . . .    | 85,500  | 8,700,000  | 102                 |
| Carpentry . . . . . | 39,900  | 3,900,000  | 98                  |
| Timber . . . . .    | 22,100  | 3,200,000  | 145                 |
| Liquor . . . . .    | 12,200  | 3,100,000  | 245                 |
| Leather . . . . .   | 26,100  | 6,900,000  | 263                 |
| Sundries . . . . .  | 160,000 | 20,900,000 | 130                 |
| Total . . . . .     | 595,500 | 95,200,000 | 160                 |

| States                | Manufactures | Capital      |
|-----------------------|--------------|--------------|
| New England . . . . . | £ 31,800,000 | £ 18,000,000 |
| Middle . . . . .      | 41,600,000   | 22,400,000   |
| South . . . . .       | 11,900,000   | 8,600,000    |
| West . . . . .        | 9,900,000    | 6,600,000    |
| Total . . . . .       | 95,200,000   | 55,600,000   |

Since 1840 there has been a steady increase in the average product per operative, which was then only £160, and in 1880 exceeded £400. This is mainly due to improved machinery, enabling two men now to produce as much as five did in 1840.



The Census of 1850 showed as follows :—

| States     | Operatives | Millions £ Sterling |       |         | Product per Hand, £ |
|------------|------------|---------------------|-------|---------|---------------------|
|            |            | Capital             | Wages | Product |                     |
| N. England | 313,000    | 34                  | 16    | 59      | 186                 |
| Middle . . | 418,000    | 49                  | 21    | 98      | 233                 |
| South . .  | 104,000    | 13                  | 4     | 20      | 192                 |
| West . .   | 122,000    | 14                  | 8     | 35      | 288                 |
| Total .    | 957,000    | 110                 | 49    | 212     | 220                 |

The Census of 1860 showed as follows :—

| States                 | Operatives | Millions £ Sterling |       |         | Product per Hand, £ |
|------------------------|------------|---------------------|-------|---------|---------------------|
|                        |            | Capital             | Wages | Product |                     |
| N. Eng. and Middle . . | 399,000    | 54                  | 22    | 98      | 250                 |
| South . .              | 542,000    | 89                  | 31    | 166     | 306                 |
| West . .               | 126,000    | 23                  | 7     | 39      | 310                 |
| Total .                | 1,311,000  | 208                 | 80    | 394     | 301                 |

That of 1870, reduced to gold values, showed :—

| States     | Operatives | Millions £ Sterling |       |         | Product per Hand, £ |
|------------|------------|---------------------|-------|---------|---------------------|
|            |            | Capital             | Wages | Product |                     |
| N. England | 526,000    | 85                  | 37    | 167     | 317                 |
| Middle . . | 801,000    | 156                 | 56    | 295     | 370                 |
| South . .  | 187,000    | 24                  | 8     | 47      | 250                 |
| West . .   | 540,000    | 102                 | 34    | 196     | 363                 |
| Total .    | 2,054,000  | 367                 | 135   | 705     | 344                 |

That of 1880 showed as follows :—

| States     | Operatives | Millions £ Sterling |       |         | Product per Hand, £ |
|------------|------------|---------------------|-------|---------|---------------------|
|            |            | Capital             | Wages | Product |                     |
| N. England | 645,000    | 130                 | 48    | 231     | 358                 |
| Middle . . | 1,102,000  | 243                 | 83    | 462     | 420                 |
| South . .  | 228,000    | 40                  | 11    | 70      | 307                 |
| West . .   | 758,000    | 168                 | 56    | 354     | 470                 |
| Total .    | 2,733,000  | 581                 | 198   | 1,117   | 408                 |

The value of manufactures was artificially heightened by protective customs duties. My estimate for 1888, at page 378, is 1443 millions sterling. The results of the last five Censuses may be summed up thus :—

| Year     | Operatives | Millions £ Sterling |       |         | Product per Hand, £ |
|----------|------------|---------------------|-------|---------|---------------------|
|          |            | Capital             | Wages | Product |                     |
| 1840 . . | 596,000    | ...                 | ...   | 95      | 160                 |
| 1850 . . | 957,000    | 110                 | 49    | 212     | 220                 |
| 1860 . . | 1,311,000  | 208                 | 80    | 394     | 301                 |
| 1870 . . | 2,054,000  | 367                 | 135   | 705     | 344                 |
| 1880 . . | 2,733,000  | 581                 | 198   | 1,117   | 408                 |

The numbers for 1870 and 1880 seem to include only factory hands, as the Censuses for those years give the

The principal manufacturing States have been as follows :—

| States               | Operatives |           |           |           | Product, Millions £ |      |      |       |
|----------------------|------------|-----------|-----------|-----------|---------------------|------|------|-------|
|                      | 1850       | 1860      | 1870      | 1880      | 1850                | 1860 | 1870 | 1880  |
| New York . . . .     | 199,000    | 230,000   | 351,000   | 501,000   | 50                  | 79   | 131  | 224   |
| Pennsylvania . . .   | 147,000    | 222,000   | 319,000   | 387,000   | 32                  | 60   | 119  | 155   |
| Massachusetts . . .  | 178,000    | 217,000   | 279,000   | 352,000   | 33                  | 53   | 93   | 131   |
| Other States . . . . | 433,000    | 642,000   | 1,105,000 | 1,493,000 | 97                  | 202  | 362  | 607   |
| Total . . . .        | 957,000    | 1,311,000 | 2,054,000 | 2,733,000 | 212                 | 394  | 705  | 1,117 |

numbers employed in manufactures throughout the Union as 2,707,000 and 3,837,000 respectively. See *Occupation*.

The production and consumption of textile goods in 1888 were approximately as follows :—

|                   | Millions £ Sterling |             |
|-------------------|---------------------|-------------|
|                   | Production          | Consumption |
| Cottons . . . .   | 60                  | 63          |
| Woollens . . . .  | 39                  | 44          |
| Silks . . . .     | 7                   | 14          |
| Linens, &c. . . . | 6                   | 13          |
| Total . . . .     | 112                 | 134         |

The value of all textile manufactures at various dates, was approximately :—

| Year         | Millions £ Sterling |         |       |             |       |
|--------------|---------------------|---------|-------|-------------|-------|
|              | Woollens            | Cottons | Silks | Linens, &c. | Total |
| 1810 . . . . | 4                   | 6       | ...   | ...         | 10    |
| 1840 . . . . | 4                   | 9       | ...   | 1           | 14    |
| 1850 . . . . | 10                  | 13      | ...   | 1           | 24    |
| 1860 . . . . | 13                  | 22      | 1     | 2           | 38    |
| 1870 . . . . | 23                  | 26      | 2     | 4           | 55    |
| 1880 . . . . | 30                  | 38      | 7     | 5           | 80    |
| 1888 . . . . | 39                  | 60      | 8     | 5           | 112   |

The balance-sheet of textile industries for 47 years was approximately as follows :—

|                  | Millions £ Sterling |              |             |
|------------------|---------------------|--------------|-------------|
|                  | Fibre               | Manufactures | Net Product |
| Cotton . . . .   | 663                 | 1,411        | 748         |
| Wool . . . .     | 314                 | 911          | 597         |
| Silk . . . .     | 55                  | 115          | 60          |
| Flax, &c. . . .  | 76                  | 184          | 108         |
| Total . . . .    | 1,108               | 2,621        | 1,513       |
| 1841-50 . . . .  | 88                  | 261          | 173         |
| 1851-60 . . . .  | 138                 | 375          | 237         |
| 1861-70 . . . .  | 316                 | 628          | 312         |
| 1871-80 . . . .  | 297                 | 706          | 409         |
| 1881-87 . . . .  | 269                 | 651          | 382         |
| 47 years . . . . | 1,108               | 2,621        | 1,513       |

The value of hardware manufactures may be estimated for 1888 as follows :—

|                      | Tons Consumed | Manufactures, Value, £ |
|----------------------|---------------|------------------------|
| Iron . . . .         | 4,800,000     | 72,000,000             |
| Steel . . . .        | 3,150,000     | 94,500,000             |
| Copper . . . .       | 110,000       | 14,000,000             |
| Lead . . . .         | 180,000       | 6,700,000              |
| Tin, zinc, &c. . . . | 70,000        | 6,300,000              |
| Total . . . .        | 8,310,000     | 193,500,000            |

| States              | Ratio per Operative |      |      |      |            |      |      |      |
|---------------------|---------------------|------|------|------|------------|------|------|------|
|                     | Wages, £            |      |      |      | Product, £ |      |      |      |
|                     | 1850                | 1860 | 1870 | 1880 | 1850       | 1860 | 1870 | 1880 |
| New York . . .      | 51                  | 59   | 68   | 83   | 250        | 340  | 373  | 448  |
| Pennsylvania . .    | 52                  | 56   | 69   | 72   | 220        | 267  | 372  | 400  |
| Massachusetts . .   | 49                  | 54   | 73   | 76   | 180        | 240  | 332  | 370  |
| Ohio . . .          | 54                  | 61   | 62   | 70   | 255        | 334  | 330  | 395  |
| Illinois . . .      | 50                  | 70   | 64   | 80   | 250        | 500  | 409  | 593  |
| New Jersey . . .    | 50                  | 59   | 75   | 76   | 210        | 270  | 373  | 420  |
| Connecticut . . .   | 49                  | 61   | 75   | 81   | 196        | 270  | 300  | 344  |
| Other States . . .  | 52                  | 68   | 57   | 63   | 225        | 316  | 317  | 384  |
| General average . . | 51                  | 61   | 66   | 72   | 220        | 300  | 344  | 408  |

The motive-power in 1880 compared with 1870 thus :—

| Year | Factories |        |         | Horse-Power |           |           |
|------|-----------|--------|---------|-------------|-----------|-----------|
|      | Steam     | Water  | Total   | Steam       | Water     | Total     |
| 1870 | 40,191    | 51,018 | 91,209  | 1,216,000   | 1,130,000 | 2,346,000 |
| 1880 | 56,483    | 55,400 | 111,883 | 2,186,000   | 1,225,000 | 3,411,000 |

The distribution of motive-power and that of operatives were as follows :—

| Factories       | Horse-Power |           | Hands     |           |
|-----------------|-------------|-----------|-----------|-----------|
|                 | 1870        | 1880      | 1870      | 1880      |
| Cotton . . .    | 146,000     | 276,000   | 136,000   | 186,000   |
| Woollen . . .   | 93,000      | 123,000   | 90,000    | 105,000   |
| Flour . . .     | 577,000     | 771,000   | 58,000    | 58,000    |
| Lumber . . .    | 642,000     | 822,000   | 150,000   | 148,000   |
| Iron . . .      | 171,000     | 397,000   | 78,000    | 141,000   |
| Paper . . .     | 53,000      | 124,000   | 18,000    | 24,000    |
| Implements, &c. | 664,000     | 898,000   | 2,177,000 | 2,175,000 |
| Sundries . . .  | 2,346,000   | 3,411,000 | 2,707,000 | 3,837,000 |

|                   | Ratio of Power in 1880 |                 | Hands |
|-------------------|------------------------|-----------------|-------|
|                   | Steam                  | Steam and Water |       |
| Pennsylvania . .  | 18.4                   | 15.0            | 13.8  |
| New York . . .    | 10.7                   | 13.3            | 16.4  |
| Ohio . . .        | 10.2                   | 7.7             | 6.3   |
| Massachusetts . . | 7.8                    | 9.1             | 9.6   |
| Michigan . . .    | 6.0                    | 4.8             | 3.4   |
| Illinois . . .    | 5.8                    | 4.2             | 5.4   |
| Other States . .  | 41.1                   | 45.9            | 45.1  |
| Total . . .       | 100.0                  | 100.0           | 100.0 |

The principal industries of Australia as regards number of hands employed were :—

|                       | Textiles | Hardware | Food   | Sundries | Total   |
|-----------------------|----------|----------|--------|----------|---------|
| New South Wales . . . | 5,700    | 16,700   | 7,400  | 15,800   | 45,600  |
| Victoria . . .        | 9,600    | 20,600   | 5,800  | 18,500   | 54,500  |
| New Zealand . . .     | 4,100    | 8,100    | 3,200  | 6,700    | 22,100  |
| Total . . .           | 19,400   | 45,400   | 16,400 | 41,000   | 122,200 |

The average product per operative being £253 in Canada and £297 in the United States, we may fairly suppose £250 for Australia, in which case the result would be :—

|                         | Value Produced, £ |                | Value Produced, £ |
|-------------------------|-------------------|----------------|-------------------|
| New South Wales . . .   | 11,400,000        | Textiles . . . | 6,500,000         |
| Victoria . . .          | 13,600,000        | Hardware . . . | 15,100,000        |
| New Zealand . . .       | 5,500,000         | Food . . .     | 5,500,000         |
| Four other Colonies . . | 10,200,000        | Sundries . . . | 13,600,000        |
| Total . . .             | 40,700,000        | Total . . .    | 40,700,000        |

The above is the output of factories, the total value of

## CANADA

The earliest record of manufactures was published in 1830, as follows :—Domestic looms 1300, turning out 4,000,000 yards of woollens and linens yearly; saw-mills 1580, with an aggregate capital of £1,250,000; export of timber £1,000,000 sterling. There were also 1086 mills of various other kinds, and seven foundries.

The industrial Census of 1881 compared with 1871 as follows :—

| Year       | Capital, £ | Product, £ | Operatives | Average Wages, £ |
|------------|------------|------------|------------|------------------|
| 1871 . . . | 16,200,000 | 46,000,000 | 188,000    | 45.2             |
| 1881 . . . | 34,400,000 | 64,400,000 | 255,000    | 48.4             |

The average product per operative was £244 in 1871, and £253 in 1881.

## AUSTRALIA

Only three of the Australian colonies publish detailed statistics of manufactures, which are given for 1886-89 in Mr. Coghlan's Official Report for New South Wales. These three Colonies, however, comprise three-fourths of the population, and if we suppose the others have manufactures in the same ratio, the account will stand thus :—

|                         | Factories | Hands   | Value of Machinery, £ |
|-------------------------|-----------|---------|-----------------------|
| New South Wales . .     | 3,106     | 45,600  | 5,740,000             |
| Victoria . . .          | 2,974     | 54,500  | 5,490,000             |
| New Zealand . . .       | 1,946     | 22,100  | 2,110,000             |
| Four other Colonies . . | 2,680     | 40,700  | 4,450,000             |
| Total . . .             | 10,706    | 162,900 | 17,790,000            |

In New South Wales the value of land and buildings occupied by factories in 1888 was £9,350,000, making a total of £15,100,000 invested in this branch of industry. Supposing the ratio to be the same in the other Colonies as compared with value of machinery, the result is :—

|                         | Manufactures, Capital, £ | £ per Inhabitant |
|-------------------------|--------------------------|------------------|
| New South Wales . .     | 15,100,000               | 13.6             |
| Victoria . . .          | 14,400,000               | 13.0             |
| New Zealand . . .       | 5,500,000                | 9.0              |
| Four other Colonies . . | 11,500,000               | 12.7             |
| Total . . .             | 46,500,000               | 12.8             |

manufactures being probably about 64 millions sterling, as already stated.

The growth of manufactures has been very rapid, the number of hands in New South Wales, for example, having risen thus :—

|               | 1878   | 1888   |
|---------------|--------|--------|
| Males . . .   | 21,500 | 41,300 |
| Females . . . | 3,200  | 4,300  |
| Total . . .   | 24,700 | 45,600 |

This shows a rise of 80 per cent. in ten years.

**MANURE**

The following table gives the annual yield of animal manure according to the scale of French official estimates and its value approximately :—

|                         | Tons          | Value, £    |
|-------------------------|---------------|-------------|
| United Kingdom . . .    | 79,000,000    | 31,600,000  |
| France . . . . .        | 84,000,000    | 33,600,000  |
| Germany . . . . .       | 113,000,000   | 45,200,000  |
| Russia . . . . .        | 213,000,000   | 85,200,000  |
| Austria . . . . .       | 100,000,000   | 40,000,000  |
| Italy . . . . .         | 25,000,000    | 10,000,000  |
| Spain and Portugal . .  | 39,000,000    | 15,600,000  |
| Belgium and Holland . . | 17,000,000    | 6,800,000   |
| Scandinavia . . . . .   | 30,000,000    | 12,000,000  |
| Turkey, &c. . . . .     | 32,000,000    | 12,800,000  |
| Europe . . . . .        | 732,000,000   | 292,800,000 |
| United States . . . . . | 385,000,000   | 154,000,000 |
| Total . . . . .         | 1,117,000,000 | 446,800,000 |

Animal manure forms the chief ingredient of farm-yard dung, mixed with straw, &c. In England about 13 tons of dung go to the acre; in Belgium 45; in Russia 7 on the Moujiks' farms, and 14 on those of the nobility. In France fish is often used, as also in Norfolk; it costs 16s. a ton, and is mixed with mould as 1 to 40, producing heavy turnip crops. Nitrate potash and bone-ash are also much used in England. The results obtained on a farm in Oxfordshire in 1888 were :—

|                     | Tons per Acre |     |
|---------------------|---------------|-----|
|                     | Grass         | Hay |
| Unmanured . . . . . | 5.0           | 1.3 |
| Manured . . . . .   | 12.0          | 2.5 |

The manure consisted of 6 cwt. of nitrate and potash per acre. The production of animal manure yearly is 10 cwt. for a goat, 14 a sheep, 30 a pig, 5 tons for a horse, and 6 tons a cow; but a portion of this is lost.

Artificial manures imported into Great Britain were :—

| Year           | Tons    |         | Value, £  |           |
|----------------|---------|---------|-----------|-----------|
|                | Guano   | Nitrate | Guano     | Nitrate   |
| 1860 . . . . . | 140,000 | 37,000  | 1,560,000 | 500,000   |
| 1870 . . . . . | 280,000 | 56,000  | 3,480,000 | 880,000   |
| 1880 . . . . . | 80,000  | 46,000  | 810,000   | 700,000   |
| 1889 . . . . . | 28,000  | 118,000 | 200,000   | 1,100,000 |

Great Britain also imported in 1889 the following :—

|                      | Tons    | Value, £  |
|----------------------|---------|-----------|
| Phosphates . . . . . | 305,000 | 700,000   |
| Bones . . . . .      | 62,000  | 310,000   |
| Various . . . . .    | 90,000  | 125,000   |
| Total . . . . .      | 457,000 | 1,135,000 |

Making a total of 603,000 tons of artificial manure, worth £2,500,000.

In the United States the production of phosphates is 430,000 tons, of which 270,000 for home-use, 160,000 tons being exported. Canada exported 22,000 tons in 1887, against 3000 in 1877.

**MARBLE**

Is worth about £4 per ton, Italy exporting annually 105,000 tons, valued at £400,000. It is 7 per cent. heavier than stone, and 5 per cent. lighter than granite. One cubic foot weighs 160 lbs., that is, 14 cubic feet per ton.

**MARRIAGE**

The proper age for marriage, as laid down by the ancients, was as follows :—

| According to        | Years   |      |
|---------------------|---------|------|
|                     | Husband | Wife |
| Hesiod . . . . .    | 30      | 15   |
| Plato . . . . .     | 30      | 20   |
| Aristotle . . . . . | 37      | 18   |

The minimum age fixed by law was as follows :—

| Law of               | Years   |      |
|----------------------|---------|------|
|                      | Husband | Wife |
| Sparta . . . . .     | 30      | 20   |
| Roman Empire . . . . | 25      | 20   |
| Canon Law . . . . .  | 14      | 12   |
| England . . . . .    | 16      | 15   |
| France . . . . .     | 18      | 15   |
| Saxony . . . . .     | 21      | 18   |
| Prussia . . . . .    | 18      | 14   |
| Austria . . . . .    | 14      | 14   |

The Emperor Tiberius made an edict against marriage by women over fifty or men over sixty, but it was soon repealed.

The medium marrying age in various nations is as follows :—

|                    | Years |       |                   | Years |       |
|--------------------|-------|-------|-------------------|-------|-------|
|                    | Man   | Woman |                   | Man   | Woman |
| England . . . . .  | 27.7  | 25.5  | Sweden . . . . .  | 31.1  | 28.3  |
| Scotland . . . . . | 28.6  | 25.7  | Norway . . . . .  | 31.1  | 27.1  |
| Ireland . . . . .  | 29.9  | 25.2  | Belgium . . . . . | 31.3  | 28.5  |
| France . . . . .   | 30.2  | 24.9  | Holland . . . . . | 30.9  | 28.0  |
| Prussia . . . . .  | 29.7  | 27.1  | Jews . . . . .    | 30.1  | 26.2  |
| Russia . . . . .   | 25.2  | 21.5  | Vienna . . . . .  | 32.0  | 27.0  |
| Italy . . . . .    | 30.2  | 25.4  | Leipzig . . . . . | 28.9  | 26.2  |

The relative numbers in 1000 persons of either sex marrying at different ages are shown thus :—

|                    | Men      |       |       |       |         | Total |
|--------------------|----------|-------|-------|-------|---------|-------|
|                    | Under 20 | 20-30 | 30-40 | 40-50 | Over 50 |       |
| England . . . . .  | 35       | 731   | 144   | 52    | 38      | 1,000 |
| Scotland . . . . . | 32       | 684   | 189   | 62    | 33      | 1,000 |
| Ireland . . . . .  | 26       | 600   | 269   | 67    | 38      | 1,000 |
| France . . . . .   | 23       | 607   | 262   | 65    | 43      | 1,000 |
| Italy . . . . .    | 11       | 623   | 259   | 68    | 39      | 1,000 |
| Prussia . . . . .  | 8        | 663   | 231   | 64    | 34      | 1,000 |
| Russia . . . . .   | 373      | 428   | 122   | 56    | 21      | 1,000 |
| Norway . . . . .   | 8        | 572   | 291   | 83    | 46      | 1,000 |
| Sweden . . . . .   | 1        | 574   | 299   | 81    | 45      | 1,000 |
| Belgium . . . . .  | 9        | 548   | 307   | 91    | 45      | 1,000 |
| Holland . . . . .  | 23       | 562   | 281   | 87    | 47      | 1,000 |
| Jews . . . . .     | 22       | 664   | 174   | 74    | 66      | 1,000 |

|                    | Women    |       |       |       |         | Total |
|--------------------|----------|-------|-------|-------|---------|-------|
|                    | Under 20 | 20-30 | 30-40 | 40-50 | Over 50 |       |
| England . . . . .  | 149      | 680   | 111   | 41    | 19      | 1,000 |
| Scotland . . . . . | 134      | 686   | 134   | 37    | 9       | 1,000 |
| Ireland . . . . .  | 137      | 713   | 111   | 27    | 12      | 1,000 |
| France . . . . .   | 204      | 593   | 145   | 40    | 18      | 1,000 |
| Italy . . . . .    | 171      | 657   | 125   | 34    | 13      | 1,000 |
| Prussia . . . . .  | 111      | 686   | 152   | 41    | 10      | 1,000 |
| Russia . . . . .   | 573      | 334   | 64    | 23    | 6       | 1,000 |
| Norway . . . . .   | 93       | 657   | 185   | 53    | 12      | 1,000 |
| Sweden . . . . .   | 51       | 643   | 232   | 59    | 15      | 1,000 |
| Belgium . . . . .  | 63       | 625   | 222   | 66    | 24      | 1,000 |
| Holland . . . . .  | 99       | 607   | 212   | 61    | 21      | 1,000 |
| Jews . . . . .     | 235      | 585   | 98    | 54    | 28      | 1,000 |

The distribution of marriages according to months in the various countries is as follows :—

|                 | Scotland | France | Russia | Austria | Belgium | Italy | Holland | Scandinavia | Greece | Vienna | Berlin | Hungary |
|-----------------|----------|--------|--------|---------|---------|-------|---------|-------------|--------|--------|--------|---------|
| January . . .   | 160      | 126    | 232    | 167     | 105     | 110   | 67      | 61          | 148    | 78     | 69     | 165     |
| February . . .  | 70       | 125    | 270    | 205     | 114     | 167   | 90      | 57          | 121    | 237    | 71     | 267     |
| March . . .     | 71       | 55     | 12     | 57      | 39      | 46    | 59      | 76          | 21     | 18     | 83     | 56      |
| April . . .     | 78       | 127    | 43     | 87      | 130     | 119   | 136     | 108         | 135    | 78     | 168    | 36      |
| May . . .       | 49       | 91     | 90     | 80      | 149     | 84    | 254     | 102         | 98     | 143    | 112    | 114     |
| June . . .      | 174      | 112    | 62     | 70      | 107     | 86    | 101     | 115         | 63     | 94     | 82     | 81      |
| July . . .      | 124      | 89     | 62     | 62      | 95      | 64    | 76      | 96          | 87     | 77     | 91     | 37      |
| August . . .    | 73       | 91     | 20     | 52      | 87      | 73    | 86      | 54          | 68     | 104    | 71     | 40      |
| September . . . | 74       | 91     | 41     | 60      | 100     | 95    | 73      | 68          | 89     | 88     | 103    | 54      |
| October . . .   | 74       | 98     | 185    | 86      | 101     | 111   | 83      | 141         | 161    | 90     | 146    | 86      |
| November . . .  | 114      | 120    | 174    | 241     | 120     | 139   | 116     | 166         | 145    | 180    | 111    | 234     |
| December . . .  | 139      | 75     | 9      | 33      | 53      | 106   | 59      | 156         | 64     | 13     | 93     | 30      |
| Year . . .      | 1,200    | 1,200  | 1,200  | 1,200   | 1,200   | 1,200 | 1,200   | 1,200       | 1,200  | 1,200  | 1,200  | 1,200   |

From observations made in England and France (1858-67) and in Prussia (1844-61) the relation between the ages of husband and wife was ascertained to be as follows :—

| When the Age of Husband is | That of the Wife will be |           |            |
|----------------------------|--------------------------|-----------|------------|
|                            | In England               | In France | In Prussia |
| Under 20 . . .             | 20.0                     | 22.7      | 24.4       |
| 20-30 . . .                | 23.2                     | 23.3      | 25.4       |
| 30-40 . . .                | 28.9                     | 27.8      | 28.0       |
| 40-50 . . .                | 36.8                     | 35.5      | 33.6       |
| Over 50 . . .              | 44.3                     | 39.8      | 42.3       |

The condition of persons marrying in the various countries is shown as follows :—

|                | Husband  |         |       | Wife |       |       |
|----------------|----------|---------|-------|------|-------|-------|
|                | Bachelor | Widower | Total | Maid | Widow | Total |
| England . . .  | 861      | 139     | 1,000 | 902  | 98    | 1,000 |
| France . . .   | 881      | 119     | 1,000 | 922  | 78    | 1,000 |
| Prussia . . .  | 847      | 153     | 1,000 | 902  | 98    | 1,000 |
| Russia . . .   | 808      | 192     | 1,000 | 864  | 136   | 1,000 |
| Austria . . .  | 819      | 181     | 1,000 | 886  | 114   | 1,000 |
| Hungary . . .  | 811      | 189     | 1,000 | 864  | 136   | 1,000 |
| Italy . . .    | 863      | 137     | 1,000 | 924  | 76    | 1,000 |
| Spain . . .    | 851      | 149     | 1,000 | 912  | 88    | 1,000 |
| Belgium . . .  | 878      | 122     | 1,000 | 913  | 87    | 1,000 |
| Holland . . .  | 848      | 152     | 1,000 | 898  | 102   | 1,000 |
| Denmark . . .  | 865      | 135     | 1,000 | 914  | 86    | 1,000 |
| Sweden . . .   | 883      | 117     | 1,000 | 940  | 60    | 1,000 |
| Norway . . .   | 883      | 117     | 1,000 | 941  | 59    | 1,000 |
| Greece . . .   | 809      | 191     | 1,000 | 926  | 74    | 1,000 |
| Roumania . . . | 880      | 120     | 1,000 | 912  | 88    | 1,000 |

|                | Bachelor with |       | Widower with |       | Total | Children per Marriage |
|----------------|---------------|-------|--------------|-------|-------|-----------------------|
|                | Maid          | Widow | Maid         | Widow |       |                       |
| England . . .  | 816           | 45    | 86           | 53    | 1,000 | 4.16                  |
| France . . .   | 840           | 41    | 82           | 37    | 1,000 | 2.98                  |
| Prussia . . .  | 794           | 53    | 108          | 45    | 1,000 | 4.12                  |
| Bavaria . . .  | 823           | 54    | 106          | 17    | 1,000 | ...                   |
| Russia . . .   | 762           | 46    | 102          | 90    | 1,000 | 4.85                  |
| Austria . . .  | 755           | 64    | 131          | 50    | 1,000 | 4.04                  |
| Hungary . . .  | 771           | 40    | 93           | 96    | 1,000 | ...                   |
| Italy . . .    | 825           | 38    | 99           | 38    | 1,000 | 4.49                  |
| Spain . . .    | 811           | 40    | 101          | 48    | 1,000 | 4.66                  |
| Belgium . . .  | 827           | 51    | 86           | 36    | 1,000 | 4.21                  |
| Holland . . .  | 794           | 54    | 104          | 48    | 1,000 | 4.34                  |
| Denmark . . .  | 813           | 52    | 101          | 34    | 1,000 | 3.55                  |
| Sweden . . .   | 847           | 36    | 93           | 24    | 1,000 | 4.01                  |
| Norway . . .   | 845           | 38    | 96           | 21    | 1,000 | 3.85                  |
| Greece . . .   | 858           | 41    | 68           | 33    | 1,000 | ...                   |
| Roumania . . . | 850           | 30    | 62           | 58    | 1,000 | ...                   |

The above tables are mostly from observations of 10 years down to 1875. Earlier observations are embodied in the following table :—

|                   | Period of Observation | Bachelor with |       | Widower with |       | Total |
|-------------------|-----------------------|---------------|-------|--------------|-------|-------|
|                   |                       | Maid          | Widow | Maid         | Widow |       |
| France . . .      | 1856-65               | 841           | 36    | 89           | 34    | 1,000 |
| England . . .     | 1845-51               | 823           | 42    | 89           | 46    | 1,000 |
| Bavaria . . .     | 1851-60               | 777           | 64    | 141          | 18    | 1,000 |
| Belgium . . .     | 1851-60               | 821           | 49    | 101          | 29    | 1,000 |
| Denmark . . .     | 1843-49               | 765           | 86    | 127          | 22    | 1,000 |
| Spain . . .       | 1858-62               | 780           | 48    | 116          | 56    | 1,000 |
| Scotland . . .    | 1846-50               | 836           | 37    | 97           | 34    | 1,000 |
| Greece . . .      | 1861-65               | 868           | 26    | 66           | 40    | 1,000 |
| Holland . . .     | 1850-59               | 786           | 49    | 120          | 43    | 1,000 |
| Italy . . .       | 1863-66               | 799           | 44    | 111          | 46    | 1,000 |
| Norway . . .      | 1846-55               | 834           | 51    | 90           | 25    | 1,000 |
| Sweden . . .      | 1861-65               | 847           | 41    | 90           | 22    | 1,000 |
| Switzerland . . . | 1856-60               | 834           | 46    | 96           | 24    | 1,000 |
| Austria . . .     | 1855-63               | 728           | 58    | 132          | 82    | 1,000 |
| Hungary . . .     | 1852-59               | 665           | 56    | 140          | 139   | 1,000 |

The ratios of married, unmarried, and widowed persons in the various countries, as derived from Census returns, show :—

|                   | Unmarried | Married | Widowed | Total |
|-------------------|-----------|---------|---------|-------|
| England . . .     | 602       | 345     | 53      | 1,000 |
| France . . .      | 518       | 402     | 80      | 1,000 |
| Prussia . . .     | 600       | 340     | 60      | 1,000 |
| Wurtemberg . . .  | 623       | 319     | 58      | 1,000 |
| Austria . . .     | 596       | 348     | 56      | 1,000 |
| Hungary . . .     | 532       | 407     | 61      | 1,000 |
| Italy . . .       | 582       | 352     | 66      | 1,000 |
| Switzerland . . . | 609       | 319     | 72      | 1,000 |
| Spain . . .       | 572       | 360     | 68      | 1,000 |
| Portugal . . .    | 626       | 308     | 66      | 1,000 |
| Holland . . .     | 611       | 328     | 61      | 1,000 |
| Belgium . . .     | 624       | 317     | 59      | 1,000 |
| Scandinavia . . . | 618       | 330     | 52      | 1,000 |
| Chile . . .       | 688       | 260     | 52      | 1,000 |

The above comprises the whole population.

Considering only the women of child-bearing age, which is usually counted from 15 to 45 years, the married ratio (per 1000) will be found as follows :—

|                    |                   |                       |
|--------------------|-------------------|-----------------------|
| England . . . 496  | Germany . . . 463 | Denmark . . . 450     |
| Scotland . . . 444 | Italy . . . 520   | Belgium . . . 409     |
| Ireland . . . 401  | Sweden . . . 420  | Holland . . . 439     |
| France . . . 531   | Norway . . . 437  | Switzerland . . . 421 |

The lowest ratio is in Ireland; this is the strongest proof of the wretched condition of the Irish people, and offers no hope of improvement.

The following table from the *Demografia* gives the distribution of adults (1879):—

|                   | Males over 18 Years |         |          |       | Females over 15 Years |         |        |       |
|-------------------|---------------------|---------|----------|-------|-----------------------|---------|--------|-------|
|                   | Unmarried           | Married | Widowers | Total | Unmarried             | Married | Widows | Total |
| France . . .      | 322                 | 603     | 75       | 1,000 | 326                   | 542     | 132    | 1,000 |
| England . . .     | 319                 | 617     | 64       | 1,000 | 361                   | 522     | 117    | 1,000 |
| Bavaria . . .     | 440                 | 502     | 58       | 1,000 | 440                   | 457     | 103    | 1,000 |
| Belgium . . .     | 426                 | 503     | 71       | 1,000 | 427                   | 463     | 110    | 1,000 |
| Denmark . . .     | 356                 | 585     | 59       | 1,000 | 375                   | 507     | 118    | 1,000 |
| Scotland . . .    | 355                 | 582     | 63       | 1,000 | 414                   | 453     | 133    | 1,000 |
| Norway . . .      | 358                 | 581     | 61       | 1,000 | 400                   | 488     | 112    | 1,000 |
| Holland . . .     | 378                 | 556     | 66       | 1,000 | 405                   | 476     | 119    | 1,000 |
| Portugal . . .    | 440                 | 502     | 58       | 1,000 | 437                   | 435     | 128    | 1,000 |
| Prussia . . .     | 361                 | 583     | 56       | 1,000 | 368                   | 512     | 120    | 1,000 |
| Sweden . . .      | 365                 | 573     | 62       | 1,000 | 403                   | 472     | 125    | 1,000 |
| Switzerland . . . | 413                 | 512     | 75       | 1,000 | 426                   | 449     | 125    | 1,000 |

The married population in various countries has been found to be made up as follows:—

|               | Not before Married |      | Was Married before |      | Total |
|---------------|--------------------|------|--------------------|------|-------|
|               | Husband            | Wife | Husband            | Wife |       |
| England . . . | 432                | 452  | 68                 | 48   | 1,000 |
| France . . .  | 440                | 461  | 60                 | 39   | 1,000 |
| Prussia . . . | 421                | 451  | 79                 | 49   | 1,000 |
| Austria . . . | 411                | 442  | 89                 | 58   | 1,000 |
| Italy . . .   | 430                | 461  | 70                 | 39   | 1,000 |
| Holland . . . | 419                | 451  | 81                 | 49   | 1,000 |
| Sweden . . .  | 443                | 472  | 57                 | 28   | 1,000 |

The average age at which widowers and widows re-enter matrimony, and the ratio of second marriages, are as follows:—

|               | Marrying Age of |        | Second Marriages in 1000 |      |
|---------------|-----------------|--------|--------------------------|------|
|               | Widowers        | Widows | Husband                  | Wife |
| England . . . | 42.2            | 39.0   | 139                      | 98   |
| France . . .  | 42.4            | 38.0   | 119                      | 78   |
| Belgium . . . | 42.5            | 40.0   | 122                      | 87   |
| Holland . . . | 41.6            | 40.3   | 152                      | 102  |

The average duration of marriages is as follows:—

|               | Years |              | Years |               | Years |
|---------------|-------|--------------|-------|---------------|-------|
| England . . . | 27    | Russia . . . | 30    | Holland . . . | 23    |
| France . . .  | 26    | Norway . . . | 24    | Belgium . . . | 23    |
| Germany . . . | 26    | Sweden . . . | 23    | Jews . . .    | 25    |

In England, if the mother die first, the father survives 9½ years, but if the father die first, the mother survives 11½ years. In the English Census of 1871, the married people living had an average age of 42 years, and had been married 15 years. An enumeration of the inhabitants of Aggerhus, Norway, in 1763, showed that 150 couples had been over eighty years married. There are at least two cases on record of persons married over a dozen times; James Gay, who died at Bordeaux in 1772, aged 101, was married 16 times, having no children by any of his wives; Margaret M'Dowal, Scotland, died in 1768, having survived 13 husbands, aged 106.

Consanguineous marriages, that is, of uncles, nieces, aunts, nephews, and cousins, appear to be of a deteriorat-

ing tendency. Bertillon, indeed, says that they do not originate any new infirmity, while they multiply any hereditary defect, but most other writers show that they are a fertile source of new ills. Bemiss says 27 per cent. of such marriages prove barren; Lent, that 35 per cent. of the children are deaf mutes; Boudin, that 28 per cent. of deaf mutes in France are children of marriages within the fourth degree; Darwin, that 35 per 1000 of blind deaf mutes and lunatics in England are children of cousins-german; and Poucet, that 20 per cent. of such marriages in Mexico are childless. Boudin says that for one deaf mute of ordinary marriages there will be 18 if the parents are cousins, 37 if uncle and niece, and 70 if nephew and aunt. Marriages of cousins are commoner among Protestants than Catholics, and still more so among Jews: hence it is found at Berlin that there are—

|    |                                   |
|----|-----------------------------------|
| 3  | deaf mutes among 10,000 Catholics |
| 6  | " " 10,000 Protestants            |
| 27 | " " 10,000 Jews                   |

Of 1549 marriages contracted in Prussia in 1889 between blood relations, 1422 were between cousins, 110 between uncles and nieces, and 16 between aunts and nephews.

The ratio of consanguineous among 10,000 marriages, in the various countries, is as follows:—

|               |    |               |     |              |     |
|---------------|----|---------------|-----|--------------|-----|
| Prussia . . . | 67 | England . . . | 75  | France . . . | 126 |
| Italy . . .   | 69 | Alsace . . .  | 107 | Jews . . .   | 230 |

These marriages are increasing in France, but diminish- ing in Alsace and Italy, viz. :—

|              | Date    | No. per 10,000 | Date    | No. per 10,000 |
|--------------|---------|----------------|---------|----------------|
| France . . . | 1853-60 | 97             | 1861-71 | 126            |
| Alsace . . . | 1858-65 | 143            | 1872-75 | 107            |
| Italy . . .  | 1868-71 | 84             | 1872-75 | 69             |

They are always more frequent in rural districts than in towns:—

|               | Per 10,000 Marriages |       |         |
|---------------|----------------------|-------|---------|
|               | Rural                | Urban | General |
| England . . . | 79                   | 71    | 75      |
| France . . .  | 130                  | 115   | 126     |
| Alsace . . .  | 121                  | 41    | 107     |

Darwin says that 450 per 10,000 marriages among the nobility of England are consanguineous, being six times the average of such marriages in England; and it appears that 19 per cent. of the English nobility are childless, which is more than three times the averages for England. It appears, however, that in France the ratio of children to a marriage is highest where consanguineous marriages are most frequent; and that the blind, deaf mutes, and insane are decidedly increased by such marriages. The returns of all France for five years ending 1865 show the eighty-nine departments thus:—

| Depart-ments | Consanguineous per 10,000 Marriages | Children to 100 Marriages | Blind, Insane, &c., per 100,000 Population |
|--------------|-------------------------------------|---------------------------|--------------------------------------------|
| 20           | 69                                  | 303                       | 254                                        |
| 20           | 103                                 | 300                       | 275                                        |
| 20           | 124                                 | 320                       | 282                                        |
| 20           | 153                                 | 312                       | 348                                        |
| 9            | 195                                 | 329                       | 345                                        |
| 89           | 119                                 | 308                       | 290                                        |

Furthermore, the increase in France of blind, deaf

mutes, and insane has been simultaneous with a rise in this kind of marriages :—

| Period          | Consanguineous<br>per 10,000<br>Marriages | Blind, Insane, &c.,<br>per 100,000<br>Population |
|-----------------|-------------------------------------------|--------------------------------------------------|
| 1853-55 . . . . | 93                                        | 224                                              |
| 1856-60 . . . . | 100                                       | 279                                              |
| 1861-65 . . . . | 119                                       | 290                                              |
| 1866-71 . . . . | 126                                       | 292                                              |

The above table seems to show that consanguineous marriages increase the number of blind, insane, &c.

The ratio of these marriages of 100,000 in France, during fifteen years ending 1875, was as follows :—

|                     | Towns | Rural | All France |
|---------------------|-------|-------|------------|
| Nephew and aunt . . | 16    | 24    | 21         |
| Uncle and niece . . | 60    | 56    | 58         |
| Cousins . . . .     | 960   | 1,190 | 1,131      |
| Total . . . .       | 1,036 | 1,270 | 1,212      |

The marriages with deceased wife's sister or husband's brother averaged 355 per 100,000 marriages.

In Italy in 1872-75 the ratio of consanguineous in 10,000 marriages was as follows :—

|                   |                      |                      |
|-------------------|----------------------|----------------------|
| Venice . . . . 24 | Lombardy . . . . 100 | Piedmont . . . . 131 |
| Naples . . . . 30 | Sicily . . . . 117   | Liguria . . . . 183  |

The ratio of the whole kingdom was 69, as already shown. In seven years ending 1874, of all consanguineous marriages 92 per cent. were of cousins, and 8 per cent. of uncles or aunts with nieces or nephews.

Regarding barrenness in marriages, it is commonly believed that 5 per cent. of marriages in Great Britain are sterile, and that sterility among women is half again more frequent than among men. A census taken in Prussia on this subject in 1842 showed 11 per 1000 males, 29 per 1000 females, and 34 per 1000 marriages were sterile.

The marriage-rate per 1000 inhabitants yearly in various countries was as follows :—

Persons Married Yearly per 1000

|           | 1841-50 | 1871-80 |             | 1841-50 | 1871-80 |
|-----------|---------|---------|-------------|---------|---------|
| England   | 16.1    | 16.3    | Sweden .    | 15.0    | 13.6    |
| France .  | 15.8    | 15.9    | Holland .   | 14.4    | 16.1    |
| Germany   | 17.4    | 17.7    | Belgium .   | 13.8    | 14.6    |
| Austria . | ...     | 17.1    | Denmark .   | 15.8    | 15.6    |
| Hungary   | ...     | 20.6    | Spain . .   | ...     | 15.1    |
| Italy . . | ...     | 15.3    | Switzerland | ...     | 15.3    |

From the above it appears that notwithstanding the improved condition of the working-classes, and the reduced price of food in all countries since 1850, the marriage-rate has not risen perceptibly. In Sweden and Denmark it has fallen. The following table, from observations in 1857-66, shows the marriage-rate among adults at various ages :—

| Age   | Married Yearly among 1000 of Each Class |       |        |       |         |       |
|-------|-----------------------------------------|-------|--------|-------|---------|-------|
|       | England                                 |       | France |       | Belgium |       |
|       | Men                                     | Women | Men    | Women | Men     | Women |
| 20-25 | 121                                     | 131   | 58     | 108   | 34      | 63    |
| 25-30 | 143                                     | 104   | 114    | 110   | 83      | 89    |
| 30-35 | 104                                     | 64    | 114    | 80    | 84      | 78    |
| 35-40 | 81                                      | 45    | 88     | 49    | 71      | 59    |
| 40-45 | 55                                      | 27    | 47     | 21    | 46      | 31    |
| 45-50 | 32                                      | 3     | 25     | 2     | 19      | 2     |

The marriage-rate yearly per 1000 persons of either sex between the ages of 15 and 60 was as follows :—

|                 | Men Women |    |                 | Men Women |    |
|-----------------|-----------|----|-----------------|-----------|----|
| England . . . . | 69        | 62 | Belgium . . . . | 41        | 44 |
| France . . . .  | 55        | 59 | Denmark . . . . | 60        | 61 |
| Holland . . . . | 54        | 51 | Norway . . . .  | 56        | 52 |

Observations in 1866-72 showed that the annual marriage-rate of 1000 unmarried persons, male and female, between 15 and 60 years of age was as follows :—

|                    |                    |                    |
|--------------------|--------------------|--------------------|
| England . . . . 65 | Prussia . . . . 71 | Belgium . . . . 51 |
| France . . . . 64  | Italy . . . . 58   | Switzerland . . 59 |

#### UNITED KINGDOM

In 1871 the married and unmarried of the three kingdoms stood in the following ratios :—

|                 | England |        | Scotland |        | Ireland |        | United Kingdom |        |
|-----------------|---------|--------|----------|--------|---------|--------|----------------|--------|
|                 | Male    | Female | Male     | Female | Male    | Female | Male           | Female |
| Married . . . . | 35.1    | 33.9   | 30.7     | 28.8   | 29.5    | 28.4   | 33.6           | 32.6   |
| Unmarried . . . | 61.3    | 58.6   | 66.0     | 62.8   | 66.8    | 62.1   | 62.8           | 59.4   |
| Widowed . . . . | 3.6     | 7.5    | 3.3      | 8.4    | 3.7     | 9.5    | 3.6            | 8.0    |
| Total . . . .   | 100.0   | 100.0  | 100.0    | 100.0  | 100.0   | 100.0  | 100.0          | 100.0  |

The married ratio in Ireland is remarkably low. The variations of condition in England since 1851 have been as follows :—

|                 | Males |       |       | Females |       |       |
|-----------------|-------|-------|-------|---------|-------|-------|
|                 | 1851  | 1861  | 1871  | 1851    | 1861  | 1871  |
| Married . . . . | 33.7  | 35.0  | 35.1  | 32.9    | 33.9  | 33.9  |
| Unmarried . . . | 62.6  | 61.3  | 61.3  | 59.8    | 58.8  | 58.6  |
| Widowed . . . . | 3.7   | 3.7   | 3.6   | 7.3     | 7.3   | 7.5   |
| Total . . . .   | 100.0 | 100.0 | 100.0 | 100.0   | 100.0 | 100.0 |

The variations in Scotland showed an increase of married people from 1851 to 1871, viz. :—

|                 | Males |       |       | Females |       |       |
|-----------------|-------|-------|-------|---------|-------|-------|
|                 | 1851  | 1861  | 1871  | 1851    | 1861  | 1871  |
| Married . . . . | 29.9  | 30.9  | 30.7  | 27.8    | 28.6  | 28.8  |
| Unmarried . . . | 66.8  | 65.8  | 66.0  | 63.8    | 63.0  | 62.8  |
| Widowed . . . . | 3.3   | 3.3   | 3.3   | 8.4     | 8.4   | 8.4   |
| Total . . . .   | 100.0 | 100.0 | 100.0 | 100.0   | 100.0 | 100.0 |

## MARRIAGE

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## MARRIAGE

The figures for Ireland in 1881 show a rapid decline of the married ratio since 1871, viz. :—

|             | Males |       | Females |       |
|-------------|-------|-------|---------|-------|
|             | 1871  | 1881  | 1871    | 1881  |
| Married . . | 29.5  | 27.6  | 28.4    | 27.0  |
| Unmarried . | 66.8  | 68.5  | 62.1    | 63.4  |
| Widowed . . | 3.7   | 3.9   | 9.5     | 9.6   |
| Total . . . | 100.0 | 100.0 | 100.0   | 100.0 |

The marriage rate per 1000 population in the three kingdoms showed thus :—

| England     |          | Scotland    |          | Ireland     |          | U. Kingdom  |          |
|-------------|----------|-------------|----------|-------------|----------|-------------|----------|
| Year        | Per 1000 | Year        | Per 1000 | Year        | Per 1000 | Year        | Per 1000 |
| 1841-50 . . | 16.1     | ...         | ...      | ...         | ...      | ...         | ...      |
| 1851-60 . . | 16.9     | 1855-60 . . | 13.7     | ...         | ...      | ...         | ...      |
| 1861-70 . . | 16.7     | 1861-70 . . | 14.1     | 1864-70 . . | 10.5     | 1861-70 . . | 15.3     |
| 1871-80 . . | 16.3     | 1871-80 . . | 14.5     | 1871-80 . . | 9.3      | 1871-80 . . | 15.2     |
| 1881-89 . . | 14.8     | 1881-89 . . | 13.2     | 1881-89 . . | 8.7      | 1881-89 . . | 13.8     |

The ratios of marrying age in England in 1871-80 compare with those of 1838 as follows :—

| Age          | 1838  |       | 1871-80 |       |
|--------------|-------|-------|---------|-------|
|              | Men   | Women | Men     | Women |
| Under 20 . . | 33    | 142   | 35      | 149   |
| 20-30 . . .  | 758   | 697   | 731     | 680   |
| 30-40 . . .  | 127   | 105   | 144     | 111   |
| Over 40 . .  | 82    | 56    | 90      | 60    |
| Total . . .  | 1,000 | 1,000 | 1,000   | 1,000 |

### FRANCE

The ratios of married and unmarried in the whole population were at various dates as follows :—

| Year         | Males     |         |         |       | Females   |         |         |       |
|--------------|-----------|---------|---------|-------|-----------|---------|---------|-------|
|              | Unmarried | Married | Widowed | Total | Unmarried | Married | Widowed | Total |
| 1806 . . . . | 588       | 366     | 46      | 1,000 | 560       | 364     | 86      | 1,000 |
| 1836 . . . . | 578       | 377     | 45      | 1,000 | 542       | 363     | 95      | 1,000 |
| 1856 . . . . | 555       | 396     | 49      | 1,000 | 519       | 386     | 95      | 1,000 |
| 1866 . . . . | 545       | 403     | 52      | 1,000 | 498       | 404     | 98      | 1,000 |
| 1876 . . . . | 533       | 413     | 54      | 1,000 | 482       | 409     | 109     | 1,000 |

The marriage rate per 1000 population was as follows :—

| Period           | Period           | Period            |
|------------------|------------------|-------------------|
| 1801-10 . . 15.6 | 1831-40 . . 15.9 | 1861-70 . . 15.8  |
| 1811-20 . . 15.8 | 1841-50 . . 15.9 | 1871-80 . . 15.9  |
| 1821-30 . . 15.5 | 1851-60 . . 15.8 | 80 years . . 15.8 |

The *Demografia* of 1880 gives a table of the ages in France at which men or women become widowed, in ratios thus :—

| Age at Loss of Spouse | Town  |       | Rural |       |
|-----------------------|-------|-------|-------|-------|
|                       | Men   | Women | Men   | Women |
| Under 25 . .          | 22    | 35    | 14    | 22    |
| 25-30 . . .           | 91    | 78    | 56    | 46    |
| 30-40 . . .           | 231   | 198   | 178   | 158   |
| 40-50 . . .           | 206   | 220   | 171   | 190   |
| Over 50 . .           | 450   | 469   | 581   | 584   |
| Total . . .           | 1,000 | 1,000 | 1,000 | 1,000 |

There is a notable difference between town and country population as to the distribution of marriages in months. Taking the year's total as 1200, we find thus for the years 1861-65 :—

|               | Town | Rural | France |               | Town | Rural | France |
|---------------|------|-------|--------|---------------|------|-------|--------|
| January . .   | 114  | 135   | 128    | July . . . .  | 99   | 91    | 94     |
| February . .  | 135  | 164   | 152    | August . . .  | 88   | 63    | 72     |
| March . . .   | 54   | 49    | 52     | September .   | 99   | 85    | 90     |
| April . . . . | 115  | 109   | 111    | October . . . | 107  | 98    | 101    |
| May . . . .   | 99   | 95    | 97     | November . .  | 120  | 139   | 131    |
| June . . . .  | 110  | 120   | 116    | December . .  | 60   | 52    | 56     |
| Half year . . | 627  | 672   | 656    | Half year . . | 573  | 528   | 544    |

### GERMANY

The marriage rate of Prussia for sixty years down to 1876 averaged 18.1 per thousand. After the wars of 1815 and 1871 it rose 10 per cent. in the following year, and after the cholera visitations of 1831, 1848, 1856, 1866, and 1873, there was a rise of 1 per cent. Observations for eighteen years ending 1861 showed the marriage rate among the population over fourteen years of age was as follows :—

| Among          | Per 1000 Yearly |         |
|----------------|-----------------|---------|
|                | Males           | Females |
| Christians . . | 54.0            | 52.5    |
| Jews . . . .   | 49.0            | 44.9    |

In the same period it was found that the adult male and female population of Prussia showed thus :—

| Marrying Age  | Men   | Women |
|---------------|-------|-------|
| Under 20 . .  | 8     | 87    |
| 20-30 . . .   | 487   | 556   |
| 30-40 . . .   | 178   | 128   |
| 40-50 . . .   | 51    | 34    |
| Over 50 . .   | 24    | 8     |
| Never marry . | 252   | 187   |
| Total . . .   | 1,000 | 1,000 |

Of 1000 men who marry, it is found that—

332 marry younger women  
579 " women of same age  
89 " older women

Of 1000 Catholics who marry, the ratios show—

| In            | Married to |             |       |
|---------------|------------|-------------|-------|
|               | Catholics  | Protestants | Total |
| Towns . . .   | 863        | 137         | 1,000 |
| Rural parts . | 965        | 35          | 1,000 |
| All Prussia . | 935        | 65          | 1,000 |

In Bavaria, it appears that of 1000 marriages 681 are Roman Catholics, 254 Protestants, and 65 mixed. The duration of marriage in Leipzig, until death of husband and wife, shows the following ratios :—

| Years           | Ratio |
|-----------------|-------|
| Less than 5 . . | 186   |
| 5-10 . . . .    | 163   |
| 10-20 . . . .   | 243   |
| 20-30 . . . .   | 198   |
| 30-40 . . . .   | 143   |
| Over 40 . . .   | 67    |
| Total . . . .   | 1,000 |

The Census of 1885 gave the numbers of married and unmarried as follows :—

|                 | Prussia    |            |            | Germany    |            |            |
|-----------------|------------|------------|------------|------------|------------|------------|
|                 | Males      | Females    | Total      | Males      | Females    | Total      |
| Unmarried . . . | 8,670,000  | 8,355,000  | 17,025,000 | 14,250,000 | 13,895,000 | 28,145,000 |
| Married . . . . | 4,775,000  | 4,795,000  | 9,570,000  | 7,910,000  | 7,945,000  | 15,855,000 |
| Widowed . . . . | 450,000    | 1,270,000  | 1,720,000  | 775,000    | 2,080,000  | 2,855,000  |
| Total . . . . . | 13,895,000 | 14,420,000 | 28,315,000 | 22,935,000 | 23,920,000 | 46,855,000 |

## AUSTRIA-HUNGARY

In Vienna the observations for 1872-76 showed :—

|                     |       |                   |       |
|---------------------|-------|-------------------|-------|
| Husband older . . . | 503   | Catholics . . . . | 873   |
| Wife older . . . .  | 120   | Jews . . . . .    | 77    |
| Both same age . . . | 368   | Protestants . . . | 50    |
| Total . . . . .     | 1,000 | Total . . . . .   | 1,000 |

The marrying age for men averaged 32, women 27 years; and the mean duration of marriage was 16 years.

In Hungary, in 1874, the conditions of the people were :—

|                   | Males | Females |
|-------------------|-------|---------|
| Unmarried . . . . | 556   | 503     |
| Married . . . . . | 412   | 407     |
| Widowed . . . . . | 32    | 90      |
| Total . . . . .   | 1,000 | 1,000   |

The marrying age in Sweden was as follows :—

| Years            | Men   |       |       | Women |       |       | Men and Women |          |          |
|------------------|-------|-------|-------|-------|-------|-------|---------------|----------|----------|
|                  | Urban | Rural | Total | Urban | Rural | Total | Nobles        | Citizens | Peasants |
| Under 26 . . . . | 169   | 216   | 208   | 289   | 385   | 370   | 95            | 143      | 289      |
| 26-35 . . . . .  | 601   | 564   | 570   | 529   | 471   | 480   | 529           | 599      | 596      |
| 36-50 . . . . .  | 199   | 173   | 177   | 171   | 129   | 136   | 308           | 220      | 126      |
| Over 50 . . . .  | 31    | 47    | 45    | 11    | 15    | 14    | 68            | 38       | 29       |
| Total . . . . .  | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000         | 1,000    | 1,000    |

## NORWAY

The marriage-rate was per 1000 inhabitants as follows :—

| Period           | Period           | Period           |
|------------------|------------------|------------------|
| 1801-25 . . 16.2 | 1836-45 . . 14.5 | 1856-65 . . 14.4 |
| 1826-35 . . 15.0 | 1846-55 . . 15.5 | 1866-75 . . 13.7 |

The condition of the adult population, men and women, between the ages of 15 and 60 was in 1875 as follows :—

|                 | Men   |       |       | Women |       |       |
|-----------------|-------|-------|-------|-------|-------|-------|
|                 | Town  | Rural | Total | Town  | Rural | Total |
| Unmarried . . . | 480   | 470   | 472   | 474   | 446   | 451   |
| Married . . . . | 492   | 506   | 504   | 456   | 507   | 498   |
| Widowed . . . . | 28    | 24    | 24    | 70    | 47    | 51    |
| Total . . . . . | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

The marrying age for men is rising, for women falling :—

| Period          | Average Age at Marriage |       |
|-----------------|-------------------------|-------|
|                 | Men                     | Women |
| 1841-50 . . . . | 30.4                    | 28.1  |
| 1861-70 . . . . | 30.9                    | 27.9  |

## ITALY

Observations for 1875-77 showed the marriage rate as follows :—

|                  |      |                  |      |                   |      |
|------------------|------|------------------|------|-------------------|------|
| Naples . . . . . | 18.4 | Lombardy . . . . | 17.0 | Tuscany . . . . . | 15.8 |
| Sicily . . . . . | 17.4 | Piedmont . . . . | 16.6 | Venice . . . . .  | 15.4 |

The general rate for the kingdom was 16.2.

## SWEDEN

In 1870 the male and female population over 15 years of age showed thus :—

|                   | Men   | Women |
|-------------------|-------|-------|
| Unmarried . . . . | 422   | 403   |
| Married . . . . . | 521   | 472   |
| Widowed . . . . . | 57    | 125   |
| Total . . . . .   | 1,000 | 1,000 |

Taking the year as 1200, the marriages according to months were :—

|                 |     |                |     |                 |     |
|-----------------|-----|----------------|-----|-----------------|-----|
| January . . . . | 50  | May . . . . .  | 84  | September . . . | 66  |
| February . . .  | 59  | June . . . . . | 102 | October . . . . | 158 |
| March . . . . . | 80  | July . . . . . | 66  | November . . .  | 173 |
| April . . . . . | 102 | August . . . . | 47  | December . . .  | 213 |

Taking the year as 1200, the marriages according to months stood thus :—

|                 |     |                |     |                 |     |
|-----------------|-----|----------------|-----|-----------------|-----|
| January . . . . | 75  | May . . . . .  | 77  | September . . . | 72  |
| February . . .  | 48  | June . . . . . | 158 | October . . . . | 132 |
| March . . . . . | 65  | July . . . . . | 146 | November . . .  | 144 |
| April . . . . . | 110 | August . . . . | 54  | December . . .  | 118 |

## BELGIUM

In Belgium the different Censuses showed as follows :—

## Males

|                 | 1846      | 1866      | 1880      |
|-----------------|-----------|-----------|-----------|
| Unmarried . . . | 1,417,000 | 1,546,000 | 1,761,000 |
| Married . . . . | 662,000   | 766,000   | 879,000   |
| Widowed . . . . | 85,000    | 108,000   | 118,000   |
| Total . . . . . | 2,164,000 | 2,420,000 | 2,758,000 |

## Females

|                 |           |           |           |
|-----------------|-----------|-----------|-----------|
| Unmarried . . . | 1,355,000 | 1,466,000 | 1,681,000 |
| Married . . . . | 661,000   | 763,000   | 876,000   |
| Widowed . . . . | 158,000   | 180,000   | 205,000   |
| Total . . . . . | 2,174,000 | 2,409,000 | 2,762,000 |



# MARRIAGE

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# MEDICINE

|                 | Both Sexes |           |           |
|-----------------|------------|-----------|-----------|
|                 | 1846       | 1866      | 1880      |
| Unmarried . . . | 2,772,000  | 3,012,000 | 3,442,000 |
| Married . . . . | 1,323,000  | 1,529,000 | 1,755,000 |
| Widowed . . . . | 243,000    | 288,000   | 323,000   |
| Total . . . . . | 4,338,000  | 4,829,000 | 5,520,000 |

Of males over 18 years of age the conditions were :—

|                 | 1846      | 1866      | 1880      |
|-----------------|-----------|-----------|-----------|
| Unmarried . . . | 582,000   | 646,000   | 672,000   |
| Married . . . . | 662,000   | 766,000   | 879,000   |
| Widowed . . . . | 85,000    | 108,000   | 118,000   |
| Total . . . . . | 1,329,000 | 1,520,000 | 1,669,000 |

Of females over 18 the returns showed thus :—

|                 | 1846      | 1866      | 1880      |
|-----------------|-----------|-----------|-----------|
| Unmarried . . . | 545,000   | 576,000   | 611,000   |
| Married . . . . | 660,000   | 761,000   | 874,000   |
| Widowed . . . . | 158,000   | 180,000   | 205,000   |
| Total . . . . . | 1,363,000 | 1,517,000 | 1,690,000 |

The condition of persons marrying showed these ratios :—

|                      | 1841-50 | 1851-60 | 1861-70 | 1871-80 |
|----------------------|---------|---------|---------|---------|
| Bachelor and maid .  | 80.8    | 82.1    | 82.6    | 83.7    |
| Bachelor and widow . | 5.0     | 4.9     | 4.9     | 5.1     |
| Widower and maid . . | 11.5    | 10.1    | 9.1     | 7.8     |
| Widower and widow .  | 2.7     | 2.9     | 3.4     | 3.4     |
| Total . . . . .      | 100.0   | 100.0   | 100.0   | 100.0   |

The ages of the parties marrying showed as follows :—

|                  | Men     |         | Women   |         |
|------------------|---------|---------|---------|---------|
|                  | 1841-50 | 1871-80 | 1841-50 | 1871-80 |
| Under 25 . . . . | 19.3    | 21.6    | 35.6    | 41.1    |
| 25-30 . . . . .  | 33.5    | 34.3    | 29.6    | 28.0    |
| 30-40 . . . . .  | 32.9    | 30.4    | 25.2    | 21.8    |
| 40-50 . . . . .  | 10.3    | 9.1     | 7.6     | 6.8     |
| 50-60 . . . . .  | 2.8     | 3.4     | 1.7     | 1.8     |
| 60-70 . . . . .  | 1.0     | 1.0     | 0.3     | 0.5     |
| Over 70 . . . .  | 0.2     | 0.2     | 0.0     | 0.0     |
| Total . . . . .  | 100.0   | 100.0   | 100.0   | 100.0   |

## SWITZERLAND

Of 1000 men married at Geneva there were :—

|                  | 1847-51 | 1872-76 |
|------------------|---------|---------|
| Genevans . . . . | 641     | 305     |
| Foreigners . . . | 359     | 695     |
| Total . . . . .  | 1,000   | 1,000   |

The children to 100 foreign fathers were 263 ; to Genevans, 242.

## RUSSIA

The marrying rate per 1000 inhabitants in 1875 was 20.2 among Greeks, 16.2 among Roman Catholics, 18.0 among Armenians, and 14.6 among Protestants.

## PORTUGAL

In 1860 the marriage rate was 12.2 per 1000, and in 1864 the population was composed thus :—

|                   | Male  | Female | Total |
|-------------------|-------|--------|-------|
| Unmarried . . . . | 635   | 617    | 626   |
| Married . . . . . | 321   | 296    | 308   |
| Widowed . . . . . | 44    | 87     | 66    |
| Total . . . . .   | 1,000 | 1,000  | 1,000 |

## ALGERIA

In 1872 the European population of the colony was :—

|                   | Male  | Female |
|-------------------|-------|--------|
| Unmarried . . . . | 621   | 504    |
| Married . . . . . | 342   | 384    |
| Widowed . . . . . | 37    | 112    |
| Total . . . . .   | 1,000 | 1,000  |

## FINLAND

The marriage rate averaged 16.0 from 1812 to 1840, and only 15.5 from 1851 to 1865.

## MATCHES

Sweden and Norway export 20,000 tons of wooden matches yearly, being nearly one-third of the quantity consumed in Europe per annum. The tax on matches in France averages 4d. per inhabitant.

## MEDICINE

The number of physicians and surgeons in various countries is stated as follows :—

|                    | Number | Per Million Population |
|--------------------|--------|------------------------|
| England . . . . .  | 15,090 | 550                    |
| Scotland . . . . . | 3,455  | 850                    |
| Ireland . . . . .  | 3,500  | 630                    |
| United Kingdom . . | 22,105 | 578                    |
| Russia . . . . .   | 13,475 | 155                    |
| Spain . . . . .    | 5,200  | 305                    |
| France . . . . .   | 14,380 | 380                    |
| Germany . . . . .  | 16,270 | 355                    |
| Austria . . . . .  | 10,690 | 275                    |
| Italy . . . . .    | 8,580  | 280                    |
| Holland . . . . .  | 1,860  | 410                    |
| Belgium . . . . .  | 2,160  | 390                    |
| Norway . . . . .   | 502    | 275                    |

The above is exclusive of army and navy doctors, of which there are these returns :—

|                      |     |
|----------------------|-----|
| French navy . . . .  | 666 |
| Russian navy . . . . | 413 |
| German navy . . . .  | 50  |
| United States navy . | 221 |

Dispensaries are maintained in the United Kingdom to give relief gratis to the poor. In England 972,000 persons received medical attendance and medicines gratis. In Ireland the cost of these institutions is £150,000 a year. In France 230,000 persons annually receive medicine free at a cost of £58,000. The number of medical students in London in October 1882 was 949. The Italian Universities turn out 630 physicians and surgeons yearly. The French Universities made 33,000 M.D.'s in eighty-two years, viz. :—

| Years           | No.   | Years            | No.    |
|-----------------|-------|------------------|--------|
| 1801-14 . . . . | 3,178 | 1849-69 . . . .  | 9,145  |
| 1815-30 . . . . | 6,423 | 1870-82 . . . .  | 5,901  |
| 1831-48 . . . . | 8,468 | 82 years . . . . | 33,115 |

The ratio of physicians in France is declining : in 1847 it was 510 per million, the progress of sanitary science

causing this decline, or perhaps the heavy tax on doctors, which Leroy-Beaulieu says produces £500,000 a year.

The progress of medicine in Austria proper is shown thus:—

|                         | 1840   | 1886   |
|-------------------------|--------|--------|
| Physicians, &c. . . . . | 9,440  | 13,228 |
| Midwives . . . . .      | 14,100 | 16,940 |
| Total . . . . .         | 23,540 | 30,168 |

The returns for Belgium show thus:—

|                         | 1850  | 1880  |
|-------------------------|-------|-------|
| Physicians, &c. . . . . | 2,786 | 3,189 |
| Midwives . . . . .      | 1,128 | 2,176 |
| Total . . . . .         | 3,914 | 5,365 |

In the above returns apothecaries are counted with physicians.

In Holland there are 803 graduated M.D.'s, 950 surgeons, 106 pensioned army doctors, 66 dentists, 750 midwives, and 752 apothecaries.

The death-rate of physicians is very high. The French army in the Crimea lost 7 per cent. of officers and 18 per cent. of surgeons.

The death-rate in England of physicians and civilians differs as follows:—

|                             | Age 20-54   |
|-----------------------------|-------------|
| Civilians . . . . .         | 12 per 1000 |
| Married doctors . . . . .   | 19 „        |
| Unmarried doctors . . . . . | 26 „        |

During the typhus plague in Ireland in 1843-47, no fewer than 66 per thousand of physicians died. Among the people 9 per cent. of deaths were from typhus, but among physicians 32 per cent.

## MENSTRUATION

The medium age at which it commences is stated in the *Dic. des Sciences Médicales* as follows:—

|                      | Years |                      | Years |
|----------------------|-------|----------------------|-------|
| Marseilles . . . . . | 13.9  | Manchester . . . . . | 15.3  |
| Corfu . . . . .      | 14.0  | Lyons . . . . .      | 15.5  |
| Hungary . . . . .    | 14.1  | Vienna . . . . .     | 15.7  |
| London . . . . .     | 15.1  | Halle . . . . .      | 16.0  |
| Paris . . . . .      | 15.2  | Copenhagen . . . . . | 16.8  |

Despine and Boismont give the following results respecting 8600 girls in France as the average ages at which it begins:—

|                        | Years | Months | Days |
|------------------------|-------|--------|------|
| Under 5 feet . . . . . | 14    | 7      | 14   |
| Over 5 „ . . . . .     | 14    | 9      | 21   |
| Dark eyes . . . . .    | 14    | 5      | 8    |
| Blue „ . . . . .       | 14    | 11     | 24   |

According to Guy and Murphy the average ages in England are:—

|                            | Years | Months | Days |
|----------------------------|-------|--------|------|
| London . . . . .           | 14    | 11     | 6    |
| Manchester . . . . .       | 14    | 10     | 9    |
| Rural population . . . . . | 16    | 1      | 24   |
| Urban . . . . .            | 15    | 4      | 9    |

In Calcutta and Bombay the averages are as follow:—

| Years              | Calcutta | Bombay |
|--------------------|----------|--------|
| Under 12 . . . . . | 29.4     | 15.2   |
| 12-14 . . . . .    | 47.8     | 48.2   |
| 14-16 . . . . .    | 18.9     | 24.9   |
| Over 16 . . . . .  | 3.9      | 11.7   |
| Total . . . . .    | 100.0    | 100.0  |

Dubois gives the age at which it stops as follows:—

|                  | Years |                    | Years |
|------------------|-------|--------------------|-------|
| Java . . . . .   | 30.0  | Poland . . . . .   | 47.1  |
| India . . . . .  | 32.5  | Norway . . . . .   | 48.1  |
| France . . . . . | 45.5  | Portugal . . . . . | 50.0  |

## METALS

The production is stated under *Mining*.

|                    | Conductors of |             |
|--------------------|---------------|-------------|
|                    | Heat          | Electricity |
| Gold . . . . .     | 100           | 94          |
| Platinum . . . . . | 98            | 16          |
| Silver . . . . .   | 97            | 74          |
| Copper . . . . .   | 90            | 100         |
| Iron . . . . .     | 37            | 16          |
| Zinc . . . . .     | 36            | 29          |
| Tin . . . . .      | 30            | 15          |
| Lead . . . . .     | 18            | 8           |

A wire 0.84 of a line in diameter will sustain the following weights:—

|                |         |                    |          |
|----------------|---------|--------------------|----------|
| Lead . . . . . | 28 lbs. | Silver . . . . .   | 187 lbs. |
| Tin . . . . .  | 35 „    | Platinum . . . . . | 274 „    |
| Zinc . . . . . | 110 „   | Copper . . . . .   | 302 „    |
| Gold . . . . . | 150 „   | Iron . . . . .     | 549 „    |

The fluid density is as follows:—

|                |      |                  |       |
|----------------|------|------------------|-------|
| Zinc . . . . . | 6.48 | Copper . . . . . | 8.22  |
| Iron . . . . . | 6.88 | Silver . . . . . | 9.51  |
| Tin . . . . .  | 7.03 | Lead . . . . .   | 10.37 |

## METEOROLOGY

*Air*.—In its pure state it is composed thus:—

|                           |    |
|---------------------------|----|
| Nitrogen . . . . .        | 77 |
| Oxygen . . . . .          | 21 |
| Other compounds . . . . . | 2  |

100

The percentage of oxygen varies as follows:—

| Locality                  | Percentage | Locality            | Percentage |
|---------------------------|------------|---------------------|------------|
| Sea-shore . . . . .       | 21.00      | Mines . . . . .     | 20.50      |
| Confined houses . . . . . | 20.75      | When candles go out | 18.50      |

The following table shows how oxygen varies with climate:—

|                         |        |                  |        |
|-------------------------|--------|------------------|--------|
| Ben Lomond . . . . .    | 20.940 | Berlin . . . . . | 20.953 |
| Atlantic . . . . .      | 20.942 | Paris . . . . .  | 20.956 |
| Lyons . . . . .         | 20.942 | Geneva . . . . . | 20.956 |
| Mediterranean . . . . . | 20.947 | Andes . . . . .  | 20.963 |
| Madrid . . . . .        | 20.949 |                  |        |

Air travels in England in healthy years about 4½ miles an hour, and 3½ in unhealthy. The percentage of carbonic acid ranges thus:—

|                       |     |                           |     |
|-----------------------|-----|---------------------------|-----|
| In country . . . . .  | .03 | In fogs . . . . .         | .07 |
| „ town . . . . .      | .04 | „ crowded lanes . . . . . | .13 |
| „ hospitals . . . . . | .05 | „ theatres . . . . .      | .30 |

Each adult inhales a gallon of air per minute, and consumes daily 30 oz. of oxygen. For the conversion of this oxygen a certain amount of food is required—say 13 oz. of carbon for a male, and 11 oz. for a female, equivalent to 3 lbs. bread and 2½ lbs. respectively. The proper allowance of air in barracks is 600 cubic feet per man in Europe, and 1000 in India: for hospitals, 1200 cubic feet per bed in Europe, and 1800 in India. Horses require in England 1600 cubic feet each, or nearly as much as three men.

The Scottish Meteorological Society report on the presence of ozone as follows:—May, 6.2; November, 5.3; annual average, 6.0.

The atmosphere of Paris shows the prevalence of ozone and bacteria in the various months as follows :—

|                 | Ozone at Mont<br>Souris per 1000<br>Cubic Metres<br>Air | Bacteria per Cubic<br>Metre Air |            |
|-----------------|---------------------------------------------------------|---------------------------------|------------|
|                 |                                                         | Mont Souris                     | Rue Rivoli |
| January . . .   | 3                                                       | 380                             | 2,200      |
| February . . .  | 9                                                       | 255                             | 1,850      |
| March . . .     | 8                                                       | 380                             | 4,600      |
| April . . .     | 7                                                       | 380                             | 6,400      |
| May . . .       | 7                                                       | 420                             | 6,900      |
| June . . .      | 9                                                       | 400                             | 6,450      |
| July . . .      | 12                                                      | 815                             | 6,370      |
| August . . .    | 8                                                       | 670                             | 6,350      |
| September . . . | 8                                                       | 630                             | 6,400      |
| October . . .   | 8                                                       | 480                             | 5,100      |
| November . . .  | 12                                                      | 290                             | 3,800      |
| December . . .  | 6                                                       | 230                             | 2,520      |
| Average . . .   | 8                                                       | 444                             | 4,910      |

The foregoing is taken from the *Dic. des Sciences Medicales*, but M. Miguel gives other results for 1882-83 as follows :—

|                      | Microbes per Cubic Metre |            |
|----------------------|--------------------------|------------|
|                      | Mont Souris              | Rue Rivoli |
| Spring . . .         | 550                      | 1,900      |
| Summer . . .         | ?                        | 3,900      |
| Autumn . . .         | 115                      | 2,060      |
| Winter . . .         | 115                      | 2,040      |
| Yearly average . . . | ...                      | 2,490      |

He adds that at a height of 6000 feet in the Swiss mountains no bacteria were found, and gives this table :—

*Bacteria in Ten Cubic Metres of Air.*

|                                           |        |
|-------------------------------------------|--------|
| 1. At a height of 2000 metres . . .       | 0      |
| 2. On the Lake of Thun (560 metres) . . . | 8      |
| 3. Near the Hotel Bellevue, Thun . . .    | 25     |
| 4. In a room of the hotel . . .           | 600    |
| 5. In the park at Mont Souris . . .       | 7,600  |
| 6. In the Rue de Rivoli, Paris . . .      | 55,000 |

M. Miguel's researches on the air of the wards of hospitals were carried out at the Hotel Dieu and the Hospital Notre Dame, and with the result that for the whole year the hospital air contained on an average 11,000 bacteria per cubic metre, as against 850 bacteria per cubic metre of the air of the Rue de Rivoli. The hospital bacteria reached their minimum at the time when the windows could be kept open, in June, July, and August—average, 5500—at a time when the bacteria in the street had attained a maximum of about 13,000, or 50 per cent. in excess of the average. The maximum of the hospital (28,000) was reached in January, when the weather was cold and the windows shut, and the average in the street had fallen to 160. Microbes multiply so fast that one may become 16 millions in twenty-four hours.

*Barometer.*—In London it usually ranges between 28.700 and 30.700, but it has exceeded the latter figure three times on record :—

|                         |        |
|-------------------------|--------|
| In 1778 . . .           | 30.935 |
| February 11, 1849 . . . | 30.895 |
| January 18, 1882 . . .  | 30.983 |

The lowest reading in London was on Christmas Day, 1821, namely, 28.016. The lowest reading known in the British Islands was at Ochertyre, near Crieff, Jan. 26, 1834: 27.332. The highest reading known also occurred in Scotland, Jan. 8-9, 1820, near Leith, when the reading was 31.065. The highest reading recorded in England was at St. Leonards, Hastings, Jan. 18, 1882: 30.990.

Mr. Glaisher's barometer in his various balloon ascents marked as follows :—

| Miles High | Inches | Miles High | Inches |
|------------|--------|------------|--------|
| 1 . . .    | 24.7   | 4 . . .    | 13.7   |
| 2 . . .    | 20.3   | 5 . . .    | 11.8   |
| 3 . . .    | 16.7   |            |        |

He therefore estimates for 10 miles 4.2 and for 15 miles 1.6 inches.

The mean height of barometer varies according to latitude, and in the northern hemisphere averages as follows :—

| Degree of<br>Latitude | Barometer | Degree of<br>Latitude | Barometer |
|-----------------------|-----------|-----------------------|-----------|
| 10 . . .              | 29.98     | 45 . . .              | 30.00     |
| 20 . . .              | 30.06     | 50 . . .              | 29.81     |
| 30 . . .              | 30.11     | 60 . . .              | 29.80     |
| 40 . . .              | 30.02     | 67 . . .              | 29.67     |

But in latitudes south of 25° S. the decrease is very much more rapid, the mean elevation in 55° S. being about 29.30. It also varies according to elevation, the reading diminishing approximately at the rate of 1 inch for 1000 feet. The actual mean readings at different places are as follows :—

| Place             | Feet over<br>Sea | Mean Height<br>of Barometer | Boiling-point<br>(Fahrenheit). |
|-------------------|------------------|-----------------------------|--------------------------------|
| Sea-level . . .   | 0                | 30.00                       | 212.0                          |
| Rome . . .        | 151              | 29.76                       | 211.6                          |
| Milan . . .       | 420              | 29.45                       | 211.1                          |
| Moscow . . .      | 984              | 28.82                       | 210.2                          |
| Geneva . . .      | 1,221            | 28.54                       | 209.5                          |
| Munich . . .      | 1,765            | 27.95                       | 208.6                          |
| Madrid . . .      | 1,995            | 27.72                       | 208.0                          |
| Briançon . . .    | 4,285            | 25.39                       | 203.9                          |
| St. Remo . . .    | 5,265            | 24.45                       | 202.1                          |
| St. Gothard . . . | 6,808            | 23.07                       | 199.2                          |
| Mexico . . .      | 7,471            | 22.52                       | 198.1                          |
| Bogota . . .      | 8,731            | 21.42                       | 195.6                          |
| Quito . . .       | 9,541            | 20.75                       | 194.2                          |
| Antisana . . .    | 13,455           | 17.87                       | 187.4                          |

Atmospheric pressure, moreover, varies at the same place with the season. For example, at Ben Nevis, height 4300 feet, the mean pressure marks thus :—

|                |       |                 |       |
|----------------|-------|-----------------|-------|
| January . . .  | 25.16 | July . . .      | 25.43 |
| February . . . | 25.49 | August . . .    | 25.42 |
| March . . .    | 25.39 | September . . . | 25.36 |
| April . . .    | 25.38 | October . . .   | 25.45 |
| May . . .      | 25.47 | November . . .  | 25.09 |
| June . . .     | 25.68 | December . . .  | 25.09 |

The mean pressure for the year was 25.37, or nearly the same as that of Briançon, which is 4300 feet over sea-level.

Martin publishes the following table of the average number of monthly oscillations of the barometer at various towns in France :—

|                   | Summer | Winter | Year |
|-------------------|--------|--------|------|
| Bordeaux . . .    | 14     | 29     | 22   |
| Dijon . . .       | 11     | 26     | 19   |
| Marseilles . . .  | 17     | 23     | 20   |
| Metz . . .        | 14     | 26     | 20   |
| Montpellier . . . | 13     | 23     | 18   |
| Mulhouse . . .    | 13     | 27     | 20   |
| Nantes . . .      | 15     | 29     | 22   |
| Paris . . .       | 17     | 31     | 24   |
| Rochelle . . .    | 16     | 32     | 24   |
| Strasbourg . . .  | 15     | 29     | 22   |

*Clouds.*—The University of Upsala has (1884-85) determined the average height of clouds thus :—

|               | Yards |                      | Yards |
|---------------|-------|----------------------|-------|
| Stratus . . . | 685   | Strato-cumulus . . . | 2,560 |
| Nimbus . . .  | 1,680 | Cirro-cumulus . . .  | 7,110 |
| Cumulus . . . | 2,040 | Cirrus . . .         | 9,760 |

**Evaporation.**—Gasparim's table estimates 25 inches for the level parts of France, 27 for the western coast, 35 for the hilly country, and 40 for the Southern Departments. He also gives twelve cities thus:—

| Inches          | Inches            | Inches          |
|-----------------|-------------------|-----------------|
| Arles . . . 90  | Marseilles . . 96 | Rome . . . 98   |
| Bordeaux . . 82 | Paris . . . 24    | Rotterdam . 27  |
| Geneva . . . 48 | Poitiers . . . 32 | Toulouse . . 26 |
| Lille . . . 36  | Rochelle . . 25   | Troyes . . . 33 |

**Hail.**—1656, July 20th, Norwich, wrecked houses and killed many persons.

1697, May 4th, killed sheep in many parts of England.

1775, May 13th, Murcia, Spain, hailstones like oranges, weighing 20 oz.

1844, in Languedoc, pieces of ice fell weighing 11 lbs.

1874, New Jersey, U.S., hailstones like turkey eggs.

Damage to crops in France by hail since 1850 has averaged £1,420,000 per annum.

**Magnetic Observations.**—At Paris the magnetic declension was recorded thus:—

| Year             | Year           | Year           |
|------------------|----------------|----------------|
| 1580. . 11.30 E. | 1700 . 8.10 W. | 1835 . 22.4 W. |
| 1618. . 8.0 .    | 1780 . 19.55 . | 1851 . 20.25 . |
| 1663. . 0 .      | 1805 . 25.5 .  | 1861 . 19.6 .  |

The variations of the needle at Paris showed the following angle of inclination:—

| Year           | Year           | Year           |
|----------------|----------------|----------------|
| 1671 . . 75.0  | 1798 . . 69.51 | 1831 . . 67.40 |
| 1754 . . 72.15 | 1806 . . 69.12 | 1851 . . 66.35 |
| 1780 . . 71.48 | 1820 . . 68.20 | 1861 . . 66.7  |

The following table of magnetic intensity is chiefly from Humboldt:—

|                      | North Latitude | Magnetic Intensity |
|----------------------|----------------|--------------------|
| Peruvian Andes . . . | ...            | 1.087              |
| Carthegena . . .     | 10.25          | 1.294              |
| Naples . . .         | 40.50          | 1.274              |
| Lyons . . .          | 45.46          | 1.333              |
| Paris . . .          | 48.52          | 1.348              |
| St. Petersburg . . . | 59.46          | 1.410              |
| Berlin . . .         | 52.51          | 1.366              |
| Christiania . . .    | 59.55          | 1.419              |
| Brussels . . .       | 50.52          | 1.374              |
| Baffin's Bay . . .   | 12.43          | 1.590              |
| Spitzbergen . . .    | 79.40          | 1.562              |
| New York . . .       | 40.43          | 1.803              |

**Meteors.**—November 27, 1885, the Greenwich Observatory counted 3000 between 6 and 11 P.M.: first hour at intervals 40 per minute; at 9 P.M. about 20.

On November 14, 1868, the Observatory at Philadelphia counted 4800 between 12.20 and 5 A.M.

**Mineral Heat.**—The temperature of water being taken as 100, that of the various minerals is as follows:—

|                      |                       |
|----------------------|-----------------------|
| Lead . . . . . 29    | Copper . . . . . 95   |
| Mercury . . . . . 33 | Iron . . . . . 110    |
| Silver . . . . . 56  | Glass . . . . . 117   |
| Zinc . . . . . 93    | Sulphur . . . . . 188 |

The average rainfall is heaviest near the Equator, and diminishes as the latitude rises, viz:—

| Latitude     | Inches Rainfall |
|--------------|-----------------|
| 0 . . . . .  | 100             |
| 20 . . . . . | 80              |
| 30 . . . . . | 60              |
| 40 . . . . . | 40              |
| 50 . . . . . | 30              |
| 60 . . . . . | 20              |
| 70 . . . . . | 10              |
| 80 . . . . . | 5               |

**Rainfall.**—The rainfall according to seasons (Gasparim) is as follows, in inches:—

|                     | Spring | Summer | Autumn | Winter | Year |
|---------------------|--------|--------|--------|--------|------|
| England . . .       | 6      | 8      | 10     | 8      | 32   |
| Scandinavia . .     | 3      | 7      | 6      | 3      | 19   |
| Russia . . .        | 2      | 7      | 4      | 4      | 17   |
| France . . .        | 6      | 9      | 7      | 5      | 27   |
| Germany . . .       | 5      | 8      | 6      | 5      | 24   |
| Italy . . .         | 5      | 5      | 7      | 20     | 37   |
| Europe . . .        | 4      | 7      | 7      | 5      | 23   |
| United States . .   | 11     | 11     | 12     | 11     | 45   |
| Atlantic States . . | 11     | 11     | 11     | 3      | 36   |
| Southern . . .      | 13     | 17     | 11     | 14     | 55   |
| Western . . .       | 6      | 11     | 6      | 3      | 26   |
| Pacific . . .       | 12     | 7      | 18     | 25     | 62   |
| Australia . . .     | 8      | 9      | 12     | 6      | 35   |
| West Indies . . .   | 31     | 22     | 27     | 8      | 88   |
| Sierra Leone . .    | 12     | 65     | 46     | 2      | 125  |
| Patagonia . . .     | 3      | 3      | 6      | 3      | 15   |

The heaviest rainfalls recorded in the United Kingdom have been:—

7 inches at Ardrishaig, Argyle, on 7th Dec. 1863.  
4½ inches at London on 13th April 1878.

It is stated that 24 inches have fallen at Bombay in 24 hours, also 30 inches at the Khasi Hills, India, 30 at Genoa, and 33 at Gibraltar.

The wettest place in England is Seathwaite, 145 inches; and in the world Cherrapunji, in South-Western Assam, where the average for 15 years is 493 inches, reaching in 1861 up to 905 inches.

The rainfall of the United Kingdom (54 stations), European Continent (45 stations), and the United States (34 stations), from 1824 to 1867, was:—

| Period        | Inches per Annum |                    |               |
|---------------|------------------|--------------------|---------------|
|               | United Kingdom   | European Continent | United States |
| 1824-30 . . . | 29               | 25                 | 44            |
| 1831-40 . . . | 29               | 29                 | 40            |
| 1841-50 . . . | 31               | 29                 | 48            |
| 1851-60 . . . | 33               | 26                 | 40            |
| 1861-67 . . . | 38               | 25                 | ...           |

The rainfall of various countries reduced to horse-power is valued as follows:—

|                    | Horse-power |                   | Horse-power |
|--------------------|-------------|-------------------|-------------|
| United Kingdom . . | 9,300,000   | Russia . . .      | 77,700,000  |
| France . . .       | 12,000,000  | Italy . . .       | 8,500,000   |
| Germany . . .      | 11,800,000  | United States . . | 430,200,000 |

The average in inches is as follows, yearly:—

| Inches            | Inches           | Inches            |
|-------------------|------------------|-------------------|
| Aberdeen . . 30   | Baltimore . . 41 | Bologna . . 22    |
| Adelaide . . 20   | Barcelona . . 17 | Bombay . . 85     |
| Agén . . . 27     | Barbadoes . . 58 | Bordeaux . . 29   |
| Agra . . . 23     | Bath . . . 30    | Boston . . 45     |
| Alexandria . . 10 | Bayonne . . 52   | Bourbon . . 47    |
| Algiers . . 32    | Batavia . . 78   | Brescia . . 50    |
| Alicante . . 71   | Baton Rouge . 61 | Brest . . 36      |
| Allahabad . . 27  | Belfast . . 32   | Brighton . 31     |
| Ancona . . 29     | Beauvais . . 22  | Brisbane . . 43   |
| Apulia . . 22     | Bergen . . 89    | Bristol . . 23    |
| Arles . . . 23    | Berlin . . 24    | Brussels . 29     |
| Armagh . . 36     | Bermuda . . 55   | Buda-Pesth . 17   |
| Asuncion . . 82   | Benares . . 42   | Buenos Ayres 33   |
| Auckland . . 44   | Bengal . . 36    | Bushire . . 13    |
| Augsburg . . 41   | Berne . . 46     | Cairo . . 1       |
| Aurillac . . 46   | Besançon . . 25  | Calais . . 29     |
| Auzerre . . 26    | Beziers . . 17   | Calcutta . . 71   |
| Azores . . 30     | Birmingham . 24  | Cambray . . 17    |
| Bdg. Bigorre . 54 | Black Sea . . 61 | Cambridge . 24    |
| Baku . . . 14     | Blois . . . 25   | Canary Islands 83 |

|                     | Inches |                     | Inches |                  | Inches |                | Inches |                              | Inches |
|---------------------|--------|---------------------|--------|------------------|--------|----------------|--------|------------------------------|--------|
| Cannes              | 36     | Edinburgh           | 31     | Lisbon           | 27     | Naples         | 31     | Quetta                       | 8      |
| Canton              | 39     | Elgin               | 24     | Liverpool        | 35     | Nashville      | 51     | Rangoon                      | 173    |
| Capetown            | 23     | Erfurth             | 14     | London           | 25     | Natchez        | 58     | Ratisbon                     | 23     |
| Caracas             | 155    | Feejee Islands      | 50     | Louisville       | 49     | New Brunswick  | 51     | Reikjavik                    | 30     |
| Caracasone          | 30     | Fernando Po         | 102    | Lucca            | 55     | Newfoundland   | 58     | Rheims                       | 19     |
| Carlsruhe           | 27     | Florence            | 38     | Lucknow          | 37     | New Orleans    | 51     | Rio Janeiro                  | 53     |
| Castile             | 12     | Friburg             | 48     | Lyons            | 28     | New York       | 43     | Rhone Valley                 | 38     |
| Catania             | 28     | Galveston           | 52     | Macao            | 71     | New Zealand    | 53     | Rochelle                     | 25     |
| Cayenne             | 116    | Geneva              | 33     | Macori           | 30     | Nice           | 29     | Robilcund                    | 36     |
| Chalons             | 25     | Genoa               | 50     | Madeira          | 25     | Nismes         | 21     | Rotterdam                    | 25     |
| Chambery            | 41     | Ghauts Mtns.        | 173    | Madras           | 46     | Nilgherries    | 65     | Rome                         | 30     |
| Charleston          | 54     | Gibraltar           | 44     | Madrid           | 12     | Norfolk, U.S.  | 53     | Rouen                        | 27     |
| Cincinnati          | 46     | Gironde             | 23     | Magellan Straits | 15     | Norwich        | 24     | St. Bernard                  | 60     |
| Clermont            | 21     | Glasgow             | 44     | Majorca          | 14     | Nottingham     | 26     | St. Domingo                  | 108    |
| Coblentz            | 22     | Gondar              | 37     | Malabar          | 82     | Oporto         | 54     | St. Etienne                  | 53     |
| Coimbra             | 173    | Goree               | 21     | Malaga           | 20     | Oran           | 17     | St. Gothard                  | 73     |
| Colombo             | 73     | Grahamstown         | 25     | Malta            | 20     | Orleans        | 25     | St. John's                   | 58     |
| Comorin, C.         | 28     | Grenada, W.I.       | 105    | Manchester       | 36     | Oxford         | 27     | St. Petersburg               | 17     |
| Constantinople      | 41     | Grenoble            | 37     | Manilla          | 87     | Padua          | 34     | St. Helena                   | 45     |
| Copenhagen          | 22     | Grimmel             | 93     | Mannheim         | 22     | Palermo        | 23     | St. Louis                    | 42     |
| Copapo              | 1      | Guadeloupe          | 129    | Mantua           | 31     | Para           | 71     | Salt Lake                    | 18     |
| Cordoba, S. America | 31     | Guatemala           | 49     | Maranham         | 280    | Paris          | 23     | San Francisco                | 23     |
| Corfu               | 54     | Havana              | 77     | Marseilles       | 21     | Parana         | 36     | San Luis, Argentine Republic | 22     |
| Cork                | 40     | Hayti               | 56     | Matamoros        | 36     | Parma          | 32     | Santiago, Chile              | 11     |
| Coromandel          | 54     | Himalaya, S. Hobart | 622    | Mauritius        | 36     | Pau            | 45     | Savannah                     | 55     |
| Corrientes          | 58     | Hong-Kong           | 101    | Meerut           | 32     | Pekin          | 27     | Seville                      | 22     |
| Cracow              | 13     | Hyderabad           | 8      | Melbourne        | 27     | Penzance       | 46     | Sienna                       | 38     |
| Crimea              | 15     | Iceland             | 30     | Memphis, U.S.    | 42     | Pernambuco     | 109    | Sierra Leone                 | 125    |
| Curacao             | 27     | Isle of Man         | 37     | Mendoza          | 6      | Perpignan      | 21     | Simla                        | 71     |
| Cyprus              | 13     | Isle of Wight       | 31     | Messina          | 26     | Perth, W.A.    | 29     | Simplon                      | 41     |
| Darjeeling          | 104    | Jamaica             | 66     | Metz             | 28     | Peshawur       | 13     | Singapore                    | 150    |
| Delhi               | 24     | Jerusalem           | 16     | Middleburg       | 26     | Philadelphia   | 41     | Sitka                        | 91     |
| Demerara            | 126    | Kandy               | 85     | Milan            | 38     | Pisa           | 50     | Smyrna                       | 24     |
| Detroit             | 30     | Key West            | 36     | Milwaukee        | 30     | Pittsburg      | 37     | Spilgen                      | 73     |
| Dijon               | 29     | Königsberg          | 27     | Mogador          | 50     | Poitiers       | 23     | Stockholm                    | 20     |
| Dover               | 48     | Lausanne            | 39     | Montevideo       | 44     | Poona          | 19     | Strasburg                    | 27     |
| Doverfeld Mt.       | 90     | Leeds               | 27     | Montpelier       | 34     | Port Said      | 2      | Stuttgart                    | 25     |
| Dublin              | 30     | Lille               | 27     | Mooltan          | 7      | Port Elizabeth | 24     | Sumatra                      | 189    |
| Dumfries            | 37     | Lima                | 9      | Nagpur           | 45     | Potsdam        | 20     | Sydney                       | 43     |
| Dunedin             | 29     | Limerick            | 35     | Namur            | 21     | Prague         | 15     |                              |        |
| Durban              | 42     | Limoges             | 35     | Nancy            | 28     | Provence       | 26     |                              |        |
|                     |        |                     |        | Nantes           | 52     |                |        |                              |        |

The rainfall according to months in various parts of the world is:—

|                               | Inches  |          |       |       |      |      |      |        |           |         |          |          |       |
|-------------------------------|---------|----------|-------|-------|------|------|------|--------|-----------|---------|----------|----------|-------|
|                               | January | February | March | April | May  | June | July | August | September | October | November | December | Year  |
| Ben Nevis . . . . .           | 17.8    | 13.3     | 5.9   | 7.5   | 4.0  | 7.5  | 11.5 | 8.7    | 11.0      | 12.2    | 9.0      | 17.6     | 126.0 |
| Bourbon . . . . .             | 8.8     | 11.2     | 5.3   | 4.8   | 3.0  | 0.6  | 0.3  | 1.7    | 0.8       | 1.7     | 3.2      | 5.3      | 46.7  |
| Cannes . . . . .              | 3.2     | 2.5      | 3.7   | 2.7   | 2.2  | 1.4  | 0.6  | 0.9    | 3.1       | 6.3     | 4.5      | 4.9      | 36.0  |
| Canton . . . . .              | 0.8     | 0.6      | ...   | 3.6   | 8.2  | 8.5  | 2.7  | 7.7    | 6.1       | 0.6     | ...      | 0.3      | 39.1  |
| Chambery . . . . .            | 3.0     | 2.4      | 3.6   | 2.8   | 3.3  | 3.2  | 2.9  | 4.3    | 4.0       | 4.2     | 3.9      | 3.4      | 41.0  |
| Colombo . . . . .             | 3.0     | 2.1      | 2.1   | 7.5   | 13.5 | 6.9  | 3.4  | 2.8    | 5.3       | 11.4    | 10.8     | 4.5      | 73.4  |
| Copenhagen . . . . .          | 1.4     | 1.2      | 1.3   | 1.2   | 1.5  | 2.2  | 2.6  | 2.4    | 2.7       | 2.2     | 2.0      | 1.7      | 22.4  |
| Fernando Po . . . . .         | 1.0     | 3.7      | 9.2   | 8.4   | 8.5  | 11.1 | 6.5  | 11.3   | 16.8      | 15.6    | 8.9      | 1.1      | 102.1 |
| Hayti (P. Prince) . . . . .   | 0.9     | 2.9      | 3.1   | 5.4   | 11.9 | 3.7  | 3.7  | 6.2    | 7.3       | 5.8     | 3.6      | 1.4      | 55.9  |
| Hong-Kong . . . . .           | 0.6     | 1.6      | 2.3   | 6.4   | 7.6  | 21.1 | 16.4 | 13.9   | 15.3      | 6.4     | 7.0      | 3.0      | 101.6 |
| Macao . . . . .               | 0.6     | 1.7      | 2.5   | 5.6   | 11.8 | 11.1 | 7.7  | 9.9    | 11.1      | 5.5     | 2.4      | 0.9      | 70.8  |
| Magellan Straits . . . . .    | 1.4     | 1.0      | 2.0   | 3.3   | 1.0  | 1.1  | 0.4  | 1.5    | 0.6       | 0.9     | 1.1      | 1.0      | 15.3  |
| Natal . . . . .               | 4.2     | 5.2      | 4.1   | 2.3   | 0.5  | 0.1  | 0.2  | 0.7    | 1.7       | 2.6     | 5.7      | 4.5      | 31.8  |
| Paris . . . . .               | 1.4     | 1.4      | 1.3   | 1.8   | 1.4  | 2.5  | 2.0  | 2.2    | 2.1       | 2.3     | 2.2      | 1.8      | 22.4  |
| Pekin . . . . .               | 3.4     | 5.6      | 4.4   | 0.4   | 1.1  | 2.4  | 4.2  | 5.8    | 7.7       | 1.3     | 0.3      | 4.8      | 41.4  |
| Perpignan . . . . .           | 1.8     | 1.6      | 1.6   | 1.8   | 2.6  | 1.4  | 0.8  | 1.3    | 2.1       | 2.0     | 2.2      | 1.9      | 21.1  |
| Sebastopol . . . . .          | 2.9     | 2.6      | 2.2   | 3.8   | 0.9  | 6.2  | 4.7  | 1.7    | 1.3       | 1.6     | 3.2      | 3.7      | 34.8  |
| Senegal (St. Louis) . . . . . | 0.3     | 0.8      | ...   | ...   | 0.5  | 0.4  | 3.0  | 6.5    | 5.1       | 0.4     | ...      | ...      | 17.0  |
| Serra Leone . . . . .         | 0.5     | 0.3      | 0.6   | 3.2   | 8.2  | 14.7 | 25.8 | 28.6   | 30.0      | 14.7    | 5.1      | 1.4      | 133.1 |

#### RAINFALL OF UNITED KINGDOM

The average annual rainfall of Great Britain since 1815 has been as follows:—

| Years             | Inches | Years             | Inches |
|-------------------|--------|-------------------|--------|
| 1815-24 . . . . . | 29.0   | 1845-54 . . . . . | 28.6   |
| 1825-34 . . . . . | 28.5   | 1855-64 . . . . . | 26.6   |
| 1835-44 . . . . . | 28.3   | 1865-72 . . . . . | 29.3   |

The average rainfall is equal to 630,000 gallons (almost 3000 tons) per acre per annum, of which 2000 tons are required to feed the rivers and crops, and 1000 tons per acre are lost, being allowed to run off. The above does not include Ireland, where the rainfall averages 35 inches. Scotland appears to have less rainfall than England or Ireland.

The rainfall of the United Kingdom is shown in months thus :—

|                 | England<br>(1815-48) | U. Kingdom<br>(1850-59) | Scotland | Ireland |
|-----------------|----------------------|-------------------------|----------|---------|
|                 | Inches               | Inches                  | Inches   | Inches  |
| January . . .   | 1.7                  | 3.4                     | 3.3      | 4.0     |
| February . . .  | 1.6                  | 2.2                     | 2.2      | 2.8     |
| March . . .     | 1.6                  | 2.0                     | 2.1      | 2.3     |
| April . . .     | 1.7                  | 2.1                     | 1.9      | 2.8     |
| May . . .       | 2.0                  | 1.8                     | 1.6      | 2.1     |
| June . . .      | 1.8                  | 2.5                     | 2.2      | 2.7     |
| July . . .      | 2.4                  | 2.9                     | 2.6      | 3.0     |
| August . . .    | 2.4                  | 3.0                     | 2.6      | 3.2     |
| September . . . | 2.4                  | 2.7                     | 2.5      | 2.5     |
| October . . .   | 2.7                  | 3.5                     | 3.1      | 3.0     |
| November . . .  | 2.5                  | 3.0                     | 2.9      | 3.0     |
| December . . .  | 2.0                  | 3.0                     | 3.0      | 3.6     |
| Year . . .      | 24.8                 | 32.1                    | 30.0     | 35.0    |

The quantity of ammonia in rain differs greatly with locality, viz :—

|                            |       |                  |       |
|----------------------------|-------|------------------|-------|
| Valentia, Kerry . . .      | 1.00  | Germany . . .    | 10.61 |
| Scotland, West Coast . . . | 2.69  | London . . .     | 19.17 |
| " mountains . . .          | 2.96  | Scotland . . .   | 21.22 |
| " East Coast . . .         | 5.51  | Liverpool . . .  | 29.89 |
| England, East Coast . . .  | 5.94  | Manchester . . . | 36.54 |
| " West Coast . . .         | 10.55 | Glasgow . . .    | 50.58 |

The average rainfall in London for seventy years has been :—

|                         |       |
|-------------------------|-------|
| Summer, half-year . . . | 12.87 |
| Winter " . . .          | 12.03 |

Annual rainfall . . . 24.90

Taking the above figures as par, the variations of seventy years have been as follows :—

|         | Summer | Winter | Year |         | Summer | Winter | Year |
|---------|--------|--------|------|---------|--------|--------|------|
| 1813-22 | 97     | 110    | 103  | 1853-62 | 105    | 85     | 95   |
| 1823-32 | 108    | 93     | 101  | 1863-72 | 93     | 107    | 100  |
| 1833-42 | 92     | 99     | 95   | 1873-82 | 110    | 106    | 108  |
| 1843-52 | 95     | 101    | 98   |         |        |        |      |

#### RAINFALL OF FRANCE.

Raulins states the rainfall according to seasons in France and Geneva thus :—

|                      | Inches |        |        |        |      |
|----------------------|--------|--------|--------|--------|------|
|                      | Spring | Summer | Autumn | Winter | Year |
| Agen . . .           | 7.6    | 6.4    | 7.4    | 6.2    | 27.6 |
| Arles . . .          | 5.4    | 3.2    | 8.0    | 5.5    | 22.1 |
| Auxerre . . .        | 5.8    | 8.7    | 6.2    | 5.0    | 25.7 |
| B. Bigorre . . .     | 18.6   | 10.2   | 13.2   | 11.7   | 53.7 |
| Bayonne . . .        | 12.5   | 10.4   | 16.1   | 12.7   | 51.7 |
| Beauvais . . .       | 5.1    | 6.1    | 6.3    | 4.8    | 22.3 |
| Besançon . . .       | 5.8    | 10.1   | 6.8    | 2.6    | 25.3 |
| Blois . . .          | 7.1    | 5.9    | 7.1    | 5.3    | 25.4 |
| Bordeaux . . .       | 6.8    | 7.0    | 9.1    | 8.8    | 31.7 |
| Calais . . .         | 6.5    | 5.0    | 9.3    | 8.6    | 29.4 |
| Cambray . . .        | 3.2    | 6.7    | 4.7    | 1.9    | 16.5 |
| Carcassonne . . .    | 9.2    | 5.2    | 7.6    | 7.4    | 29.4 |
| Chalons, Saone . . . | 5.1    | 7.4    | 7.8    | 4.6    | 24.9 |
| Clermont . . .       | 5.2    | 6.5    | 5.9    | 3.6    | 21.2 |
| Dijon . . .          | 6.3    | 7.1    | 8.7    | 5.8    | 27.9 |
| Geneva . . .         | 7.4    | 9.2    | 10.5   | 6.5    | 33.6 |
| Grenoble . . .       | 9.2    | 9.7    | 11.8   | 8.2    | 38.9 |
| Lille . . .          | 5.6    | 7.5    | 7.6    | 6.0    | 26.7 |
| Limoges . . .        | 8.2    | 8.7    | 10.0   | 8.4    | 35.3 |
| Lyon . . .           | 6.9    | 7.8    | 8.5    | 4.1    | 27.3 |
| Marseilles . . .     | 4.2    | 2.0    | 8.2    | 4.7    | 19.1 |
| Metz . . .           | 6.1    | 8.2    | 7.0    | 5.6    | 26.9 |
| Montpellier . . .    | 8.0    | 4.3    | 13.2   | 9.3    | 34.8 |
| Nancy . . .          | 6.7    | 8.2    | 7.4    | 6.2    | 28.5 |
| Nice . . .           | 7.2    | 3.2    | 12.4   | 8.8    | 31.6 |

|                  | Inches |        |        |        |      |
|------------------|--------|--------|--------|--------|------|
|                  | Spring | Summer | Autumn | Winter | Year |
| Nismes . . .     | 6.2    | 4.0    | 9.1    | 5.5    | 24.8 |
| Orleans . . .    | 6.4    | 6.9    | 7.0    | 5.1    | 25.4 |
| Pau . . .        | 16.2   | 9.0    | 12.0   | 10.4   | 47.6 |
| Poitiers . . .   | 5.3    | 5.0    | 7.0    | 5.8    | 23.1 |
| Rheims . . .     | 4.0    | 5.9    | 5.4    | 3.5    | 18.8 |
| Rochelle . . .   | 4.6    | 3.7    | 8.5    | 6.9    | 23.7 |
| Rouen . . .      | 6.0    | 7.5    | 7.7    | 6.2    | 27.4 |
| Strasbourg . . . | 7.0    | 9.5    | 6.7    | 4.3    | 27.5 |
| Toulon . . .     | 6.4    | 1.8    | 12.2   | 8.5    | 28.9 |
| Toulouse . . .   | 6.9    | 5.9    | 5.9    | 4.7    | 23.4 |
| Tours . . .      | 5.2    | 5.6    | 7.0    | 4.6    | 22.4 |
| Valence . . .    | 8.7    | 7.4    | 14.9   | 6.0    | 37.0 |
| Average . . .    | 7.0    | 6.6    | 8.7    | 6.4    | 28.7 |

The annual rainfall of Paris has been as follows :—

| Period          | Ins. | Period          | Ins. | Period          | Ins. |
|-----------------|------|-----------------|------|-----------------|------|
| 1689-1747 . . . | 18   | 1789-1818 . . . | 18   | 1849-1872 . . . | 21   |
| 1748-1788 . . . | 21   | 1819-1848 . . . | 21   | 1873-1882 . . . | 23   |

The total rainfall of France is as follows :—

|                             | Million Tons<br>per Annum | Tons per<br>Second |
|-----------------------------|---------------------------|--------------------|
| Outflow by Rhone . . .      | 54,000                    | 1,718              |
| " Gironde . . .             | 37,000                    | 1,178              |
| " Loire . . .               | 31,000                    | 985                |
| " Seine . . .               | 22,000                    | 694                |
| Other rivers . . .          | 36,000                    | 1,146              |
| Absorbed for crops, &c. . . | 195,000                   | 6,180              |
| Total . . .                 | 375,000                   | 11,501             |

France loses nearly half her rainfall, England more than one-third.

Snow.—The average number of days on which snow falls in a year is as follows :—

|                  |    |                    |     |                      |    |
|------------------|----|--------------------|-----|----------------------|----|
| Aberdeen . . .   | 42 | Macon . . .        | 21  | St. Petersburg . . . | 62 |
| Brussels . . .   | 24 | Madrid . . .       | 3   | Saragossa . . .      | 5  |
| Charleston . . . | 2  | Milan . . .        | 11  | Sebastopol . . .     | 12 |
| Copenhagen . . . | 23 | Moscow . . .       | 71  | Sienna . . .         | 6  |
| Dublin . . .     | 15 | Newfoundland . . . | 78  | Strasbourg . . .     | 16 |
| Florence . . .   | 2  | Odessa . . .       | 19  | Trieste . . .        | 6  |
| Geneva . . .     | 20 | Ostend . . .       | 15  | Turin . . .          | 9  |
| Greenland . . .  | 80 | Oxford . . .       | 18  | Upsal . . .          | 61 |
| Grenoble . . .   | 18 | Paris . . .        | 13  | Vancouver . . .      | 7  |
| Halifax . . .    | 64 | Quebec . . .       | 66  | Vienna . . .         | 33 |
| Hamburg . . .    | 18 | Rome . . .         | 2   | Warsaw . . .         | 45 |
| Iceland . . .    | 46 | St. Gothard . . .  | 116 | Winnipeg . . .       | 54 |
| Lisbon . . .     | 1  | St. Louis . . .    | 11  | Yakutsk . . .        | 55 |

The most remarkable snowfalls in England have been in the following years :—

|      |      |      |      |
|------|------|------|------|
| 1141 | 1683 | 1784 | 1814 |
| 1606 | 1709 | 1799 | 1820 |
| 1674 | 1762 | 1812 | 1836 |

The earliest snow of the season was that of October 7th, 1829, in the present century. There was no snow from November 1862 till February 1864.

The line of perpetual snow varies with latitude, and is as follows in feet above sea-level :—

| Lat.                      | Feet   | Lat.              | Feet   |
|---------------------------|--------|-------------------|--------|
| 0 . . .                   | 15,260 | 40 . . .          | 9,000  |
| 10 . . .                  | 14,764 | 50 . . .          | 6,334  |
| 20 . . .                  | 13,478 | 60 . . .          | 3,818  |
| 30 . . .                  | 11,484 | 70 . . .          | 1,278  |
|                           | Feet   |                   | Feet   |
| Norway . . .              | 2,400  | Himalayas, S. . . | 13,100 |
| Iceland . . .             | 3,090  | Abyssinia . . .   | 14,200 |
| Straits of Magellan . . . | 4,700  | Ararat . . .      | 14,300 |
| Siberia . . .             | 4,800  | Mexico . . .      | 14,800 |
| Alps . . .                | 8,940  | Andes, E. . .     | 15,800 |
| Pyrenees . . .            | 9,000  | Chilian do. . .   | 15,000 |
| Caucasus . . .            | 11,100 | Himalayas, N. . . | 16,700 |
| S. Nevada . . .           | 11,200 | Andes, W. . .     | 18,600 |

**Storms.**—The most destructive in the United Kingdom have been :—

1703, November 27th.—Damage in London, £2,000,000. On the coast twelve war-ships sunk and 1800 men lost.

1775, October 29th.—Almost equal to the above. Houses blown down and ships sunk.

1839, January 6th.—Many houses blown down at Liverpool and Dublin, and 200 persons killed at Liverpool.

1859, October 25th.—Great loss of shipping, including the "Royal Charter" near Holyhead.

1879, December 28th.—Tay Bridge blown down; loss of 90 lives. See *Wind-pressure*.

**Submarine Temperature.**—The decrease of temperature with depth varies according to latitude: thus 500 fathoms at the Equator make a difference of 39 degrees Fahr. from the surface, while abreast of Lisbon it would be only 23 degrees, and at the Farol Islands little over 10 degrees.

The following table shows the variations thus :—

|                       | Degrees Fahrenheit |            |
|-----------------------|--------------------|------------|
|                       | Equator            | Off Lisbon |
| Surface . . . . .     | 78                 | 70         |
| 100 fathoms . . . . . | 56                 | 64         |
| 500 . . . . .         | 39                 | 47         |
| 1,000 . . . . .       | 37                 | 38         |
| 1,500 . . . . .       | 36                 | 37         |
| 2,700 . . . . .       | 35                 | 35         |

The average depth of the Mediterranean is 800 fathoms, and the temperature at the bottom is found to average 54° Fahr. The Red Sea, with surface temperature of 90°, was found to have 70° Fahr. at the bottom—a depth of 400 fathoms—which is rather more than the difference quoted above at the Equator.

**Subterranean Temperature.**—Subterranean temperature seems the same in the southern as in the northern hemisphere, a well at Buenos Ayres showing (in winter) 97° Fahr. at a depth of 2000 ft.

The variations of a well in Yorkshire, 350 ft. deep, according to season, have been recorded thus :—

|                    | At 100 Feet | At 350 Feet |
|--------------------|-------------|-------------|
| April . . . . .    | 45          | 42          |
| June . . . . .     | 65          | 46          |
| December . . . . . | 41          | 43          |

The following table shows a variety of mines and borings, and the average increase of temperature per 1000 feet :—

|                         | Depth, Feet | Increase, Fahr. per 1000 Feet |
|-------------------------|-------------|-------------------------------|
| Flint . . . . .         | 1,041       | 12.5                          |
| Kentish Town . . . . .  | 1,100       | 18.0                          |
| Whitehaven . . . . .    | 1,250       | 22.0                          |
| Grenelle . . . . .      | 1,312       | 17.3                          |
| Schemnitz . . . . .     | 1,368       | 13.3                          |
| Bootle . . . . .        | 1,392       | 7.7                           |
| Monkwearmouth . . . . . | 1,584       | 14.3                          |
| Seraing . . . . .       | 1,657       | 20.0                          |
| Praibrau . . . . .      | 1,900       | 8.0                           |
| Lincoln . . . . .       | 2,000       | 14.5                          |
| Rosebridge . . . . .    | 2,443       | 18.4                          |
| Ashton Moss . . . . .   | 2,790       | 13.0                          |
| Speremberg . . . . .    | 3,500       | 19.4                          |
| Bohemian Mine . . . . . | 4,600       | 16.5                          |
| Mont Cenis . . . . .    | 5,280       | 12.6                          |
| St. Gothard . . . . .   | 5,578       | 12.2                          |

The temperature at various depths in the Rosebridge, Speremberg, and the Bohemian mine above mentioned was as follows :—

| Bohemian   |       | Speremberg |       | Rosebridge |       |
|------------|-------|------------|-------|------------|-------|
| Depth, Ft. | Fahr. | Depth, Ft. | Fahr. | Depth, Ft. | Fahr. |
| 300        | 49    | 720        | 71    | 480        | 65    |
| 600        | 51    | 1,130      | 80    | 600        | 66    |
| 1,200      | 58    | 1,550      | 84    | 1,800      | 80    |
| 1,650      | 61    | 2,160      | 97    | 2,200      | 89    |
| 4,600      | 120   | 3,500      | 116   | 2,450      | 94    |

**Sun Spots.**—Wolf's table for sixty-six years showed as follows :—

| Period            | Maximum Year | Number of Spots | Minimum Year | Number of Spots |
|-------------------|--------------|-----------------|--------------|-----------------|
| 1811-20 . . . . . | 1816         | 47              | 1811         | 2               |
| 1821-30 . . . . . | 1829         | 67              | 1823         | 3               |
| 1831-40 . . . . . | 1837         | 136             | 1833         | 9               |
| 1841-50 . . . . . | 1848         | 125             | 1843         | 13              |
| 1851-60 . . . . . | 1860         | 95              | 1856         | 5               |
| 1861-70 . . . . . | 1870         | 132             | 1867         | 9               |
| 1871-77 . . . . . | 1871         | 114             | 1877         | 7               |

**Thunder.**—The average number of days of thunder yearly in France is :—

|                      |    |                      |    |                    |    |
|----------------------|----|----------------------|----|--------------------|----|
| Marseilles . . . . . | 11 | Toulouse . . . . .   | 16 | Poitiers . . . . . | 20 |
| Paris . . . . .      | 14 | Strasbourg . . . . . | 17 | Nancy . . . . .    | 20 |
| Rouen . . . . .      | 15 | Metz . . . . .       | 18 | Mulhouse . . . . . | 26 |

**Thermometer.**—The mean temperature of the various cities of the world in degrees Fahrenheit is :—

|                      | January | February | March | April | May | June | July | August | September | October | November | December | Year | Range |
|----------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|------|-------|
| Aberdeen . . . . .   | 37      | 38       | 41    | 45    | 52  | 56   | 59   | 58     | 55        | 48      | 42       | 40       | 48   | 12    |
| Adelaide . . . . .   | 74      | 74       | 70    | 65    | 58  | 54   | 52   | 54     | 57        | 63      | 67       | 71       | 63   | 22    |
| Agra . . . . .       | 60      | 65       | 76    | 88    | 94  | 95   | 87   | 86     | 84        | 80      | 70       | 62       | 79   | 35    |
| Ajaccio . . . . .    | 50      | 52       | 54    | 58    | 62  | 70   | 76   | 78     | 72        | 64      | 56       | 51       | 62   | 28    |
| Albany . . . . .     | 24      | 25       | 35    | 47    | 59  | 68   | 72   | 70     | 61        | 49      | 39       | 28       | 48   | 48    |
| Alexandria . . . . . | 56      | 58       | 61    | 66    | 72  | 76   | 78   | 81     | 78        | 75      | 69       | 61       | 69   | 25    |
| Algiers . . . . .    | 54      | 55       | 57    | 61    | 66  | 72   | 76   | 77     | 74        | 68      | 60       | 55       | 65   | 23    |
| Amsterdam . . . . .  | 33      | 37       | 41    | 48    | 55  | 62   | 65   | 63     | 61        | 51      | 42       | 37       | 50   | 32    |
| Ancona . . . . .     | 42      | 46       | 50    | 57    | 67  | 73   | 80   | 78     | 73        | 62      | 53       | 46       | 61   | 38    |
| Archangel . . . . .  | 6       | 9        | 21    | 31    | 40  | 55   | 61   | 57     | 47        | 35      | 23       | 12       | 33   | 55    |
| Arica . . . . .      | 72      | 71       | 70    | 68    | 66  | 65   | 64   | 63     | 63        | 66      | 69       | 72       | 67   | 9     |
| Astrakan . . . . .   | 20      | 21       | 31    | 49    | 64  | 73   | 78   | 74     | 64        | 51      | 37       | 26       | 49   | 58    |
| Asuncion . . . . .   | 80      | 83       | 82    | 74    | 68  | 60   | 70   | 74     | 78        | 83      | 82       | 81       | 76   | 23    |
| Athens . . . . .     | 47      | 48       | 52    | 59    | 68  | 76   | 81   | 80     | 74        | 66      | 57       | 50       | 63   | 34    |
| Auckland . . . . .   | 68      | 68       | 66    | 62    | 57  | 53   | 52   | 52     | 55        | 58      | 61       | 66       | 60   | 16    |
| Ava . . . . .        | 65      | 73       | 75    | 93    | 84  | 86   | 82   | 82     | 82        | 81      | 74       | 68       | 77   | 28    |

|                            | January | February | March | April | May | June | July | August | September | October | November | December | Year | Range |
|----------------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|------|-------|
| Azores . . . . .           | 57      | 56       | 57    | 59    | 62  | 65   | 71   | 71     | 69        | 65      | 61       | 58       | 62   | 16    |
| Bagdad . . . . .           | 52      | 53       | 54    | 72    | 87  | 91   | 95   | 94     | 86        | 76      | 62       | 53       | 74   | 43    |
| Barcelona . . . . .        | 48      | 51       | 53    | 58    | 62  | 70   | 77   | 78     | 72        | 65      | 55       | 48       | 61   | 30    |
| Batavia . . . . .          | 78      | 78       | 79    | 80    | 80  | 80   | 79   | 79     | 80        | 79      | 79       | 78       | 79   | 2     |
| Benares . . . . .          | 61      | 66       | 77    | 88    | 91  | 90   | 84   | 84     | 83        | 79      | 68       | 60       | 78   | 31    |
| Ben Nevis . . . . .        | 25      | 27       | 24    | 26    | 32  | 45   | 41   | 40     | 37        | 28      | 26       | 23       | 31   | 27    |
| Bergen . . . . .           | 34      | 36       | 37    | 44    | 52  | 55   | 61   | 59     | 54        | 48      | 41       | 37       | 47   | 27    |
| Berlin . . . . .           | 31      | 34       | 38    | 47    | 56  | 64   | 66   | 65     | 58        | 50      | 39       | 33       | 48   | 35    |
| Bermuda . . . . .          | 64      | 64       | 63    | 67    | 72  | 77   | 81   | 83     | 80        | 75      | 71       | 66       | 72   | 28    |
| Berne . . . . .            | 26      | 32       | 38    | 46    | 54  | 59   | 62   | 61     | 55        | 47      | 37       | 31       | 46   | 36    |
| Biskra . . . . .           | 56      | 54       | 57    | 66    | 76  | 84   | 90   | 88     | 86        | 68      | 58       | 51       | 69   | 5     |
| Bogota . . . . .           | 60      | 61       | 59    | 59    | 59  | 59   | 57   | 62     | 61        | 59      | 59       | 59       | 60   | 8     |
| Bombay . . . . .           | 74      | 75       | 79    | 83    | 85  | 83   | 73   | 73     | 80        | 89      | 79       | 76       | 80   | 11    |
| Bordeaux . . . . .         | 41      | 45       | 51    | 56    | 61  | 67   | 73   | 73     | 67        | 58      | 48       | 41       | 57   | 33    |
| Boston . . . . .           | 28      | 28       | 36    | 46    | 57  | 66   | 72   | 70     | 62        | 52      | 41       | 43       | 49   | 49    |
| Brest . . . . .            | 44      | 45       | 46    | 52    | 56  | 60   | 64   | 64     | 61        | 54      | 47       | 43       | 53   | 21    |
| Brisbane . . . . .         | 79      | 77       | 76    | 71    | 66  | 60   | 60   | 63     | 68        | 72      | 77       | 78       | 73   | 15    |
| Brussels . . . . .         | 36      | 39       | 42    | 50    | 56  | 61   | 66   | 63     | 59        | 50      | 42       | 37       | 50   | 45    |
| Buda-Pesth . . . . .       | 28      | 33       | 39    | 50    | 64  | 68   | 71   | 71     | 62        | 51      | 40       | 32       | 51   | 29    |
| Buenos Ayres . . . . .     | 76      | 74       | 70    | 62    | 57  | 52   | 50   | 53     | 57        | 62      | 68       | 72       | 63   | 83    |
| Burlington, U.S. . . . .   | 21      | 21       | 31    | 42    | 55  | 65   | 70   | 68     | 59        | 48      | 36       | 25       | 45   | 40    |
| Bushire . . . . .          | 57      | 57       | 63    | 72    | 81  | 84   | 88   | 89     | 85        | 78      | 69       | 61       | 74   | 30    |
| Cadiz . . . . .            | 52      | 55       | 55    | 60    | 64  | 70   | 70   | 73     | 70        | 67      | 59       | 53       | 63   | 41    |
| Cagliari . . . . .         | 48      | 52       | 51    | 58    | 66  | 71   | 76   | 78     | 71        | 67      | 59       | 54       | 68   | 34    |
| Cairo . . . . .            | 56      | 56       | 65    | 71    | 80  | 83   | 85   | 84     | 79        | 74      | 65       | 59       | 71   | 48    |
| Calcutta . . . . .         | 65      | 71       | 79    | 84    | 85  | 85   | 83   | 82     | 82        | 80      | 73       | 65       | 80   | 38    |
| Canton . . . . .           | 53      | 58       | 63    | 70    | 77  | 81   | 83   | 82     | 80        | 73      | 65       | 57       | 71   | 27    |
| Capetown . . . . .         | 70      | 70       | 67    | 63    | 58  | 56   | 55   | 56     | 58        | 61      | 64       | 68       | 68   | 16    |
| Carlsruhe . . . . .        | 33      | 37       | 42    | 51    | 60  | 64   | 67   | 66     | 60        | 51      | 42       | 36       | 51   | 33    |
| Cashmere . . . . .         | 17      | 20       | 31    | 41    | 47  | 56   | 62   | 60     | 52        | 40      | 30       | 23       | 44   | 23    |
| Cawnpore . . . . .         | 64      | 70       | 72    | 89    | 97  | 91   | 87   | 88     | 85        | 80      | 75       | 68       | 80   | 31    |
| Cayenne . . . . .          | 79      | 79       | 79    | 80    | 80  | 80   | 81   | 81     | 82        | 82      | 82       | 81       | 80   | 24    |
| Charleston . . . . .       | 51      | 53       | 58    | 65    | 73  | 81   | 83   | 82     | 76        | 68      | 58       | 51       | 66   | 34    |
| Christiania . . . . .      | 24      | 26       | 30    | 37    | 48  | 58   | 62   | 61     | 52        | 41      | 34       | 24       | 44   | 24    |
| Cincinnati . . . . .       | 33      | 34       | 44    | 54    | 63  | 72   | 77   | 74     | 66        | 55      | 44       | 34       | 54   | 34    |
| Colombo . . . . .          | 80      | 81       | 82    | 83    | 83  | 82   | 81   | 81     | 81        | 81      | 81       | 81       | 81   | 31    |
| Constantinople . . . . .   | 40      | 41       | 46    | 51    | 59  | 67   | 72   | 73     | 67        | 59      | 49       | 38       | 54   | 31    |
| Copenhagen . . . . .       | 30      | 26       | 32    | 41    | 50  | 60   | 66   | 62     | 59        | 49      | 38       | 31       | 44   | 24    |
| Copapo . . . . .           | 70      | 71       | 69    | 64    | 60  | 57   | 57   | 56     | 61        | 61      | 61       | 61       | 61   | 24    |
| Cordoba, Arg. Rep. . . . . | 73      | 70       | 65    | 58    | 53  | 50   | 47   | 54     | 63        | 63      | 68       | 68       | 68   | 31    |
| Corfu . . . . .            | 50      | 51       | 53    | 60    | 67  | 74   | 79   | 79     | 73        | 63      | 53       | 43       | 54   | 24    |
| Cyprus . . . . .           | 53      | 50       | 57    | 63    | 72  | 81   | 84   | 85     | 83        | 73      | 68       | 61       | 79   | 31    |
| Delhi . . . . .            | 58      | 62       | 74    | 85    | 90  | 94   | 87   | 87     | 85        | 73      | 55       | 48       | 68   | 31    |
| Dieppe . . . . .           | 39      | 43       | 42    | 52    | 58  | 63   | 66   | 64     | 61        | 51      | 42       | 37       | 51   | 24    |
| Drontheim . . . . .        | 19      | 26       | 21    | 34    | 51  | 59   | 65   | 59     | 52        | 42      | 32       | 27       | 46   | 16    |
| Dublin . . . . .           | 39      | 41       | 43    | 48    | 54  | 60   | 61   | 61     | 54        | 44      | 39       | 34       | 44   | 24    |
| Dunedin . . . . .          | 58      | 58       | 55    | 52    | 47  | 44   | 43   | 43     | 44        | 34      | 27       | 24       | 44   | 24    |
| Durban . . . . .           | 74      | 76       | 72    | 66    | 60  | 56   | 55   | 56     | 64        | 54      | 44       | 34       | 56   | 31    |
| Edinburgh . . . . .        | 37      | 38       | 41    | 44    | 50  | 56   | 58   | 57     | 64        | 54      | 44       | 41       | 71   | 24    |
| Erfurt . . . . .           | 30      | 34       | 37    | 48    | 57  | 64   | 67   | 65     | 65        | 48      | 41       | 34       | 47   | 24    |
| Erzeroum . . . . .         | 28      | 36       | 48    | 65    | 68  | 83   | 89   | 90     | 78        | 65      | 47       | 39       | 50   | 31    |
| Etna Mountain . . . . .    | 16      | 15       | 22    | 23    | 34  | 38   | 46   | 47     | 47        | 38      | 28       | 23       | 44   | 24    |
| Feejee Islands . . . . .   | 81      | 81       | 81    | 80    | 79  | 78   | 77   | 77     | 79        | 79      | 79       | 78       | 78   | 31    |
| Fernando Po . . . . .      | 81      | 82       | 81    | 79    | 76  | 75   | 76   | 75     | 74        | 74      | 76       | 78       | 80   | 31    |
| Florence . . . . .         | 41      | 45       | 51    | 60    | 65  | 71   | 77   | 76     | 66        | 50      | 41       | 35       | 45   | 36    |
| Frankfort . . . . .        | 31      | 36       | 42    | 49    | 58  | 64   | 66   | 65     | 59        | 45      | 36       | 30       | 45   | 35    |
| Friburg . . . . .          | 24      | 30       | 39    | 46    | 55  | 59   | 62   | 61     | 54        | 45      | 36       | 30       | 45   | 35    |
| Galveston . . . . .        | 53      | 58       | 64    | 69    | 78  | 83   | 84   | 83     | 74        | 62      | 48       | 42       | 54   | 31    |
| Geneva . . . . .           | 31      | 33       | 40    | 47    | 54  | 63   | 65   | 64     | 59        | 45      | 36       | 30       | 45   | 35    |
| Gondar . . . . .           | 67      | 70       | 71    | 72    | 68  | 68   | 62   | 56     | 62        | 50      | 42       | 34       | 48   | 31    |
| Grahamstown . . . . .      | 74      | 73       | 72    | 67    | 65  | 63   | 63   | 66     | 68        | 58      | 48       | 42       | 54   | 16    |
| Grätz . . . . .            | 25      | 31       | 37    | 47    | 58  | 66   | 68   | 66     | 67        | 58      | 48       | 42       | 54   | 11    |
| Grenoble . . . . .         | 31      | 39       | 47    | 51    | 57  | 64   | 68   | 67     | 60        | 51      | 42       | 34       | 48   | 37    |
| Guatemala . . . . .        | 61      | 62       | 67    | 68    | 69  | 68   | 66   | 66     | 66        | 51      | 42       | 34       | 48   | 37    |
| Hague . . . . .            | 35      | 40       | 44    | 51    | 57  | 62   | 66   | 67     | 66        | 55      | 45       | 36       | 45   | 35    |
| Hamburg . . . . .          | 31      | 34       | 37    | 45    | 54  | 59   | 64   | 64     | 54        | 45      | 36       | 30       | 45   | 35    |
| Havana . . . . .           | 72      | 72       | 74    | 78    | 80  | 82   | 82   | 82     | 82        | 79      | 79       | 78       | 78   | 31    |
| Havre . . . . .            | 41      | 44       | 43    | 53    | 59  | 64   | 68   | 66     | 66        | 54      | 42       | 34       | 48   | 31    |
| Helsingfors . . . . .      | 18      | 18       | 23    | 34    | 44  | 56   | 61   | 60     | 60        | 54      | 42       | 34       | 48   | 31    |
| Hobart . . . . .           | 63      | 62       | 60    | 55    | 51  | 47   | 46   | 49     | 52        | 42      | 34       | 27       | 48   | 31    |
| Hong-Kong . . . . .        | 61      | 62       | 63    | 71    | 79  | 82   | 83   | 82     | 85        | 78      | 76       | 71       | 74   | 31    |
| Honolulu . . . . .         | 72      | 72       | 72    | 74    | 76  | 78   | 80   | 79     | 85        | 78      | 76       | 71       | 74   | 31    |
| Hydrabad . . . . .         | 63      | 66       | 78    | 86    | 91  | 91   | 88   | 85     | 86        | 83      | 83       | 83       | 83   | 31    |
| Iceland . . . . .          | 30      | 28       | 30    | 37    | 44  | 52   | 55   | 51     | 47        | 38      | 30       | 24       | 34   | 31    |



|                     | January | February | March | April | May | June | July | August | September | October | November | December | Year | Range |
|---------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|------|-------|
| Sanspruck           | 28      | 34       | 37    | 48    | 58  | 65   | 65   | 62     | 58        | 53      | 37       | 29       | 48   | 37    |
| Isle of Man         | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Jamaica             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Jersey              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Jerusalem           | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Kant                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Kant                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Consborg            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Lauane              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Lia                 | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Lia                 | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| London              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Lacknow             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Lyon                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Macao               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Macao               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Macao               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Madeira             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Madras              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Madras              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Madrid              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Magellan Straits    | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Majorca             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Malaga              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Malta               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Manilla             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Mannheim            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Marseilles          | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Mauritius           | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Melbourne           | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Messina             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Mexico              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Milan               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Mogador             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Montevideo          | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Montgomery, U.S.    | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Montpelier          | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Montreal            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Mooltan             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Moscow              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Munich              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Muscat              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Nagasaki            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Nagooor             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Naples              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Nashville           | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| New Caledonia       | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| New Orleans         | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Nice                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Norfolk, U.S.       | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| North Cape          | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Odessa              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Oporto              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Oran                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Orenburg            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Palermo             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Para                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Paris               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Pau                 | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Pekin               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Penzance            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Perth, W. Australia | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Peshawur            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Port Darwin         | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Prague              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Pulkowa             | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Quetta              | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Quio                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Ratisbon            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Rio Janeiro         | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Rome                | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| St. Bernard         | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| St. Gall            | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| St. Helena          | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| St. Louis           | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| St. Petersburg      | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |
| Salta               | 76      | 44       | 43    | 47    | 52  | 57   | 60   | 59     | 56        | 51      | 46       | 43       | 50   | 19    |

|                           | January | February | March | April | May | June | July | August | September | October | November | December | Year | Range |
|---------------------------|---------|----------|-------|-------|-----|------|------|--------|-----------|---------|----------|----------|------|-------|
| Salt Lake . . . . .       | 29      | 32       | 40    | 48    | 57  | 69   | 77   | 75     | 64        | 52      | 40       | 30       | 52   | 48    |
| Salzburg . . . . .        | 29      | 31       | 35    | 48    | 53  | 61   | 62   | 61     | 57        | 49      | 41       | 33       | 52   | 33    |
| San Francisco . . . . .   | 51      | 53       | 54    | 55    | 57  | 59   | 58   | 58     | 60        | 60      | 57       | 52       | 56   | 9     |
| Santiago, Chili . . . . . | 68      | 66       | 62    | 55    | 49  | 46   | 45   | 47     | 52        | 56      | 62       | 67       | 56   | 23    |
| Saratov . . . . .         | 14      | 16       | 25    | 41    | 57  | 66   | 72   | 68     | 58        | 43      | 32       | 21       | 42   | 58    |
| Savannah . . . . .        | 52      | 55       | 60    | 66    | 74  | 81   | 83   | 82     | 75        | 68      | 69       | 53       | 67   | 31    |
| Sebastopol . . . . .      | 35      | 36       | 41    | 50    | 59  | 68   | 72   | 72     | 64        | 55      | 47       | 26       | 53   | 46    |
| Senegal . . . . .         | 68      | 68       | 69    | 69    | 71  | 77   | 81   | 82     | 82        | 82      | 77       | 79       | 77   | 14    |
| Seringapatam . . . . .    | 71      | 77       | 80    | 84    | 85  | 79   | 77   | 73     | 77        | 77      | 74       | 72       | 77   | 14    |
| Seville . . . . .         | 52      | 56       | 60    | 64    | 70  | 77   | 86   | 82     | 80        | 69      | 60       | 52       | 67   | 34    |
| Shanghai . . . . .        | 38      | 40       | 47    | 55    | 65  | 73   | 83   | 81     | 73        | 63      | 51       | 42       | 59   | 45    |
| Sierra Leone . . . . .    | 82      | 82       | 84    | 84    | 82  | 80   | 79   | 79     | 78        | 80      | 82       | 81       | 80   | 6     |
| Simla . . . . .           | 40      | 41       | 49    | 59    | 64  | 67   | 64   | 63     | 61        | 56      | 49       | 45       | 55   | 27    |
| Smyrna . . . . .          | 51      | 51       | 57    | 62    | 71  | 78   | 83   | 82     | 77        | 69      | 60       | 54       | 60   | 38    |
| Stockholm . . . . .       | 24      | 25       | 28    | 38    | 48  | 59   | 64   | 62     | 53        | 43      | 34       | 28       | 42   | 40    |
| Strasbourg . . . . .      | 32      | 37       | 42    | 48    | 59  | 61   | 65   | 64     | 58        | 50      | 41       | 35       | 50   | 33    |
| Sumatra . . . . .         | 80      | 80       | 80    | 81    | 81  | 81   | 80   | 80     | 80        | 79      | 79       | 79       | 80   | 2     |
| Surinam . . . . .         | 77      | 77       | 77    | 78    | 78  | 77   | 78   | 78     | 78        | 79      | 78       | 78       | 78   | 2     |
| Sydney . . . . .          | 71      | 71       | 69    | 65    | 58  | 55   | 52   | 54     | 59        | 63      | 66       | 69       | 63   | 19    |
| Teneriffe . . . . .       | 56      | 55       | 56    | 59    | 62  | 66   | 69   | 76     | 74        | 69      | 62       | 58       | 64   | 21    |
| Tiflis . . . . .          | 33      | 35       | 44    | 53    | 64  | 70   | 76   | 76     | 67        | 57      | 46       | 37       | 55   | 43    |
| Tobolsk . . . . .         | 12      | 18       | 23    | 32    | 41  | 49   | 52   | 48     | 42        | 33      | 23       | 15       | 32   | 40    |
| Toulon . . . . .          | 46      | 50       | 49    | 55    | 62  | 69   | 73   | 71     | 68        | 59      | 51       | 46       | 58   | 27    |
| Trieste . . . . .         | 38      | 39       | 44    | 53    | 62  | 69   | 72   | 72     | 65        | 59      | 48       | 50       | 55   | 34    |
| Tucuman . . . . .         | 74      | 74       | 71    | 68    | 58  | 53   | 54   | 61     | 66        | 67      | 74       | 77       | 66   | 24    |
| Tunis . . . . .           | 52      | 55       | 59    | 64    | 72  | 77   | 85   | 86     | 80        | 71      | 61       | 57       | 68   | 34    |
| Turin . . . . .           | 31      | 36       | 44    | 53    | 62  | 68   | 73   | 73     | 64        | 54      | 43       | 33       | 53   | 42    |
| Upsal . . . . .           | 27      | 28       | 30    | 36    | 41  | 47   | 49   | 48     | 43        | 38      | 32       | 28       | 37   | 22    |
| Valdivia . . . . .        | 62      | 61       | 57    | 53    | 50  | 46   | 45   | 46     | 49        | 52      | 56       | 59       | 52   | 17    |
| Valparaiso . . . . .      | 63      | 63       | 61    | 58    | 56  | 54   | 53   | 53     | 54        | 57      | 59       | 63       | 58   | 10    |
| Venice . . . . .          | 35      | 39       | 46    | 55    | 63  | 70   | 75   | 74     | 66        | 57      | 45       | 40       | 55   | 40    |
| Vera Cruz . . . . .       | 71      | 72       | 74    | 78    | 82  | 82   | 82   | 82     | 82        | 79      | 75       | 72       | 77   | 11    |
| Vevay . . . . .           | 33      | 36       | 43    | 50    | 58  | 64   | 68   | 64     | 59        | 53      | 40       | 38       | 51   | 35    |
| Vienna . . . . .          | 29      | 33       | 41    | 51    | 60  | 67   | 70   | 70     | 61        | 51      | 40       | 34       | 51   | 41    |
| Vologda . . . . .         | 21      | 20       | 25    | 31    | 42  | 48   | 51   | 49     | 42        | 34      | 27       | 23       | 35   | 31    |
| Warsaw . . . . .          | 22      | 26       | 32    | 44    | 55  | 62   | 65   | 64     | 60        | 45      | 35       | 26       | 44   | 43    |
| Washington . . . . .      | 34      | 36       | 45    | 55    | 66  | 74   | 78   | 76     | 68        | 56      | 44       | 37       | 56   | 44    |
| Wilmington . . . . .      | 47      | 50       | 55    | 61    | 70  | 76   | 80   | 78     | 73        | 65      | 55       | 48       | 63   | 33    |
| Würzburg . . . . .        | 33      | 34       | 41    | 52    | 62  | 68   | 69   | 67     | 62        | 51      | 38       | 33       | 51   | 36    |
| Yakutsk . . . . .         | 10      | 4        | 9     | 23    | 35  | 45   | 49   | 46     | 36        | 22      | 4        | 7        | 21   | 59    |
| Yarkand . . . . .         | 29      | 41       | 55    | 77    | 83  | 89   | 95   | 88     | 79        | 67      | 44       | 30       | 65   | 66    |
| Yokohama . . . . .        | 39      | 42       | 46    | 55    | 65  | 72   | 79   | 79     | 70        | 60      | 48       | 30       | 80   | 40    |
| Zanzibar . . . . .        | 83      | 83       | 83    | 80    | 80  | 79   | 77   | 77     | 78        | 79      | 81       | 82       | 80   | 6     |
| Zürich . . . . .          | 27      | 33       | 40    | 46    | 60  | 61   | 65   | 65     | 58        | 50      | 39       | 30       | 48   | 38    |

The mean temperature of the United States is as follows:—

| State                   | Spring | Summer | Autumn | Winter | Year | Highest Month | Lowest Month |
|-------------------------|--------|--------|--------|--------|------|---------------|--------------|
| Alabama . . . . .       | 67     | 79     | 66     | 52     | 66   | 82            | 42           |
| Arkansas . . . . .      | 61     | 78     | 60     | 40     | 60   | 84            | 25           |
| California . . . . .    | 61     | 72     | 64     | 52     | 62   | 76            | 46           |
| Carolina, N. . . . .    | 64     | 80     | 67     | 51     | 66   | 83            | 40           |
| Carolina, S. . . . .    | 66     | 81     | 68     | 52     | 66   | 84            | 40           |
| Connecticut . . . . .   | 46     | 69     | 53     | 30     | 50   | 76            | 20           |
| Delaware . . . . .      | 52     | 76     | 57     | 34     | 54   | 80            | 22           |
| Florida . . . . .       | 71     | 81     | 73     | 61     | 72   | 85            | 52           |
| Georgia . . . . .       | 64     | 80     | 63     | 48     | 64   | 85            | 39           |
| Illinois . . . . .      | 52     | 75     | 54     | 26     | 52   | 78            | 24           |
| Indiana . . . . .       | 59     | 77     | 55     | 38     | 57   | 79            | 34           |
| Iowa . . . . .          | 47     | 69     | 46     | 21     | 46   | 74            | 8            |
| Kansas . . . . .        | 54     | 81     | 54     | 29     | 53   | 83            | 10           |
| Kentucky . . . . .      | 54     | 75     | 56     | 34     | 55   | 80            | 18           |
| Louisiana . . . . .     | 69     | 82     | 70     | 55     | 68   | 87            | 40           |
| Maine . . . . .         | 41     | 64     | 46     | 20     | 43   | 68            | 14           |
| Maryland . . . . .      | 53     | 75     | 57     | 34     | 55   | 80            | 24           |
| Massachusetts . . . . . | 45     | 68     | 50     | 26     | 47   | 74            | 20           |
| Michigan . . . . .      | 40     | 64     | 46     | 22     | 43   | 73            | 10           |
| Minnesota . . . . .     | 46     | 71     | 46     | 16     | 44   | 82            | 2            |
| Mississippi . . . . .   | 68     | 81     | 67     | 52     | 67   | 81            | 52           |

| State                    | Spring | Summer | Autumn | Winter | Year | Highest Month | Lowest Month |
|--------------------------|--------|--------|--------|--------|------|---------------|--------------|
| Missouri . . . . .       | 55     | 75     | 55     | 33     | 55   | 83            | 21           |
| New Hampshire . . . . .  | 43     | 65     | 48     | 24     | 45   | 67            | 23           |
| New Jersey . . . . .     | 49     | 71     | 52     | 32     | 51   | 73            | 31           |
| New Mexico . . . . .     | 49     | 70     | 50     | 30     | 50   | 75            | 24           |
| New York . . . . .       | 45     | 69     | 50     | 27     | 48   | 74            | 16           |
| Ohio . . . . .           | 50     | 72     | 53     | 31     | 51   | 74            | 28           |
| Oregon . . . . .         | 53     | 71     | 53     | 36     | 53   | 76            | 22           |
| Pennsylvania . . . . .   | 50     | 73     | 54     | 32     | 52   | 80            | 21           |
| Rhode Island . . . . .   | 46     | 69     | 53     | 30     | 50   | 73            | 24           |
| Tennessee . . . . .      | 58     | 74     | 59     | 41     | 58   | 77            | 36           |
| Texas . . . . .          | 75     | 82     | 73     | 63     | 74   | 86            | 52           |
| Utah . . . . .           | 52     | 76     | 53     | 32     | 53   | 76            | 22           |
| Vermont . . . . .        | 40     | 64     | 44     | 19     | 42   | 67            | 18           |
| Virginia . . . . .       | 56     | 76     | 59     | 39     | 58   | 80            | 31           |
| Washington Terr. . . . . | 49     | 63     | 51     | 42     | 50   | 67            | 35           |
| Wisconsin . . . . .      | 46     | 70     | 47     | 20     | 46   | 80            | 7            |

The States of highest and lowest mean annual temperature are:—

| Highest             | Fahr. | Lowest             | Fahr. |
|---------------------|-------|--------------------|-------|
| Texas . . . . .     | 74    | Vermont . . . . .  | 42    |
| Florida . . . . .   | 72    | Maine . . . . .    | 43    |
| Louisiana . . . . . | 68    | Michigan . . . . . | 43    |

The following table shows the greatest degrees of cold on record :—

| Place                 | Year | Latitude | Degrees Fahr. | Maximum Recorded |
|-----------------------|------|----------|---------------|------------------|
| Turin . . .           | 1864 | 45.50    | 0             | In Italy         |
| London . . .          | 1796 | 51.31    | 16            | In England       |
| Paris . . .           | 1879 | 48.52    | 13            | At Paris         |
| Frankfort . . .       | 1789 | 50.10    | 23            | In Germany       |
| Pontarlier . . .      | 1846 | ...      | 25            | In France        |
| Stockholm . . .       | ...  | 59.20    | 27            | By Nicander      |
| Prague . . .          | ...  | 50.50    | 28            | By Strandt       |
| St. Petersburg . . .  | 1733 | 59.56    | 34            | ...              |
| Basle . . .           | 1789 | ...      | 36            | In Switzerland   |
| Sweden . . .          | 1781 | ...      | 40            | In Sweden        |
| Moscow . . .          | 1809 | 55.45    | 48            | In Russia        |
| Fort Enterprise . . . | ...  | 64.30    | 50            | By Franklin *    |
| Fort Elizabeth . . .  | ...  | 70.00    | 51            | By Ross          |
| Fort Reliance . . .   | 1835 | 62.46    | 57            | By Back          |
| Yakutsk . . .         | 1829 | ...      | 73            | In the World     |

Besides the foregoing we find 27° below zero at Washington, 37° at Montreal, and 51° by Captain Parry in his Arctic voyage.

Among the highest readings recorded are :—

|                                               | Degrees Fahrenheit in the Shade |
|-----------------------------------------------|---------------------------------|
| London, July 15, 1881 . . .                   | 95.5                            |
| Naples, July 25, 1881 . . .                   | 96.2                            |
| Paris, August 26, 1765 . . .                  | 104.0                           |
| Orange, July 1830 . . .                       | 104.0                           |
| Rio Janeiro, December 1880 . . .              | 103.0                           |
| Adelaide, South Australia, January 1881 . . . | 114.0                           |
| Mourmuk, India . . .                          | 133.0                           |

The mean temperature of Great Britain, as registered for each month at Greenwich during 107 years, seems to have risen very notably since 1841, viz. :—

| Months            | Greenwich |         |      | Scotland, 1855-64 |
|-------------------|-----------|---------|------|-------------------|
|                   | 1771-1841 | 1842-79 | Rise |                   |
| January . . .     | 35.5      | 38.7    | 3.2  | 37.2              |
| February . . .    | 38.3      | 39.4    | 1.1  | 37.4              |
| March . . .       | 40.8      | 41.6    | 0.8  | 39.8              |
| April . . .       | 45.5      | 47.2    | 1.7  | 44.1              |
| May . . .         | 52.4      | 52.7    | 0.3  | 49.5              |
| June . . .        | 57.8      | 59.0    | 1.2  | 55.6              |
| July . . .        | 61.3      | 62.2    | 0.9  | 57.6              |
| August . . .      | 60.6      | 61.5    | 0.9  | 57.3              |
| September . . .   | 56.2      | 57.1    | 0.9  | 52.8              |
| October . . .     | 49.3      | 50.2    | 0.9  | 47.2              |
| November . . .    | 41.6      | 43.5    | 1.9  | 40.2              |
| December . . .    | 38.6      | 40.0    | 1.4  | 38.6              |
| Annual mean . . . | 48.1      | 49.4    | 1.3  | 46.7              |

This rise of temperature in England has been coincident with a diminution of frost in Canada and Labrador.

The mean temperature of France is stated as follows :—

| Authority    | Spring | Summer | Autumn | Winter | Year |
|--------------|--------|--------|--------|--------|------|
| Cotte . . .  | 52     | 68     | 54     | 39     | 53   |
| Fuster . . . | 51     | 67     | 53     | 38     | 52   |

The mean temperature of Paris has risen since the last century, viz. :—

| Quarter Ending       | 1734-40 | 1806-70 |
|----------------------|---------|---------|
| March 31 . . .       | 40      | 40      |
| June 30 . . .        | 56      | 57      |
| September 30 . . .   | 65      | 64      |
| December 31 . . .    | 43      | 45      |
| Yearly average . . . | 51      | 51½     |

\* Cold appears to diminish in Canada with the increase of population, the average number of days in each year that Hudson's Bay is closed by frost showing thus :—

1828-37 . . . 184 days | 1871-80 . . . 179 days

The greatest variations observed between days in the same month in 1866 were :—

|                 | Paris | Lille | Bordeaux | Toulouse | Lyons | Perpignan | Marseilles | Nice |
|-----------------|-------|-------|----------|----------|-------|-----------|------------|------|
| January . . .   | 12    | 10    | 11       | 13       | 7     | 10        | 3          | 2    |
| February . . .  | 12    | 12    | 7        | 12       | 11    | 12        | 4          | 16   |
| March . . .     | 12    | 9     | 5        | 17       | 12    | 15        | 4          | 4    |
| April . . .     | 16    | 18    | 16       | 21       | 14    | 13        | 4          | 6    |
| May . . .       | 14    | 11    | 16       | 19       | 14    | 15        | 15         | 19   |
| June . . .      | 15    | 14    | 18       | 18       | 17    | 15        | 14         | 17   |
| July . . .      | 14    | 13    | 17       | 18       | 17    | 13        | 20         | 9    |
| August . . .    | 14    | 13    | 14       | 14       | 16    | 15        | 13         | 23   |
| September . . . | 12    | 11    | 8        | 9        | 13    | 12        | 10         | 18   |
| October . . .   | 10    | 13    | 14       | 14       | 10    | 11        | 13         | 17   |
| November . . .  | 11    | 11    | 15       | 16       | 11    | 16        | 12         | 9    |
| December . . .  | 16    | 11    | 6        | 7        | 8     | 14        | 10         | 7    |
| Maximum . . .   | 16    | 18    | 18       | 21       | 17    | 16        | 29         | 23   |

### Thermometer

| Centi-grade | Reaumur | Fahrenheit | Centi-grade | Reaumur | Fahrenheit |
|-------------|---------|------------|-------------|---------|------------|
| 100         | 80      | 212        | 40          | 32.0    | 104.0      |
| 98          | 78.4    | 208.4      | 38          | 30.4    | 100.4      |
| 96          | 76.8    | 204.8      | 36          | 28.8    | 96.8       |
| 94          | 75.2    | 201.2      | 34          | 27.2    | 93.2       |
| 92          | 73.6    | 197.6      | 32          | 25.6    | 89.6       |
| 90          | 72.0    | 194.0      | 30          | 24.0    | 86.0       |
| 88          | 70.4    | 190.4      | 28          | 22.4    | 82.4       |
| 86          | 68.8    | 186.8      | 26          | 20.8    | 78.8       |
| 84          | 67.2    | 183.2      | 24          | 19.2    | 75.2       |
| 82          | 65.6    | 179.6      | 22          | 17.6    | 71.6       |
| 80          | 64.0    | 176.0      | 20          | 16.0    | 68.0       |
| 78          | 62.4    | 172.4      | 18          | 14.4    | 64.4       |
| 76          | 60.8    | 168.8      | 16          | 12.8    | 60.8       |
| 74          | 59.2    | 165.2      | 14          | 11.2    | 57.2       |
| 72          | 57.6    | 161.6      | 12          | 9.6     | 53.6       |
| 70          | 56.0    | 158.0      | 10          | 8.0     | 50.0       |
| 68          | 54.4    | 154.4      | 8           | 6.4     | 46.4       |
| 66          | 52.8    | 150.8      | 6           | 4.8     | 42.8       |
| 64          | 51.2    | 147.2      | 4           | 3.2     | 39.2       |
| 62          | 49.6    | 143.6      | 2           | 1.6     | 35.6       |
| 60          | 48.0    | 140.0      | 0           | 0.0     | 32.0       |
| 58          | 46.4    | 136.4      | 2           | 1.6     | 28.4       |
| 56          | 44.8    | 132.8      | 4           | 3.2     | 24.8       |
| 54          | 43.2    | 129.2      | 6           | 4.8     | 21.2       |
| 52          | 41.6    | 125.6      | 8           | 6.4     | 17.6       |
| 50          | 40.0    | 122.0      | 10          | 8.0     | 14.0       |
| 48          | 38.4    | 118.4      | 12          | 9.6     | 10.4       |
| 46          | 36.8    | 114.8      | 14          | 11.2    | 6.8        |
| 44          | 35.2    | 111.2      | 16          | 12.8    | 3.2        |
| 42          | 33.6    | 107.6      | 18          | 14.4    | 0.0        |

### Range in Degrees Fahrenheit

| Degrees                       | Degrees                         |
|-------------------------------|---------------------------------|
| Ice melts . . . 32            | Lead melts . . . 594            |
| Temperature of globe . . . 50 | Heat of common fire . . . 1,140 |
| Blood-heat . . . 98           | Brass melts . . . 2,233         |
| Alcohol boils . . . 174       | Iron melts . . . 3,479          |
| Water boils . . . 212         |                                 |

Wind.—Velocity and pressure are shown as follows :—

| Feet per Second | Miles per Hour | Pressure, Lbs. per Sq. Foot | Feet per Second | Miles per Hour | Pressure, Lbs. per Sq. Foot |
|-----------------|----------------|-----------------------------|-----------------|----------------|-----------------------------|
| 10              | 7              | 4 oz.                       | 80              | 54             | 16 lbs.                     |
| 20              | 14             | 1 lb                        | 100             | 68             | 25 ..                       |
| 40              | 27             | 4 lbs.                      | 120             | 82             | 36 ..                       |
| 60              | 41             | 9 ..                        | 150             | 102            | 56 ..                       |

According to a register kept in London for 18 years, down to 1830, the prevalent winds were westerly, viz. :—

|                   | Days     |          |          |          |
|-------------------|----------|----------|----------|----------|
|                   | N. to E. | E. to S. | S. to W. | W. to N. |
| January . . . .   | 6.0      | 5.6      | 7.1      | 10.0     |
| February . . . .  | 4.2      | 5.0      | 7.8      | 9.5      |
| March . . . . .   | 5.8      | 4.9      | 8.3      | 10.5     |
| April . . . . .   | 6.5      | 6.5      | 6.4      | 9.2      |
| May . . . . .     | 7.9      | 6.8      | 6.8      | 7.9      |
| June . . . . .    | 7.2      | 4.3      | 6.7      | 10.5     |
| July . . . . .    | 4.4      | 3.6      | 8.8      | 12.6     |
| August . . . . .  | 5.2      | 3.5      | 8.6      | 13.0     |
| September . . . . | 6.3      | 5.5      | 8.8      | 8.3      |
| October . . . . . | 5.5      | 6.6      | 8.4      | 9.5      |
| November . . . .  | 4.5      | 4.4      | 9.3      | 10.7     |
| December . . . .  | 5.4      | 5.5      | 9.5      | 9.3      |
| Total . . . . .   | 68.9     | 62.2     | 106.5    | 121.0    |

At Plymouth in the years 1841-42, the mean velocity of wind in the several months, that is, feet per second, was as follows :—

| Feet per Second       |                       |                   |  |
|-----------------------|-----------------------|-------------------|--|
| January . . 12.76     | May . . . 11.60       | September . 15.42 |  |
| February . 13.97      | June . . . 10.90      | October . . 15.29 |  |
| March . . . 14.63     | July . . . . 9.00     | November . 14.96  |  |
| April . . . 13.00     | August . . 12.87      | December . 12.54  |  |
| 1st Quarter . . 13.80 | 3rd Quarter . . 12.40 |                   |  |
| and " . . . . 11.80   | 4th " . . . . 14.30   |                   |  |

The mean amount of wind at Plymouth was :—

| Wind          | Spring | Summer | Autumn | Winter | Total |
|---------------|--------|--------|--------|--------|-------|
| N.E. . . . .  | 143    | 2      | ...    | 133    | 278   |
| E.N.E. . . .  | 134    | 13     | 102    | 134    | 383   |
| E. . . . .    | 321    | 124    | 130    | 25     | 600   |
| S.E. . . . .  | ...    | ...    | ...    | 6      | 6     |
| S.S.E. . . .  | 19     | ...    | 3      | 7      | 29    |
| S. . . . .    | 657    | 86     | 798    | 545    | 2,086 |
| S.S.W. . . .  | 725    | 689    | 476    | 275    | 2,165 |
| S.W. . . . .  | ...    | ...    | 34     | ...    | 34    |
| W.N.W. . . .  | 50     | 65     | 128    | 99     | 342   |
| N.W. . . . .  | 59     | 46     | 17     | ...    | 122   |
| N.N.W. . . .  | ...    | 58     | ...    | ...    | 58    |
| Total . . . . | 2,108  | 1,083  | 1,688  | 1,224  | 6,103 |

In 1889 the Meteorological Council gave a summary of gales in the United Kingdom for 15 years.

| Gales           |               | Gales           |  | Gales |  |
|-----------------|---------------|-----------------|--|-------|--|
| January . . 171 | May . . . 12  | September . 55  |  |       |  |
| February . 115  | June . . . 10 | October . . 133 |  |       |  |
| March . . . 117 | July . . . 11 | November . 158  |  |       |  |
| April . . . 40  | August . . 32 | December . 134  |  |       |  |
| From N.E. . . . | ...           | 96              |  |       |  |
| " S.E. . . . .  | ...           | 165             |  |       |  |
| " N.W. . . . .  | ...           | 279             |  |       |  |
| " S.W. . . . .  | ...           | 448             |  |       |  |
|                 |               | 988             |  |       |  |

This gives an average of 66 gales a year.

The mining products of the nineteenth century may be summed up approximately thus :—

|                | Tons  |        |            |            |            |           |               |                |
|----------------|-------|--------|------------|------------|------------|-----------|---------------|----------------|
|                | Gold  | Silver | Copper Ore | Lead Ore   | Zinc Ore   | Tin Ore   | Iron Ore      | Coal           |
| 1801-20 . . .  | 292   | 14,359 | 2,100,000  | 2,000,000  | 240,000    | 90,000    | 35,000,000    | 277,000,000    |
| 1821-40 . . .  | 345   | 10,571 | 4,100,000  | 3,100,000  | 400,000    | 130,000   | 82,000,000    | 566,000,000    |
| 1841-50 . . .  | 548   | 7,804  | 4,300,000  | 2,700,000  | 1,300,000  | 90,000    | 96,000,000    | 637,000,000    |
| 1851-60 . . .  | 2,018 | 8,956  | 9,100,000  | 5,100,000  | 2,400,000  | 100,000   | 150,000,000   | 1,093,000,000  |
| 1861-70 . . .  | 1,886 | 12,201 | 13,500,000 | 7,000,000  | 5,200,000  | 150,000   | 205,000,000   | 1,873,000,000  |
| 1871-80 . . .  | 1,703 | 22,347 | 19,400,000 | 7,600,000  | 9,600,000  | 450,000   | 338,000,000   | 2,855,000,000  |
| 1881-88 . . .  | 1,150 | 19,330 | 32,400,000 | 7,100,000  | 12,360,000 | 420,000   | 367,000,000   | 3,300,000,000  |
| 88 years . . . | 7,942 | 95,559 | 84,900,000 | 34,600,000 | 31,500,000 | 1,430,000 | 1,273,000,000 | 10,601,000,000 |

The record at Athens for twelve years to 1870 showed as follows :—

|                 | Spring | Summer | Autumn | Winter | Year  |
|-----------------|--------|--------|--------|--------|-------|
| N. and N.E. . . | 28.3   | 42.5   | 41.0   | 40.2   | 38.0  |
| E. and S.E. . . | 4.8    | 3.9    | 4.7    | 6.4    | 4.9   |
| S. and S.W. . . | 48.8   | 39.3   | 41.5   | 34.7   | 41.1  |
| W. and N.W. . . | 18.1   | 14.3   | 12.8   | 18.7   | 16.0  |
| Total . . . . . | 100.0  | 100.0  | 100.0  | 100.0  | 100.0 |

Observations in the Crimea gave this result in quarters of the year :—

|                 | N.-E. | E.-S. | S.-W. | W.-N. | Year  |
|-----------------|-------|-------|-------|-------|-------|
| March 31 . . .  | 62    | 76    | 62    | 58    | 258   |
| June 30 . . .   | 70    | 42    | 101   | 56    | 269   |
| September 30 .  | 86    | 15    | 74    | 66    | 241   |
| December 31 .   | 62    | 52    | 62    | 56    | 232   |
| Total . . . . . | 280   | 185   | 299   | 236   | 1,000 |

### MILK

The analysis shows as follows :—

|                 | Woman | Cow   | Ass   | Goat  | Ewe   |
|-----------------|-------|-------|-------|-------|-------|
| Fat . . . . .   | 2.5   | 4.0   | 1.1   | 3.3   | 4.2   |
| Caseine . . . . | 3.4   | 7.2   | 1.9   | 4.0   | 4.5   |
| Sugar . . . . . | 4.8   | 2.8   | 6.1   | 5.9   | 5.7   |
| Water . . . . . | 89.3  | 86.0  | 90.9  | 86.8  | 85.6  |
| Total . . . . . | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

See Dairy.

### MILLIONAIRES

| Name          | Profession        | Estim. Wealth, £ | Residence | Died |
|---------------|-------------------|------------------|-----------|------|
| Seneca . . .  | Philosopher       | 3,400,000        | Rome      | 65   |
| Fugger . . .  | Banker            | 6,500,000        | Augsburg  | 1506 |
| Goldsmid . .  | "                 | 10,000,000       | London    | ...  |
| Astor . . .   | Furrier           | 6,000,000        | New York  | 1848 |
| Stewart . . . | Haberdasher       | 16,000,000       | "         | ...  |
| Vanderbilt .  | Railroad director | 36,000,000       | "         | 1877 |
| Overstone .   | Banker            | 4,000,000        | London    | 1883 |
| Rothschild .  | "                 | 3,500,000        | "         | 1879 |
| Brassey . . . | Contractor        | 5,000,000        | "         | 1870 |
| Krupp . . .   | Founder           | 3,000,000        | Essen     | ...  |

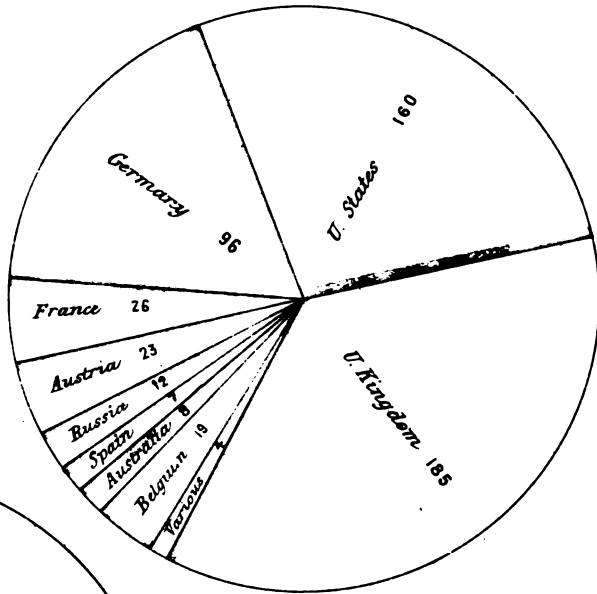
### MINING

In the early years of the present century the total output of the mines of the world was barely a million tons daily, and in the eight years ending 1888 it averaged over 12 million tons daily. In the former period minerals extracted stood for a value of 9 millions sterling per annum; at present the value at the pit's mouth is £210,000,000 yearly.

**MINING.**

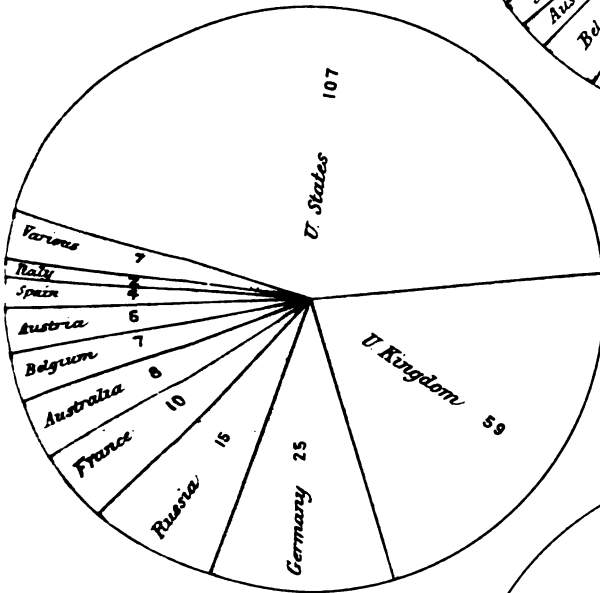
*Millions of tons raised yearly.*

*Total, 540 million tons.*



*Value of Minerals, millions £. stg.*

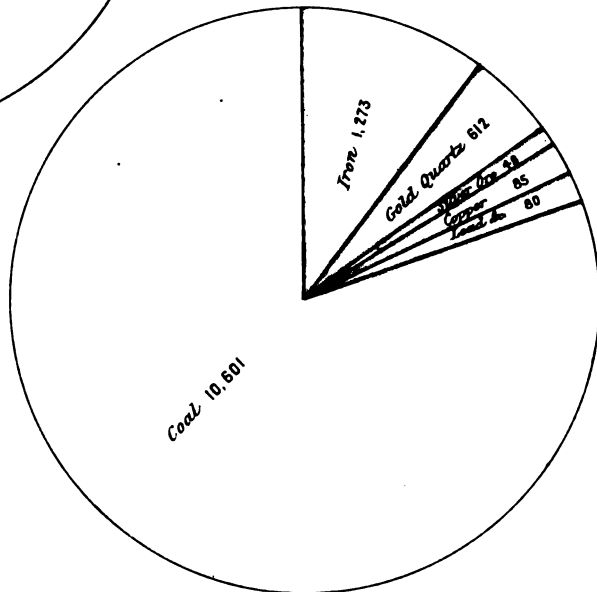
*Total, 250 millions £. stg.*

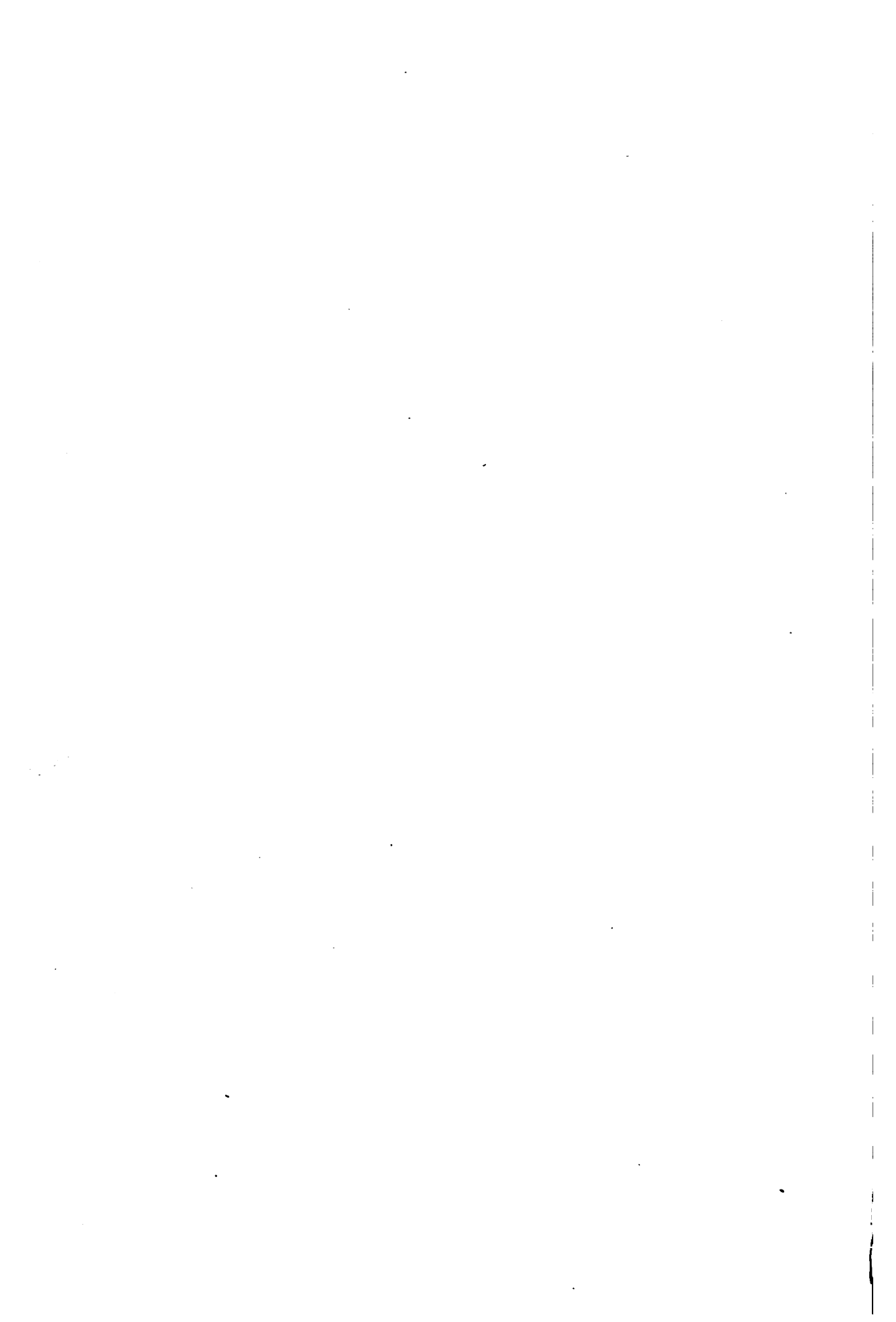


*Minerals raised in 19th century, 1801-88.*

*Millions of Tons.*

*Total, 12,700 million tons.*





|          | Value Millions £ Sterling |        |        |      |      |     |      |       |
|----------|---------------------------|--------|--------|------|------|-----|------|-------|
|          | Gold                      | Silver | Copper | Lead | Zinc | Tin | Iron | Coal  |
| 1801-20  | 41                        | 125    | 4      | 10   | ...  | 4   | 13   | 136   |
| 1821-40  | 48                        | 89     | 8      | 15   | ...  | 5   | 26   | 250   |
| 1841-50  | 77                        | 67     | 9      | 14   | 1    | 5   | 30   | 253   |
| 1851-60  | 282                       | 78     | 18     | 25   | 2    | 8   | 48   | 385   |
| 1861-70  | 264                       | 105    | 25     | 29   | 4    | 8   | 70   | 681   |
| 1871-80  | 241                       | 178    | 35     | 30   | 11   | 23  | 110  | 1,104 |
| 1881-88  | 148                       | 154    | 50     | 28   | 14   | 21  | 115  | 1,050 |
| 88 years | 1,101                     | 796    | 149    | 151  | 32   | 71  | 412  | 3,859 |
|          |                           |        |        |      |      |     |      | 6,571 |

The foregoing table of tonnage gives only the metal of gold and silver, the quantities of ore being unknown. It has been, however, stated that the average was in California 70,000 tons for one ton of gold, and in Australia 94,000 tons for one.\* As regards silver, the ordinary yield in Spanish America is 80 oz. to the ton. At these rates we can estimate the amount of ore raised. The account of all mining will then stand thus:—

|          | Millions of Tons Raised |            |          |           |        |        |
|----------|-------------------------|------------|----------|-----------|--------|--------|
|          | Gold Quartz             | Silver Ore | Iron Ore | Lead, &c. | Coal   | Total  |
| 1801-20  | 23                      | 7          | 35       | 4         | 277    | 346    |
| 1821-40  | 28                      | 5          | 82       | 8         | 566    | 689    |
| 1841-50  | 44                      | 4          | 96       | 8         | 637    | 789    |
| 1851-60  | 162                     | 5          | 150      | 17        | 1,093  | 1,427  |
| 1861-70  | 142                     | 7          | 205      | 26        | 1,873  | 2,253  |
| 1871-80  | 127                     | 12         | 338      | 37        | 2,855  | 3,369  |
| 1881-88  | 86                      | 9          | 367      | 52        | 3,300  | 3,814  |
| 88 years | 612                     | 49         | 1,273    | 152       | 10,601 | 12,687 |

As regards quantity, coal stood for nearly 85 per cent. of all minerals extracted.

The total mining product may be summed up thus:—

|                 | Millions £ Sterling |
|-----------------|---------------------|
| Precious metals | 1,897               |
| Metallic ores   | 815                 |
| Coal            | 3,859               |
| Total           | 6,571               |

The shares corresponding to the several countries were:—

|                | Millions £ Sterling |          |          |            |              |       |       |
|----------------|---------------------|----------|----------|------------|--------------|-------|-------|
|                | Precious Metals     | Iron Ore | Lead Ore | Copper Ore | Zinc and Tin | Coal  | Total |
| United Kingdom | ...                 | 168      | 33       | 24         | 36           | 2,072 | 2,333 |
| France         | ...                 | 37       | 7        | 4          | ...          | 303   | 351   |
| Germany        | 40                  | 51       | 31       | 11         | 15           | 419   | 567   |
| Russia         | 222                 | 5        | ...      | 6          | ...          | 17    | 250   |
| Austria        | 60                  | 11       | 2        | 1          | ...          | 89    | 163   |
| Belgium        | ...                 | 8        | ...      | ...        | 7            | 243   | 258   |
| United States  | 508                 | 67       | 42       | 44         | 6            | 612   | 1,279 |
| Australia      | 322                 | ...      | ...      | 13         | ...          | 23    | 358   |
| Various        | 745                 | 65       | 36       | 46         | 39           | 81    | 1,012 |
| Total          | 1,897               | 412      | 151      | 149        | 103          | 3,859 | 6,571 |

\* The quartz raised by the gold mines of California and Australia would suffice to build 150 pyramids like that of Cheops. The gold extracted would fit in a room 40 by 20 feet, and 15 high.

Excluding precious metals, the values of mining products were, in order of time, as follows:—

| Period   | Millions £ Sterling |        |         |         |         |           |         |
|----------|---------------------|--------|---------|---------|---------|-----------|---------|
|          | U. Kingdom          | France | Germany | Austria | Belgium | U. States | Various |
| 1801-20  | 123                 | 13     | 12      | 1       | 4       | 4         | 10      |
| 1821-40  | 204                 | 27     | 23      | 4       | 19      | 7         | 28      |
| 1841-50  | 194                 | 26     | 22      | 6       | 19      | 25        | 26      |
| 1851-60  | 267                 | 37     | 45      | 8       | 36      | 54        | 36      |
| 1861-70  | 416                 | 61     | 96      | 20      | 56      | 113       | 55      |
| 1871-80  | 658                 | 101    | 151     | 31      | 68      | 205       | 99      |
| 1881-88  | 471                 | 86     | 178     | 33      | 56      | 357       | 97      |
| 88 years | 2,333               | 351    | 527     | 103     | 258     | 765       | 337     |
|          |                     |        |         |         |         |           | 4,674   |

Iron-mining may be summed up approximately as follows:—

| Period   | Million Tons Ore |               |         |        |       |         |       |
|----------|------------------|---------------|---------|--------|-------|---------|-------|
|          | Great Britain    | United States | Germany | France | Spain | Various | Total |
| 1801-20  | 17               | 3             | 4       | 6      | ...   | 5       | 35    |
| 1821-40  | 44               | 9             | 6       | 12     | 1     | 10      | 82    |
| 1841-50  | 49               | 10            | 7       | 14     | 1     | 15      | 96    |
| 1851-60  | 90               | 15            | 11      | 12     | 2     | 20      | 150   |
| 1861-70  | 101              | 27            | 31      | 17     | 4     | 25      | 205   |
| 1871-80  | 160              | 58            | 54      | 26     | 10    | 30      | 338   |
| 1881-88  | 116              | 90            | 72      | 22     | 37    | 30      | 367   |
| 88 years | 577              | 212           | 185     | 109    | 55    | 135     | 1,273 |

The extraction of other minerals in 88 years was approximately as follows:—

|               | Tons       |            |           |
|---------------|------------|------------|-----------|
|               | Lead       | Copper     | Tin       |
| Great Britain | 6,800,000  | 11,200,000 | 800,000   |
| France        | 1,600,000  | 1,600,000  | ...       |
| Germany       | 6,000,000  | 9,700,000  | ...       |
| Russia        | ...        | 5,100,000  | ...       |
| Austria       | 1,400,000  | 600,000    | ...       |
| Italy         | 1,300,000  | ...        | ...       |
| Spain         | 7,500,000  | 11,400,000 | ...       |
| United States | 9,600,000  | 29,300,000 | ...       |
| Australia     | ...        | 4,500,000  | 360,000   |
| Various       | 400,000    | 11,500,000 | 270,000   |
| Total         | 34,600,000 | 84,900,000 | 1,430,000 |

The number of persons employed in mining at various dates was approximately as follows:—

| Year | Great Britain | United States | France  | Germany | Various | Total     |
|------|---------------|---------------|---------|---------|---------|-----------|
| 1820 | 165,000       | 10,000        | 20,000  | 30,000  | 25,000  | 250,000   |
| 1840 | 245,000       | 15,000        | 40,000  | 50,000  | 92,000  | 442,000   |
| 1860 | 497,000       | 70,000        | 70,000  | 159,000 | 220,000 | 1,016,000 |
| 1870 | 561,000       | 152,000       | 100,000 | 217,000 | 275,000 | 1,305,000 |
| 1880 | 654,000       | 234,000       | 120,000 | 300,000 | 450,000 | 1,758,000 |
| 1888 | 593,000       | 350,000       | 112,000 | 337,000 | 440,000 | 2,032,000 |

The weight of minerals raised compares with miners approximately, thus :—

| Year       | No. of Miners | Tons Raised | Tons per Man |
|------------|---------------|-------------|--------------|
| 1820 . . . | 250,000       | 27,000,000  | 108          |
| 1840 . . . | 442,000       | 71,000,000  | 160          |
| 1860 . . . | 1,016,000     | 198,000,000 | 194          |
| 1870 . . . | 1,305,000     | 290,000,000 | 222          |
| 1888 . . . | 2,032,000     | 565,000,000 | 270          |

The ratio for British miners in 1889 was 330 tons per man.

The superiority of English miners is stated by the Iron and Steel Institute to be shown in the proportion of iron ore extracted by each miner yearly as follows :—

|               | Tons |               | Tons |
|---------------|------|---------------|------|
| England . . . | 923  | Spain . . .   | 292  |
| France . . .  | 393  | Germany . . . | 283  |
| Algeria . . . | 323  | Belgium . . . | 127  |

This, however, appears to be exaggerated as regards English miners, for we find (see p. 401) that the annual product of all minerals in Great Britain in 1888 did not exceed 301 tons per miner.

In 1884 the deepest mines in the world were :—

| Mine        | Country   | Mineral | Depth, Feet |
|-------------|-----------|---------|-------------|
| Lambert     | Belgium   | Coal    | 3,490       |
| Birkenberg  | Austria   | Silver  | 3,980       |
| Zwickau     | Saxony    | Coal    | 2,637       |
| St. Andre   | Prussia   | Silver  | 2,532       |
| Rosebridge  | England   | Coal    | 2,510       |
| Duckinfield | "         | "       | 2,448       |
| Magdala     | Australia | Gold    | 1,990       |
| Chaumont    | France    | Coal    | 1,876       |
| Kongsberg   | Norway    | Silver  | 1,869       |
| Schemnitz   | Hungary   | "       | 1,771       |
| La Huerta   | Spain     | "       | 1,548       |

The production of metals in the present century has been approximately as follows :—

|                | Tons        |           |            |         |           |             |
|----------------|-------------|-----------|------------|---------|-----------|-------------|
|                | Pig Iron    | Copper    | Lead       | Tin     | Zinc      | Total       |
| 1801-20 . . .  | 13,200,000  | 170,000   | 1,400,000  | 60,000  | 40,000    | 14,870,000  |
| 1821-40 . . .  | 32,800,000  | 370,000   | 1,900,000  | 90,000  | 70,000    | 35,230,000  |
| 1841-50 . . .  | 33,500,000  | 335,000   | 1,600,000  | 60,000  | 210,000   | 35,555,000  |
| 1851-60 . . .  | 57,100,000  | 585,000   | 3,000,000  | 70,000  | 370,000   | 60,125,000  |
| 1861-70 . . .  | 93,600,000  | 780,000   | 4,000,000  | 100,000 | 950,000   | 97,880,000  |
| 1871-80 . . .  | 142,100,000 | 1,200,000 | 4,400,000  | 300,000 | 1,470,000 | 148,170,000 |
| 1881-88 . . .  | 176,000,000 | 1,540,000 | 4,100,000  | 280,000 | 1,910,000 | 183,030,000 |
| 88 years . . . | 548,300,000 | 4,980,000 | 20,400,000 | 960,000 | 5,020,000 | 574,860,000 |

|                | Value, Millions £ Sterling |        |      |     |      |       |                 | Value, Millions £ Sterling |        |      |     |      |       |
|----------------|----------------------------|--------|------|-----|------|-------|-----------------|----------------------------|--------|------|-----|------|-------|
|                | Pig Iron                   | Copper | Lead | Tin | Zinc | Total |                 | Pig Iron                   | Copper | Lead | Tin | Zinc | Total |
| 1801-20 . . .  | 97                         | 17     | 42   | 5   | 1    | 162   | Great Britain   | 723                        | 162    | 82   | 61  | 29   | 1,057 |
| 1821-40 . . .  | 209                        | 37     | 38   | 6   | 1    | 291   | France . . .    | 181                        | 19     | 16   | 5   | 1    | 222   |
| 1841-50 . . .  | 151                        | 34     | 29   | 6   | 4    | 224   | Germany . . .   | 245                        | 36     | 65   | 5   | 36   | 387   |
| 1851-60 . . .  | 188                        | 58     | 43   | 8   | 7    | 304   | Russia . . .    | 70                         | 20     | 5    | 2   | 2    | 99    |
| 1861-70 . . .  | 301                        | 70     | 49   | 12  | 18   | 450   | Austria . . .   | 66                         | 10     | 15   | 2   | 1    | 94    |
| 1871-80 . . .  | 425                        | 94     | 62   | 33  | 24   | 638   | Belgium . . .   | 72                         | 10     | 16   | 2   | 2    | 102   |
| 1881-88 . . .  | 446                        | 105    | 50   | 25  | 28   | 654   | U. States . . . | 380                        | 60     | 55   | 2   | 10   | 527   |
| 88 years . . . | 1,817                      | 415    | 313  | 95  | 83   | 2,723 | Various . . .   | 80                         | 98     | 59   | 16  | 2    | 255   |
|                |                            |        |      |     |      |       | Total . . .     | 1,817                      | 415    | 313  | 95  | 83   | 2,723 |

#### UNITED KINGDOM

The progress of British mining may be approximately shown thus :—

|            | Tons Raised |            |            |          |          |         |             |
|------------|-------------|------------|------------|----------|----------|---------|-------------|
|            | Coal        | Iron Ore   | Copper Ore | Lead Ore | Zinc Ore | Tin Ore | Total       |
| 1780 . . . | 8,500,000   | 200,000    | 30,000     | 40,000   | 5,000    | 5,000   | 8,780,000   |
| 1800 . . . | 10,100,000  | 500,000    | 50,000     | 50,000   | 5,000    | 5,000   | 10,710,000  |
| 1820 . . . | 14,000,000  | 1,000,000  | 100,000    | 60,000   | 5,000    | 5,000   | 15,170,000  |
| 1830 . . . | 16,100,000  | 1,700,000  | 150,000    | 70,000   | 5,000    | 5,000   | 18,080,000  |
| 1840 . . . | 35,000,000  | 3,500,000  | 150,000    | 80,000   | 10,000   | 5,000   | 38,795,000  |
| 1850 . . . | 49,000,000  | 5,500,000  | 180,000    | 80,000   | 15,000   | 10,000  | 54,785,000  |
| 1860 . . . | 80,000,000  | 8,000,000  | 240,000    | 100,000  | 15,000   | 10,000  | 88,285,000  |
| 1870 . . . | 110,000,000 | 14,400,000 | 110,000    | 110,000  | 15,000   | 15,000  | 124,650,000 |
| 1880 . . . | 147,000,000 | 18,000,000 | 55,000     | 90,000   | 30,000   | 15,000  | 165,190,000 |
| 1888 . . . | 170,000,000 | 14,600,000 | 20,000     | 60,000   | 40,000   | 15,000  | 184,735,000 |

About 100 years ago the weight of minerals raised daily in Great Britain was 25,000 tons, and in 1888 it rose to 600,000. Improved machinery has effected a great economy of labour, one man in 1888 raising as much as four could do in 1800. This has caused a notable fall in the price of minerals. Thus it happens that although the weight of minerals raised has increased twenty-one-fold since 1780, the value of same has only risen ten-fold.



The total value of British mining in 88 years was approximately as follows :—

| Period         | Millions £ Sterling |           |      |        |          |       |
|----------------|---------------------|-----------|------|--------|----------|-------|
|                | Coal                | Ironstone | Lead | Copper | Tin, &c. | Total |
| 1801-20 . . .  | 105                 | 6         | 5    | 3      | 4        | 123   |
| 1821-40 . . .  | 175                 | 13        | 6    | 6      | 4        | 204   |
| 1841-50 . . .  | 168                 | 14        | 4    | 4      | 4        | 194   |
| 1851-60 . . .  | 228                 | 25        | 5    | 4      | 5        | 267   |
| 1861-70 . . .  | 370                 | 31        | 5    | 4      | 6        | 416   |
| 1871-80 . . .  | 600                 | 44        | 5    | 2      | 7        | 658   |
| 1881-88 . . .  | 426                 | 35        | 3    | 1      | 6        | 471   |
| 88 years . . . | 2,072               | 168       | 33   | 24     | 36       | 2,333 |

The weight of mineral raised compares with the number of miners approximately as follows :—

| Year       | Miners  | Tons Raised | Tons per Man |
|------------|---------|-------------|--------------|
| 1820 . . . | 165,000 | 15,200,000  | 92           |
| 1840 . . . | 245,000 | 38,800,000  | 160          |
| 1860 . . . | 497,000 | 88,300,000  | 180          |
| 1870 . . . | 561,000 | 122,300,000 | 218          |
| 1880 . . . | 654,000 | 161,200,000 | 247          |
| 1888 . . . | 593,000 | 184,600,000 | 301          |

The value of British mining per head of the population is shown in the following table :—

|            | Coal       | Metallic Ores | Total      | Per Inhabitant |
|------------|------------|---------------|------------|----------------|
|            | £          | £             | £          | £ s. d.        |
| 1780 . . . | 4,600,000  | 1,010,000     | 5,610,000  | 0 11 0         |
| 1800 . . . | 5,500,000  | 1,210,000     | 6,710,000  | 0 9 0          |
| 1820 . . . | 7,000,000  | 1,510,000     | 8,510,000  | 0 8 6          |
| 1830 . . . | 6,500,000  | 2,010,000     | 8,510,000  | 0 7 6          |
| 1840 . . . | 12,200,000 | 2,720,000     | 14,920,000 | 0 11 6         |
| 1850 . . . | 16,500,000 | 3,430,000     | 19,930,000 | 0 15 0         |
| 1860 . . . | 26,600,000 | 4,230,000     | 30,830,000 | 1 2 0          |
| 1870 . . . | 45,000,000 | 6,630,000     | 51,630,000 | 1 14 0         |
| 1880 . . . | 49,000,000 | 6,560,000     | 55,560,000 | 1 13 0         |
| 1888 . . . | 53,600,000 | 5,180,000     | 58,780,000 | 1 10 6         |

In the above estimate of value, coal is taken at 25 per cent. under the price at port of shipment.

The value of metals produced from British ores at various dates was approximately as follows :—

|                   | 1780      | 1800      | 1820      | 1840      | 1860       | 1889       |
|-------------------|-----------|-----------|-----------|-----------|------------|------------|
|                   | £         | £         | £         | £         | £          | £          |
| Iron . . . . .    | 400,000   | 700,000   | 1,000,000 | 3,500,000 | 7,500,000  | 12,700,000 |
| Tin . . . . .     | 500,000   | 400,000   | 400,000   | 400,000   | 700,000    | 900,000    |
| Lead, &c. . . . . | 800,000   | 1,200,000 | 2,000,000 | 3,100,000 | 3,000,000  | 800,000    |
| Total . . . . .   | 1,700,000 | 2,300,000 | 3,400,000 | 7,000,000 | 11,200,000 | 14,400,000 |

#### FRANCE

The products of mines may be approximately summed up thus :—

|                | Tons       |           | Value, £  |
|----------------|------------|-----------|-----------|
|                | Coal       | Iron Ore  |           |
| 1800 . . . . . | 800,000    | 200,000   | 600,000   |
| 1830 . . . . . | 1,800,000  | 700,000   | 1,000,000 |
| 1850 . . . . . | 5,000,000  | 900,000   | 2,800,000 |
| 1870 . . . . . | 13,300,000 | 2,600,000 | 6,600,000 |
| 1888 . . . . . | 23,000,000 | 2,600,000 | 9,600,000 |

The official valuation for 1889 is as follows :—

|                      | Tons        | Value, £   |
|----------------------|-------------|------------|
| Coal . . . . .       | 176,900,000 | 56,200,000 |
| Iron ore . . . . .   | 14,550,000  | 3,850,000  |
| Tin ore . . . . .    | 14,000      | 730,000    |
| Lead ore . . . . .   | 50,000      | 430,000    |
| Copper ore . . . . . | 15,000      | 60,000     |
| Zinc ore . . . . .   | 25,000      | 100,000    |
| Salt . . . . .       | 1,950,000   | 890,000    |
| Oil shale . . . . .  | 2,010,000   | 500,000    |
| Clays . . . . .      | 3,040,000   | 830,000    |
| Slate . . . . .      | 460,000     | 1,050,000  |
| Total . . . . .      | 199,014,000 | 64,640,000 |

The above is exclusive of stone, to the value of £8,700,000, say 11,000,000 tons, which brings up the total to 210 million tons, representing an aggregate value of 73½ millions sterling.

The quantity and value of metals extracted from the foregoing minerals may be summed up as follows :—

|                  | Tons      | Value, £   |
|------------------|-----------|------------|
| Iron . . . . .   | 5,180,000 | 12,700,000 |
| Lead . . . . .   | 36,000    | 460,000    |
| Tin . . . . .    | 9,000     | 860,000    |
| Copper . . . . . | 1,500     | 120,000    |
| Zinc . . . . .   | 10,000    | 190,000    |
| Silver . . . . . | 10        | 70,000     |
| Total . . . . .  | 5,236,510 | 14,400,000 |

The number of persons employed in mines in 1888 was as follows :—

|                       |         |
|-----------------------|---------|
| Underground . . . . . | 465,000 |
| Overground . . . . .  | 127,700 |
| Total . . . . .       | 592,700 |

Among those overground were 5700 women. The number of miners killed was as follows :—

| Year              | Killed | Per 10,000 Miners | One Killed in | Tons Raised per Miner Killed |
|-------------------|--------|-------------------|---------------|------------------------------|
| 1851-60 . . . . . | 10,018 | 41                | 245           | 57,000                       |
| 1861-70 . . . . . | 10,626 | 33                | 300           | 104,000                      |
| 1871-80 . . . . . | 11,349 | 23                | 425           | 140,000                      |
| 1888 . . . . .    | 960    | 21                | 484           | 198,000                      |

The above is irrespective of salt and some minor items. An official return in 1883 of the coal-mines showed thus :—

| Year           | Miners  | Tons Raised | Value, £   |
|----------------|---------|-------------|------------|
| 1860 . . . . . | 59,000  | 8,300,000   | 2,400,000  |
| 1870 . . . . . | 83,000  | 13,300,000  | 6,200,000  |
| 1880 . . . . . | 107,000 | 19,400,000  | 9,900,000  |
| 1883 . . . . . | 113,000 | 21,300,000  | 10,700,000 |

Detailed statistics of coal-mining in France will be found at pages 121 and 122.

The statement for all mining in 1886 showed thus :

|                | Miners  | Tons Raised | Value, £   |
|----------------|---------|-------------|------------|
| Coal . . . .   | 102,000 | 19,500,000  | 9,200,000  |
| Iron ore . . . | 6,000   | 2,300,000   | 400,000    |
| Salt . . . . . | 4,000   | 640,000     | 500,000    |
| Total . . . .  | 112,000 | 22,440,000  | 10,100,000 |

The quarries, moreover, employed 111,000 men, and their annual yield was about 8 million tons, valued at £6,600,000. The slate quarries of Ardenne, Bretagne, yield 120 million slates yearly. The total value of French mining in 88 years was approximately as follows :—

| Period         | Millions £ Sterling |            |                 |       |
|----------------|---------------------|------------|-----------------|-------|
|                | Coal                | Iron-stone | Lead and Copper | Total |
| 1801-20 . . .  | 11                  | 2          | ...             | 13    |
| 1821-40 . . .  | 23                  | 4          | ...             | 27    |
| 1841-50 . . .  | 21                  | 4          | 1               | 26    |
| 1851-60 . . .  | 31                  | 5          | 1               | 37    |
| 1861-70 . . .  | 53                  | 6          | 2               | 61    |
| 1871-80 . . .  | 89                  | 9          | 3               | 101   |
| 1881-88 . . .  | 75                  | 7          | 4               | 86    |
| 88 years . . . | 303                 | 37         | 11              | 351   |

The production of metals was approximately as follows :—

| Year         | Tons      |        |        | Total Value, £ |
|--------------|-----------|--------|--------|----------------|
|              | Iron      | Lead   | Copper |                |
| 1830 . . . . | 220,000   | 1,000  | 1,000  | 1,600,000      |
| 1850 . . . . | 570,000   | 7,000  | 2,000  | 3,700,000      |
| 1880 . . . . | 1,720,000 | 32,000 | 5,000  | 6,200,000      |

#### GERMANY

The mining industry is shown approximately thus :—

| Year         | Tons       |            |           |            | Value, £   |
|--------------|------------|------------|-----------|------------|------------|
|              | Coal       | Iron Ore   | Sundries  | Total      |            |
| 1800 . . . . | 300,000    | 100,000    | 200,000   | 600,000    | 200,000    |
| 1830 . . . . | 2,000,000  | 300,000    | 500,000   | 2,800,000  | 900,000    |
| 1850 . . . . | 6,600,000  | 800,000    | 800,000   | 8,100,000  | 2,600,000  |
| 1870 . . . . | 33,600,000 | 3,800,000  | 1,400,000 | 38,800,000 | 12,400,000 |
| 1888 . . . . | 82,000,000 | 10,700,000 | 3,100,000 | 95,800,000 | 24,700,000 |

At the beginning of the 19th century the quantity of minerals raised averaged only 2000 tons daily, but in 1888 it rose to 300,000 daily.

Von Decken's and official tables of mining in Germany show as follows :—

| Year         | Tons       |            |            |          |          |            |         | Total      |
|--------------|------------|------------|------------|----------|----------|------------|---------|------------|
|              | Coal       | Lignite    | Iron Ore   | Lead Ore | Zinc Ore | Copper Ore | Salt    |            |
| 1850 . . . . | 5,100,000  | 1,500,000  | 800,000    | 170,000  | 150,000  | 50,000     | 300,000 | 8,070,000  |
| 1860 . . . . | 12,300,000 | 4,400,000  | 1,400,000  | 150,000  | 310,000  | 90,000     | 400,000 | 19,050,000 |
| 1870 . . . . | 26,400,000 | 7,600,000  | 3,800,000  | 100,000  | 370,000  | 200,000    | 500,000 | 38,970,000 |
| 1880 . . . . | 47,000,000 | 12,100,000 | 7,200,000  | 130,000  | 500,000  | 380,000    | 670,000 | 67,980,000 |
| 1888 . . . . | 65,400,000 | 16,600,000 | 10,700,000 | 160,000  | 670,000  | 530,000    | 950,000 | 95,010,000 |

Value, £

|              |            |           |           |         |         |         |         |            |
|--------------|------------|-----------|-----------|---------|---------|---------|---------|------------|
| 1850 . . . . | 1,500,000  | 200,000   | 200,000   | 300,000 | 100,000 | 50,000  | 300,000 | 2,650,000  |
| 1860 . . . . | 4,000,000  | 700,000   | 400,000   | 600,000 | 200,000 | 150,000 | 400,000 | 6,350,000  |
| 1870 . . . . | 8,200,000  | 1,100,000 | 1,200,000 | 800,000 | 300,000 | 250,000 | 500,000 | 12,350,000 |
| 1880 . . . . | 12,100,000 | 2,000,000 | 1,700,000 | 600,000 | 400,000 | 300,000 | 600,000 | 17,700,000 |
| 1888 . . . . | 16,500,000 | 2,500,000 | 2,000,000 | 800,000 | 700,000 | 800,000 | 500,000 | 23,800,000 |

| Year         | Number of Miners |        |           |         | Tons Raised | Tons per Miner |
|--------------|------------------|--------|-----------|---------|-------------|----------------|
|              | Coal             | Iron   | Lead, &c. | Total   |             |                |
| 1850 . . . . | 47,300           | 16,000 | 25,500    | 88,800  | 8,100,000   | 91             |
| 1860 . . . . | 102,100          | 18,500 | 38,500    | 159,100 | 19,100,000  | 119            |
| 1870 . . . . | 145,800          | 27,300 | 44,200    | 217,300 | 39,000,000  | 180            |
| 1875 . . . . | 209,000          | 26,400 | 41,800    | 277,300 | 52,600,000  | 190            |
| 1886 . . . . | 247,000          | 32,000 | 58,000    | 337,000 | 85,200,000  | 253            |

The total value of German mining in 88 years was approximately as follows :—

| Period         | Millions £ Sterling |           |      |        |      |       |
|----------------|---------------------|-----------|------|--------|------|-------|
|                | Coal                | Ironstone | Lead | Copper | Zinc | Total |
| 1801-20 . . .  | 10                  | 1         | 1    | ...    | ...  | 12    |
| 1821-40 . . .  | 18                  | 2         | 2    | ...    | 1    | 23    |
| 1841-50 . . .  | 16                  | 2         | 3    | ...    | 1    | 22    |
| 1851-60 . . .  | 34                  | 3         | 5    | 1      | 2    | 45    |
| 1861-70 . . .  | 75                  | 9         | 7    | 2      | 3    | 96    |
| 1871-80 . . .  | 121                 | 16        | 7    | 3      | 4    | 151   |
| 1881-88 . . .  | 145                 | 18        | 6    | 5      | 4    | 178   |
| 88 years . . . | 419                 | 51        | 31   | 11     | 15   | 527   |

Prussia has the lion's share of the mining industry, as appears from the returns for 1888, viz. :—

|               | Coal Raised, Tons | Value of all Minerals, £ | Ratio | Pig Iron, Tons |
|---------------|-------------------|--------------------------|-------|----------------|
| Prussia . . . | 72,700,000        | 20,600,000               | 83.0  | 3,100,000      |
| Saxony . . .  | 5,200,000         | 2,200,000                | 9.0   | 300,000        |
| Other States  | 4,100,000         | 1,900,000                | 8.0   | 940,000        |
| Total . . .   | 82,000,000        | 24,700,000               | 100.0 | 4,340,000      |

There are 77 zinc mines in Prussia, which produce half the zinc of the world.

The production of metals was approximately as follows :—

| Year         | Tons      |        |        |         | Total Value, £ |
|--------------|-----------|--------|--------|---------|----------------|
|              | Iron      | Lead   | Copper | Zinc    |                |
| 1850 . . . . | 400,000   | 16,000 | 2,000  | 30,000  | 4,400,000      |
| 1860 . . . . | 900,000   | 30,000 | 3,000  | 59,000  | 7,500,000      |
| 1870 . . . . | 1,340,000 | 54,000 | 5,000  | 65,000  | 12,000,000     |
| 1880 . . . . | 2,800,000 | 86,000 | 14,000 | 100,000 | 14,400,000     |
| 1888 . . . . | 4,400,000 | 92,000 | 18,000 | 130,000 | 18,500,000     |

Official statements of the production and consumption of the following metals show thus :—

|              | Production, Tons |         | Consumption, Tons |         |
|--------------|------------------|---------|-------------------|---------|
|              | 1871             | 1886    | 1871              | 1886    |
| Lead . . .   | 54,000           | 92,000  | 39,000            | 56,000  |
| Copper . . . | 4,600            | 18,200  | 15,500            | 23,500  |
| Zinc . . .   | 65,000           | 130,000 | 29,000            | 70,000  |
| Tin . . .    | 100              | 100     | 2,500             | 6,500   |
| Total . . .  | 123,700          | 240,300 | 86,000            | 156,000 |

## RUSSIA

The mining product is shown approximately thus :—

| Year | Tons      |          |            |           |           |
|------|-----------|----------|------------|-----------|-----------|
|      | Coal      | Iron Ore | Copper Ore | Salt      | Naphtha   |
| 1840 | 10,000    | 110,000  | 60,000     | 440,000   | ...       |
| 1850 | 50,000    | 160,000  | 80,000     | 400,000   | ...       |
| 1860 | 130,000   | 180,000  | 90,000     | 420,000   | ...       |
| 1870 | 700,000   | 250,000  | 100,000    | 450,000   | ...       |
| 1880 | 4,100,000 | 650,000  | 100,000    | 780,000   | 350,000   |
| 1888 | 5,000,000 | 800,000  | 100,000    | 1,200,000 | 2,000,000 |

All the above are, however, of minor value compared with the gold-fields, which are mostly situated in Siberia, the product of precious metals showing as follows :—

| Period   | Tons  |        | Value, £    |            |             |
|----------|-------|--------|-------------|------------|-------------|
|          | Gold  | Silver | Gold        | Silver     | Total       |
| 1821-30  | 33    | 200    | 4,600,000   | 1,600,000  | 6,200,000   |
| 1831-40  | 69    | 250    | 9,800,000   | 2,200,000  | 12,000,000  |
| 1841-50  | 217   | 230    | 30,400,000  | 2,500,000  | 32,900,000  |
| 1851-60  | 256   | 170    | 35,800,000  | 1,500,000  | 37,300,000  |
| 1861-70  | 271   | 150    | 38,000,000  | 1,300,000  | 39,300,000  |
| 1871-80  | 380   | 130    | 53,200,000  | 1,000,000  | 54,200,000  |
| 1881-88  | 280   | 90     | 39,200,000  | 600,000    | 39,800,000  |
| 68 years | 1,506 | 1,220  | 211,000,000 | 10,700,000 | 221,700,000 |

The regular mining of precious metals began in Siberia in 1704, silver being the first metal found. Gold was discovered in the Ural Mountains in 1745, near Ekaterinenberg, and in 1810 these mines were producing 10,000 oz., worth £40,000 per annum. From 1814 to 1880 the yield of the various gold mines was :—

|                    | Tons  | Value, £    |
|--------------------|-------|-------------|
| Ural . . .         | 330   | 46,200,000  |
| East Siberia . . . | 790   | 110,600,000 |
| West Siberia . . . | 80    | 11,200,000  |
| Total . . .        | 1,200 | 168,000,000 |

An official report of mining for Austria proper in 1887 showed :—

|                | Tons       |                 |            | Value, £  |                 |           |
|----------------|------------|-----------------|------------|-----------|-----------------|-----------|
|                | Bohemia    | Other Provinces | Total      | Bohemia   | Other Provinces | Total     |
| Coal . . .     | 3,500,000  | 4,300,000       | 7,800,000  | 800,000   | 1,000,000       | 1,800,000 |
| Lignite . . .  | 8,900,000  | 2,700,000       | 11,600,000 | 900,000   | 600,000         | 1,500,000 |
| Iron ore . . . | 300,000    | 540,000         | 840,000    | 120,000   | 160,000         | 280,000   |
| Salt . . .     | ...        | 280,000         | 280,000    | ...       | 280,000         | 280,000   |
| Lead, &c. . .  | 200,000    | 120,000         | 320,000    | 300,000   | 500,000         | 800,000   |
| Total . . .    | 12,900,000 | 7,940,000       | 20,840,000 | 2,040,000 | 2,500,000       | 4,540,000 |

The total mining product of Russia in the nineteenth century may be summed up approximately thus :—

| Period         | Millions Sterling |                   |       |
|----------------|-------------------|-------------------|-------|
|                | Gold and Silver   | Copper, Coal, &c. | Total |
| 1801-20 . . .  | 3                 | 1                 | 4     |
| 1821-40 . . .  | 18                | 2                 | 20    |
| 1841-50 . . .  | 33                | 3                 | 36    |
| 1851-60 . . .  | 37                | 3                 | 40    |
| 1861-70 . . .  | 39                | 5                 | 44    |
| 1871-80 . . .  | 54                | 12                | 66    |
| 1881-88 . . .  | 40                | 16                | 56    |
| 88 years . . . | 224               | 42                | 266   |

The production of base metals in 1886 was as follows :—

|              | Tons    | Approximate Value, £ |
|--------------|---------|----------------------|
| Iron . . .   | 530,000 | 1,600,000            |
| Copper . . . | 4,500   | 400,000              |
| Zinc . . .   | 4,100   | 60,000               |
| Total . . .  | 538,600 | 2,060,000            |

The annual value of all mining and metallic industries is about 15 millions sterling. They occupy 250,000 persons and 3450 steam-engines, with an aggregate of 100,000 horse-power.

## AUSTRIA

Mining industry is summed up approximately thus :—

| Year       | Tons       |           |            |          |
|------------|------------|-----------|------------|----------|
|            | Coal       | Iron Ore  | Copper Ore | Lead Ore |
| 1840 . . . | 400,000    | 180,000   | 5,000      | 10,000   |
| 1860 . . . | 3,500,000  | 500,000   | 10,000     | 15,000   |
| 1880 . . . | 16,100,000 | 1,100,000 | 15,000     | 15,000   |
| 1888 . . . | 20,000,000 | 1,800,000 | 15,000     | 15,000   |

In 1834 the following report was published :—

|                  | Mining Output, Tons |         |         |
|------------------|---------------------|---------|---------|
|                  | Austria             | Hungary | Total   |
| Coal . . .       | 170,000             | 20,000  | 190,000 |
| Iron, pig . . .  | 70,000              | 15,000  | 85,000  |
| Salt . . .       | 160,000             | 100,000 | 260,000 |
| Lead ore . . .   | 4,000               | 1,000   | 5,000   |
| Copper ore . . . | 200                 | 2,000   | 2,200   |
| Total . . .      | 404,200             | 138,000 | 542,200 |

In 1850 the mines of the Empire were estimated to yield as follows :—

|                | Tons      |
|----------------|-----------|
| Coal . . .     | 2,000,000 |
| Iron ore . . . | 280,000   |
| Salt . . .     | 600,000   |
| Lead, &c. . .  | 24,000    |
|                | 2,904,000 |

The hands employed in the above mines in 1887 were:—

|                      | Men           | Women         | Total          |
|----------------------|---------------|---------------|----------------|
| Coal . . . .         | 36,600        | 6,000         | 42,600         |
| Lignite . . . .      | 30,000        | 2,500         | 32,500         |
| Iron . . . .         | 4,000         | 100           | 4,100          |
| Salt, &c. . . .      | 22,200        | 3,300         | 25,500         |
| <b>Total . . . .</b> | <b>92,800</b> | <b>11,900</b> | <b>104,700</b> |
| Bohemia . . . .      | 42,000        | 4,500         | 46,500         |
| Silesia . . . .      | 13,600        | 2,800         | 16,400         |
| Galitzia . . . .     | 12,200        | 1,000         | 13,200         |
| Styria, &c. . . .    | 25,000        | 3,600         | 28,600         |
| <b>Total . . . .</b> | <b>92,800</b> | <b>11,900</b> | <b>104,700</b> |

A report on the production of minerals and metals in Hungary showed thus:—

|                      | 1864           | 1874             | 1883             |
|----------------------|----------------|------------------|------------------|
|                      | Tons           | Tons             | Tons             |
| Coal . . . .         | 350,000        | 620,000          | 900,000          |
| Lignite . . . .      | 250,000        | 780,000          | 1,500,000        |
| Pig iron . . . .     | 120,000        | 170,000          | 180,000          |
| Copper . . . .       | 2,200          | 1,000            | 1,000            |
| Lead . . . .         | 1,500          | 1,500            | 2,000            |
| <b>Total . . . .</b> | <b>723,700</b> | <b>1,572,500</b> | <b>2,583,000</b> |

There was also a yield of £200,000 worth of gold and £100,000 of silver.

The mining values in 1886 were stated thus:—

|                      | Austria          | Hungary          | Total            |
|----------------------|------------------|------------------|------------------|
|                      | £                | £                | £                |
| Coal . . . .         | 1,800,000        | 400,000          | 2,200,000        |
| Lignite . . . .      | 1,800,000        | 400,000          | 2,200,000        |
| Pig iron . . . .     | 1,800,000        | 800,000          | 2,600,000        |
| Lead, &c. . . .      | 1,400,000        | 600,000          | 2,000,000        |
| <b>Total . . . .</b> | <b>6,800,000</b> | <b>2,200,000</b> | <b>9,000,000</b> |

This table confuses the values of minerals and metals; the actual value was—minerals £5,400,000, metals £3,600,000.

#### ITALY

The production of iron ore is recorded as follows:—

| Year         | Tons    | Value, £ |
|--------------|---------|----------|
| 1850 . . . . | 64,000  | 36,000   |
| 1860 . . . . | 71,000  | 40,000   |
| 1870 . . . . | 74,000  | 42,000   |
| 1887 . . . . | 230,000 | 100,000  |

The mining industry of Spain in the last 28 years may be summed up approximately as follows:—

| Period                  | Coal              | Ironstone         | Copper Ore        | Lead Ore          | Zinc Ore         | Quicksilver      | Total             |
|-------------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|-------------------|
| 1861-70 . . . .         | 3,000,000         | 2,000,000         | 1,500,000         | 2,500,000         | 1,000,000        | 10,000           | 10,010,000        |
| 1871-80 . . . .         | 6,000,000         | 10,400,000        | 3,800,000         | 2,000,000         | 1,000,000        | 10,000           | 23,210,000        |
| 1881-88 . . . .         | 8,600,000         | 37,100,000        | 5,300,000         | 1,500,000         | 800,000          | 10,000           | 53,310,000        |
| <b>28 years . . . .</b> | <b>17,600,000</b> | <b>49,500,000</b> | <b>10,600,000</b> | <b>6,000,000</b>  | <b>2,800,000</b> | <b>30,000</b>    | <b>86,530,000</b> |
| <b>Value, £</b>         |                   |                   |                   |                   |                  |                  |                   |
| 1861-70 . . . .         | 1,000,000         | 800,000           | 2,400,000         | 7,500,000         | 2,000,000        | 2,000,000        | 15,700,000        |
| 1871-80 . . . .         | 2,000,000         | 4,200,000         | 6,000,000         | 6,000,000         | 2,000,000        | 2,000,000        | 22,200,000        |
| 1881-88 . . . .         | 2,800,000         | 13,000,000        | 8,400,000         | 4,500,000         | 1,600,000        | 2,000,000        | 32,300,000        |
| <b>28 years . . . .</b> | <b>5,800,000</b>  | <b>18,000,000</b> | <b>16,800,000</b> | <b>18,000,000</b> | <b>5,600,000</b> | <b>6,000,000</b> | <b>70,200,000</b> |

The returns for 1877 and 1887 compare as follows:—

|                      | Tons           |                  | Value, £         |                  |
|----------------------|----------------|------------------|------------------|------------------|
|                      | 1877           | 1887             | 1877             | 1887             |
| Sulphur . . . .      | 130,000        | 340,000          | 1,050,000        | 950,000          |
| Iron ore . . . .     | 110,000        | 230,000          | 110,000          | 100,000          |
| Zinc ore . . . .     | 45,000         | 90,000           | 180,000          | 250,000          |
| Lead ore . . . .     | 18,000         | 40,000           | 440,000          | 280,000          |
| Sundries . . . .     | 21,000         | 470,000          | 260,000          | 420,000          |
| <b>Total . . . .</b> | <b>324,000</b> | <b>1,170,000</b> | <b>2,040,000</b> | <b>2,000,000</b> |

In 1877 the number of miners was 41,000, and in 1887 it was 47,000. This is exclusive of marble quarries which employ 20,000 men, and have an annual output of a million sterling.

#### SPAIN

An official report of mining products in 1780 was as follows:—

|                      | Tons          | Value, £       |
|----------------------|---------------|----------------|
| Iron . . . .         | 9,000         | 70,000         |
| Lead . . . .         | 1,600         | 30,000         |
| Quicksilver . . . .  | 900           | 180,000        |
| Antimony, &c. . . .  | 500           | 30,000         |
| <b>Total . . . .</b> | <b>12,000</b> | <b>310,000</b> |

A report published in 1863 was as follows:—

|                    | <i>Tons</i> |                     | <i>Tons</i> |
|--------------------|-------------|---------------------|-------------|
| Coal . . . .       | 320,000     | Ironstone . . . .   | 170,000     |
| Salt . . . .       | 3,800,000   | Zinc ore . . . .    | 110,000     |
| Copper ore . . . . | 140,000     | Sulphur . . . .     | 23,000      |
| Lead ore . . . .   | 310,000     | Quicksilver . . . . | 1,000       |

In 1887 the export of minerals showed:—

|                      | Tons             | Value, £         |
|----------------------|------------------|------------------|
| Iron Ore . . . .     | 5,200,000        | 1,800,000        |
| Copper Ore . . . .   | 800,000          | 1,200,000        |
| Lead . . . .         | 63,000           | 900,000          |
| Quicksilver . . . .  | 1,300            | 300,000          |
| Sundries . . . .     | 300,000          | 500,000          |
| <b>Total . . . .</b> | <b>6,364,000</b> | <b>4,700,000</b> |

The mines employed 57,000 hands in 1887.

There has been of late years a great increase in the production of coal, ironstone and copper, but a decline in lead.

## BELGIUM

The official records for 48 years show as follows:—

| Year       | Tons Raised |         |            | Value, £  |         |           | Miners | Tons Coal per Collier |
|------------|-------------|---------|------------|-----------|---------|-----------|--------|-----------------------|
|            | Coal        | Iron    | Total      | Coal      | Iron    | Total     |        |                       |
| 1840 . . . | 3,900,000   | 200,000 | 4,100,000  | 1,800,000 | 100,000 | 1,900,000 | ...    | ...                   |
| 1850 . . . | 5,800,000   | 300,000 | 6,100,000  | 1,800,000 | 100,000 | 1,900,000 | 42,100 | 121                   |
| 1860 . . . | 9,600,000   | 800,000 | 10,400,000 | 4,300,000 | 300,000 | 4,600,000 | 71,100 | 123                   |
| 1870 . . . | 13,700,000  | 700,000 | 14,400,000 | 6,000,000 | 200,000 | 6,200,000 | 79,800 | 149                   |
| 1880 . . . | 16,900,000  | 300,000 | 17,200,000 | 6,800,000 | 100,000 | 6,900,000 | 81,400 | 164                   |
| 1887 . . . | 18,400,000  | 200,000 | 18,600,000 | 5,950,000 | 50,000  | 6,000,000 | 77,000 | 182                   |

There are, moreover, stone quarries, whose product is valued at £1,300,000 per annum.

## SWEDEN AND NORWAY

The mining products of Sweden may be summed up as 900,000 tons of iron ore and 300,000 tons of coal; the mines employ 29,000 persons. The production of iron ore has trebled since 1850. Norway has 28 mines, employing 2000 hands, the output averaging £180,000 per annum. The mining returns of Sweden for 1870 and 1887 compare thus:—

|                  | Tons Ore |         |
|------------------|----------|---------|
|                  | 1870     | 1887    |
| Iron . . . . .   | 700,000  | 900,000 |
| Copper . . . . . | 2,000    | 1,000   |
| Zinc . . . . .   | 33,000   | 50,000  |

Of precious metals Sweden raised in 1870 gold to the value of £150,000 and silver worth £10,000; in 1887 silver represented £40,000 sterling.

## GREECE

The lead mines of Laurium have been worked for many years by a French company, producing 1,200,000 tons ore in twelve years ending 1888, one half of which was smelted near the mines. Small quantities of zinc ore are also raised in Greece. The total value of mineral products is about £600,000 yearly.

## UNITED STATES

The following table shows the date of discovery and the commencement of mining of certain minerals:—

|                       | Place         | Discovered | Began Mining |
|-----------------------|---------------|------------|--------------|
| Iron . . . . .        | Virginia      | 1610       | 1663         |
| Copper . . . . .      | Massachusetts | 1632       | 1648         |
| Coal . . . . .        | Pennsylvania  | 1768       | 1784         |
| Lead . . . . .        | ...           | 1823       | 1829         |
| Petroleum . . . . .   | Pennsylvania  | 1826       | 1845         |
| Gold . . . . .        | California    | 1849       | 1849         |
| Silver . . . . .      | Nevada        | 1858       | 1859         |
| Quicksilver . . . . . | California    | 1860       | 1860         |

The first iron-foundry was at Lynn, Massachusetts, the first copper smelting-works at Salem in the same State. In 1660 the Dutch worked copper mines in New Jersey, and about the same time the French Jesuits at Lake Superior. A cargo of ninety tons of copper was shipped from New York in 1766, but little progress was made until 1843, when the United States Government bought the Lake Superior copper-fields from the Chippeway Indians. The production of lead in 1829 was 7200 tons. The first regular oil-wells were found near Pittsburg, Pennsylvania, in 1845 (see *Oil*). Gold was discovered at Sutor's Mill, California, in 1849, silver by J. H. Comstock and James Phinney at Storey Co., Nevada, in 1858; small quantities of gold had been found in the Southern States previously.

The following table shows approximately the principal

mining products (except gold and silver) at various dates:—

| Year | Tons        |            |            |          |             |
|------|-------------|------------|------------|----------|-------------|
|      | Coal        | Iron Ore   | Copper Ore | Lead Ore | Total       |
| 1830 | 1,300,000   | 400,000    | ...        | 7,000    | 1,707,000   |
| 1840 | 1,800,000   | 600,000    | ...        | 10,000   | 2,410,000   |
| 1850 | 8,000,000   | 1,200,000  | 5,000      | 50,000   | 9,255,000   |
| 1860 | 15,000,000  | 1,600,000  | 40,000     | 80,000   | 16,720,000  |
| 1870 | 33,000,000  | 3,200,000  | 80,000     | 100,000  | 36,380,000  |
| 1880 | 70,500,000  | 8,000,000  | 120,000    | 150,000  | 78,770,000  |
| 1889 | 142,000,000 | 13,300,000 | 600,000    | 250,000  | 156,150,000 |

The production of precious metals is shown as follows:—

| Period         | Tons  |        | Value, Millions £ Sterling |        |       |
|----------------|-------|--------|----------------------------|--------|-------|
|                | Gold  | Silver | Gold                       | Silver | Total |
| 1851-60 . . .  | 830   | 7      | 116                        | ...    | 116   |
| 1861-70 . . .  | 713   | 2,375  | 100                        | 20     | 120   |
| 1871-80 . . .  | 620   | 7,750  | 87                         | 62     | 149   |
| 1881-88 . . .  | 373   | 8,860  | 52                         | 62     | 114   |
| 38 years . . . | 2,536 | 18,992 | 355                        | 144    | 502   |

The total value of mining products in 88 years was approximately as follows:—

| Period         | Millions £ Sterling |        |           |        |      |           |       |
|----------------|---------------------|--------|-----------|--------|------|-----------|-------|
|                | Gold                | Silver | Ironstone | Copper | Lead | Petroleum | Total |
| 1801-40 . . .  | 1                   | ...    | 3         | ...    | 1    | ...       | 12    |
| 1841-50 . . .  | 8                   | ...    | 3         | 1      | 3    | ...       | 33    |
| 1851-60 . . .  | 116                 | ...    | 5         | 3      | 6    | 3         | 173   |
| 1861-70 . . .  | 100                 | 20     | 9         | 5      | 8    | 17        | 252   |
| 1871-80 . . .  | 87                  | 62     | 18        | 9      | 11   | 33        | 391   |
| 1881-88 . . .  | 52                  | 62     | 29        | 26     | 13   | 37        | 513   |
| 88 years . . . | 364                 | 144    | 67        | 44     | 42   | 90        | 1,374 |

The production of metallic copper and lead, according to Keller, was as follows:—

| Year           | Copper |                | Lead    |      |
|----------------|--------|----------------|---------|------|
|                | Tons   | Year           | Tons    | Year |
| 1845 . . . . . | 100    | 1852 . . . . . | 9,100   |      |
| 1850 . . . . . | 650    | 1862 . . . . . | 21,800  |      |
| 1855 . . . . . | 3,000  | 1872 . . . . . | 14,300  |      |
| 1860 . . . . . | 7,300  | 1882 . . . . . | 12,900  |      |
| 1865 . . . . . | 8,600  |                | 23,500  |      |
| 1870 . . . . . | 12,800 |                | 54,100  |      |
| 1875 . . . . . | 18,300 |                | 82,600  |      |
| 1880 . . . . . | 27,400 |                | 88,700  |      |
| 1882 . . . . . | 41,600 |                | 120,000 |      |

About 60 per cent. of the copper comes from the Lake Superior fields above mentioned, which produced 190,000 tons of metallic copper in the ten years ending 1887

Official returns for 1888 are as follows :—

|                     | Metallic Products |            |                     | Non-Metallic |            |
|---------------------|-------------------|------------|---------------------|--------------|------------|
|                     | Tons              | Value, £   |                     | Tons         | Value, £   |
| Pig iron . . . . .  | 6,500,000         | 22,200,000 | Coal . . . . .      | 142,040,000  | 47,100,000 |
| Copper . . . . .    | 105,000           | 7,100,000  | Stone . . . . .     | ...          | 5,300,000  |
| Lead . . . . .      | 160,000           | 3,300,000  | Lime . . . . .      | 4,500,000    | 5,100,000  |
| Zinc . . . . .      | 50,000            | 1,100,000  | Cement . . . . .    | 900,000      | 900,000    |
| Gold, oz. . . . .   | 1,600,000         | 6,800,000  | Salt . . . . .      | 1,050,000    | 900,000    |
| Silver, oz. . . . . | 45,800,000        | 12,300,000 | Petroleum . . . . . | 5,500,000    | 5,100,000  |
| Sundries . . . . .  | ...               | 300,000    | Sundries . . . . .  | ...          | 7,000,000  |
| Total . . . . .     | ...               | 53,100,000 | Total . . . . .     | ...          | 71,400,000 |

Mining and metallic industries together represent 125 millions sterling, but this allows an excessive value for silver, from which a deduction of £2,000,000 should be made.

#### AUSTRALIA

The official report by Mr. Coghlan shows the total value of minerals extracted in thirty-eight years down to 1888 was as follows :—

|                             | £ Sterling  |           |            |            |            |             |
|-----------------------------|-------------|-----------|------------|------------|------------|-------------|
|                             | Gold        | Silver    | Copper     | Tin        | Coal       | Total       |
| New South Wales . . . . .   | 37,200,000  | 2,900,000 | 5,400,000  | 8,500,000  | 22,300,000 | 76,300,000  |
| Victoria . . . . .          | 222,500,000 | 100,000   | 200,000    | 700,000    | ...        | 223,500,000 |
| Queensland . . . . .        | 21,300,000  | 400,000   | 1,700,000  | 5,100,000  | 900,000    | 29,400,000  |
| South Australia . . . . .   | 900,000     | ...       | 19,200,000 | ...        | ...        | 20,100,000  |
| New Zealand . . . . .       | 44,800,000  | 100,000   | ...        | ...        | 2,700,000  | 47,600,000  |
| Tasmania . . . . .          | 2,000,000   | ...       | ...        | 4,400,000  | 200,000    | 6,600,000   |
| Western Australia . . . . . | 200,000     | 300,000   | 500,000    | ...        | ...        | 1,000,000   |
| Total . . . . .             | 328,900,000 | 3,800,000 | 26,000,000 | 18,700,000 | 26,100,000 | 404,500,000 |

The quantities of gold extracted were as follows :—

| Colony                      | Gold Found | Ounces Extracted | Value, £    |
|-----------------------------|------------|------------------|-------------|
| New South Wales . . . . .   | 1851       | 9,973,000        | 37,200,000  |
| Victoria . . . . .          | 1851       | 55,636,000       | 222,500,000 |
| South Australia . . . . .   | 1852       | 248,000          | 900,000     |
| Tasmania . . . . .          | 1852       | 533,000          | 2,000,000   |
| Queensland . . . . .        | 1858       | 6,089,000        | 21,300,000  |
| New Zealand . . . . .       | 1858       | 11,422,000       | 44,800,000  |
| Western Australia . . . . . | 1886       | 55,000           | 200,000     |
| Total . . . . .             | ...        | 83,955,000       | 328,900,000 |

The values of gold produced and exported were as follows :—

| Period             | Produced, £  | Exported, £ |
|--------------------|--------------|-------------|
| 1851-60 . . . . .  | 118,000,000  | 97,500,000  |
| 1861-70 . . . . .  | 95,000,000   | 97,900,000  |
| 1871-80 . . . . .  | 81,000,000   | 65,200,000  |
| 1881-88 . . . . .  | 35,000,000   | 33,200,000  |
| 38 years . . . . . | 329,000,000* | 293,800,000 |

Copper was first found in South Australia in 1843, tin in New South Wales in 1872, and silver in the latter colony in 1881. The first coal was raised in New South Wales in 1847, namely, 40,000 tons, the product now reaching 4,200,000 tons.

\* In the article on gold and silver (p. 306), it will be seen that the gold yield of Australia for the said thirty-eight years is put down at 322 millions sterling. Liversidge makes the yield of coal 44 million tons to 1888.

The yield of gold-fields in 1888 was as follows :—

|                             | Gold, Oz. | Value, £  | No. of Miners | Oz. per Man |
|-----------------------------|-----------|-----------|---------------|-------------|
| New South Wales . . . . .   | 88,000    | 320,000   | 8,300         | 10.6        |
| Victoria . . . . .          | 625,000   | 2,500,000 | 25,100        | 25.0        |
| Queensland . . . . .        | 482,000   | 1,700,000 | 9,300         | 52.0        |
| South Australia . . . . .   | 17,000    | 70,000    | 400           | 39.0        |
| Tasmania . . . . .          | 40,000    | 150,000   | 900           | 44.0        |
| New Zealand . . . . .       | 201,000   | 800,000   | 9,400         | 21.5        |
| Western Australia . . . . . | 50,000    | 200,000   | 800           | 62.0        |
| Total . . . . .             | 1,502,000 | 5,740,000 | 54,200        | 27.5        |

The largest nuggets on record are :—

| Name             | Locality | Oz.   | Value, £ | Date          |
|------------------|----------|-------|----------|---------------|
| Welcome Stranger | Ballarat | 2,020 | 8,380    | 9th June 1858 |
|                  | ...      | 2,280 | 9,460    | 9th Feb. 1869 |

The deepest mines are Magdala, Stawell, 2409 feet, and Lansell's, Sandhurst, 2640 feet.

#### SOUTH AFRICA

The Transvaal gold-fields, recently discovered, promise to be very productive, the value extracted in 1889 reaching £1,300,000 sterling.

#### BOLIVIA

In 1883 the extraction of silver was as follows :—

|                        | Oz.        | Value, £  |
|------------------------|------------|-----------|
| Huanchaca . . . . .    | 5,600,000  | 900,000   |
| Potosi . . . . .       | 1,200,000  | 200,000   |
| Oruro . . . . .        | 1,200,000  | 200,000   |
| Aullagas . . . . .     | 3,200,000  | 500,000   |
| Guadalupe, &c. . . . . | 4,800,000  | 800,000   |
| Total . . . . .        | 16,000,000 | 2,600,000 |

## MINING

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## MONEY

The Potosi mines yielded 600 millions sterling in 320 years.

### CANADA

The mining products in 1887 were :—

|                    | Tons      | Value, £  |
|--------------------|-----------|-----------|
| Coal . . . . .     | 2,100,000 | 1,000,000 |
| Gold . . . . .     | ...       | 200,000   |
| Sandries . . . . . | ...       | 1,800,000 |
| Total . . . . .    | ...       | 3,000,000 |

### MEXICO

There are 350 mines, which are said to occupy 100,000 men. In sixty years ending 1880 were raised 180 millions sterling worth of silver, and nearly one million sterling of gold. The mines are supposed at present to stand for a capital of 6 millions sterling. According to Messdaglia, the mines yielded in 383 years, to 1875, as follows :—

|                  | Tons   | Value, £    |
|------------------|--------|-------------|
| Gold . . . . .   | 265    | 36,000,000  |
| Silver . . . . . | 76,200 | 677,000,000 |
| Total . . . . .  | 76,465 | 713,000,000 |

### ARGENTINA

Rickard's report in 1869 showed 2700 men employed in various mines. The product was 3000 oz. gold, 44,000 oz. silver, 700 tons copper, and 1000 tons lead; total value £70,000 per annum, the capital employed being £300,000.

In 1885 the yield of the mines was estimated thus :—

|                             |        | £       |
|-----------------------------|--------|---------|
| Catamarca . . . . .         | Copper | 70,000  |
| San Juan . . . . .          | Silver | 40,000  |
| Mendoza . . . . .           | "      | 40,000  |
| Cordoba and Rioja . . . . . | "      | 64,000  |
| Total . . . . .             |        | 214,000 |

The actual yield is supposed at present to barely reach £150,000.

### CHILE

Copper is the most important mineral, and the ores extracted since 1850 are supposed to be equivalent to the following quantities of fine copper :—

| Period             | Tons      | Value, £   |
|--------------------|-----------|------------|
| 1851-60 . . . . .  | 190,000   | 15,200,000 |
| 1861-70 . . . . .  | 270,000   | 20,500,000 |
| 1871-80 . . . . .  | 330,000   | 20,300,000 |
| 1881-88 . . . . .  | 300,000   | 18,000,000 |
| 38 years . . . . . | 1,090,000 | 74,000,000 |

In late years nitrate has obtained importance, shipments rising from 350,000 tons in 1885 to 800,000 in 1888. The coal-fields are supposed to yield 10 million tons yearly; and the silver mines 5 million oz. of that metal, worth £800,000.

### VENEZUELA

The latest reports show as follows :—

|                  | Oz.     | Value, £  |
|------------------|---------|-----------|
| Gold . . . . .   | 250,000 | 900,000   |
| Copper . . . . . | ...     | 150,000   |
| Total . . . . .  | ...     | 1,050,000 |

## MONEY

The amount of money in use among nations at various dates was (excluding copper and nickel, which are of trifling value) approximately as follows :—

|                | Millions £ Sterling |        |       |       |
|----------------|---------------------|--------|-------|-------|
|                | Gold                | Silver | Paper | Total |
| 1600 . . . . . | 29                  | 102    | ...   | 131   |
| 1700 . . . . . | 75                  | 225    | 1     | 301   |
| 1800 . . . . . | 126                 | 360    | 82    | 568   |
| 1848 . . . . . | 157                 | 388    | 260   | 805   |
| 1860 . . . . . | 340                 | 480    | 360   | 1,180 |
| 1890 . . . . . | 830                 | 801    | 771   | 2,402 |

The above includes the paper-money only of Europe, United States, the British Colonies, and the Colonies of France and Spain. No account is taken of the depreciated currency of South America, the value of which is merely conventional, and for the most part ideal.

The money now in use is approximately as follows :—

|                         | Millions £ Sterling |        |       |       |                  |
|-------------------------|---------------------|--------|-------|-------|------------------|
|                         | Gold                | Silver | Paper | Total | £ per Inhabitant |
| Great Britain . . . . . | 102                 | 22     | 39    | 163   | 4.4              |
| France . . . . .        | 178                 | 150    | 115   | 443   | 11.8             |
| Germany . . . . .       | 122                 | 45     | 71    | 238   | 5.0              |
| Russia . . . . .        | 39                  | 14     | 123   | 176   | 2.1              |
| Austria . . . . .       | 8                   | 19     | 76    | 103   | 2.6              |
| Italy . . . . .         | 22                  | 11     | 57    | 90    | 3.0              |
| Spain . . . . .         | 19                  | 24     | 30    | 73    | 4.2              |
| Portugal . . . . .      | 9                   | 2      | 1     | 12    | 2.7              |
| Scandinavia . . . . .   | 6                   | 2      | 13    | 21    | 2.8              |
| Holland . . . . .       | 5                   | 13     | 17    | 35    | 7.7              |
| Belgium . . . . .       | 11                  | 11     | 15    | 37    | 6.1              |
| Switzerland . . . . .   | 3                   | 3      | 6     | 12    | 4.0              |
| Turkey, &c. . . . .     | 17                  | 12     | 9     | 38    | 3.4              |
| Europe . . . . .        | 541                 | 328    | 572   | 1,441 | 4.0              |
| United States . . . . . | 141                 | 87     | 208   | 436   | 7.0              |
| Canada . . . . .        | 3                   | 1      | 6     | 10    | 2.0              |
| Australia . . . . .     | 22                  | 2      | 6     | 30    | 8.2              |
| Japan . . . . .         | 19                  | 9      | 26    | 54    | 1.4              |
| China . . . . .         | ...                 | 150    | ...   | 150   | 0.5              |
| India . . . . .         | 10                  | 170    | 12    | 192   | 1.0              |
| Java . . . . .          | ...                 | 18     | ...   | 18    | 0.9              |
| Cape Colony . . . . .   | 7                   | ...    | 1     | 8     | 6.0              |
| Egypt . . . . .         | 27                  | 4      | ...   | 31    | 6.2              |
| Algeria . . . . .       | 2                   | 3      | 3     | 8     | 2.0              |
| Cuba . . . . .          | 4                   | ...    | 12    | 16    | 10.0             |
| Various . . . . .       | 14                  | 29     | ...   | 43    | ...              |
| Total . . . . .         | 790                 | 801    | 846   | 2,437 | ...              |

For the amounts of gold and silver coined between 1850 and 1890 see *Gold*.

The amount of uncovered paper-money, according to Spallart, was as follows :—

|                          | Millions £ Sterling |      |      |
|--------------------------|---------------------|------|------|
|                          | 1850                | 1870 | 1885 |
| United Kingdom . . . . . | 15                  | 12   | 12   |
| France . . . . .         | 3                   | 8    | 27   |
| Germany . . . . .        | 2                   | 22   | 25   |
| Russia . . . . .         | 31                  | 91   | 67   |
| Austria . . . . .        | 18                  | 58   | 40   |
| Italy . . . . .          | ...                 | 36   | 34   |
| United States . . . . .  | 15                  | 130  | 65   |
| Various . . . . .        | 4                   | 32   | 72   |
| Total . . . . .          | 88                  | 390  | 342  |

The following table shows approximately the amounts of paper-money at various dates:—

|                      | Millions £ Sterling |      |      |      |
|----------------------|---------------------|------|------|------|
|                      | 1840                | 1860 | 1880 | 1890 |
| United Kingdom . . . | 35                  | 39   | 45   | 39   |
| France . . . . .     | 9                   | 33   | 90   | 115  |
| Germany . . . . .    | 8                   | 25   | 57   | 71   |
| Russia . . . . .     | 70                  | 105  | 115  | 123  |
| Austria . . . . .    | 43                  | 60   | 65   | 76   |
| Italy . . . . .      | 2                   | 6    | 65   | 57   |
| Various . . . . .    | 18                  | 36   | 64   | 91   |
| Europe . . . . .     | 185                 | 304  | 501  | 572  |
| United States . . .  | 20                  | 41   | 144  | 133  |
| Colonies, &c. . . .  | 1                   | 15   | 66   | 69   |
| Total . . . . .      | 206                 | 360  | 711  | 771  |

The above is exclusive of the paper-money of South America, which has a very doubtful value.

Money was first coined by King Pheidon of Argos, 800 B.C., of silver only. Croesus was the first, says Herodotus, to coin gold. Darius coined gold and silver at 13½ units of silver to one of gold.

The principal coins at present in use are:—

#### Gold

| Country       | Name           | Weight | Fineness | Value   |
|---------------|----------------|--------|----------|---------|
|               |                | Oz.    |          | £ s. d. |
| Austria . . . | Ducat . . .    | 0.112  | 986      | 0 9 6   |
| " . . .       | Crown . . .    | 0.357  | 900      | 1 7 8   |
| Bolivia . . . | Doubloon . .   | 0.867  | 870      | 3 5 0   |
| Brazil . . .  | 20-Milrei . .  | 0.575  | 917      | 2 5 6   |
| Chili . . .   | Condor . . .   | 0.492  | 900      | 1 18 2  |
| Denmark . .   | 10-Thaler . .  | 0.427  | 895      | 1 13 0  |
| France . . .  | 20-Francis . . | 0.207  | 899      | 0 16 0  |
| Germany . .   | 10-Thaler . .  | 0.427  | 903      | 1 13 4  |
| Great Britain | Sovereign . .  | 0.257  | 916      | 1 0 0   |
| Greece . . .  | 20-Drachms .   | 0.185  | 900      | 0 14 4  |
| Holland . .   | 10-Guilder . . | 0.215  | 899      | 0 16 8  |
| India . . .   | Mohur . . .    | 0.374  | 916      | 1 9 6   |
| Japan . . .   | Cobang . . .   | 0.362  | 568      | 0 18 6  |
| Persia . . .  | Toman . . .    | ...    | 885      | 0 5 3   |
| Russia . . .  | 5-Rouble . .   | 0.210  | 916      | 0 16 8  |
| Spain . . .   | Alfonso . . .  | 0.268  | 896      | 1 0 8   |
| Sweden . .    | Ducat . . .    | 0.111  | 975      | 0 9 4   |
| Turkey . . .  | 100-Piastres   | 0.231  | 915      | 0 18 2  |

#### Silver

| Country       | Name           | Weight | Fineness | Value   |
|---------------|----------------|--------|----------|---------|
|               |                | Oz.    |          | £ s. d. |
| Austria . . . | Florin . . .   | 0.397  | 900      | 0 2 0   |
| " . . .       | Dollar . . .   | 0.596  | 900      | 0 3 0   |
| Bolivia . . . | Half-dollar .  | 0.432  | 667      | 0 1 8   |
| Brazil . . .  | Milrei . . .   | 0.410  | 918      | 0 2 2   |
| Chili . . .   | Dollar . . .   | 0.801  | 900      | 0 4 1   |
| China . . .   | Tael . . .     | ...    | ...      | 0 6 0   |
| Denmark . .   | 2-Rigsdaler .  | 0.927  | 877      | 0 4 7   |
| France . . .  | 5-Francis . .  | 0.800  | 900      | 0 4 0   |
| Germany . .   | Thaler . . .   | 0.595  | 900      | 0 3 0   |
| Great Britain | Shilling . . . | 0.182  | 925      | 0 1 0   |
| Greece . . .  | 5-Drachms . .  | 0.719  | 900      | 0 3 8   |
| Holland . .   | 2½-Guilder . . | 0.804  | 944      | 0 4 2   |
| India . . .   | Rupree . . .   | 0.374  | 916      | 0 1 10  |
| Japan . . .   | Itzebu . . .   | 0.279  | 890      | 0 1 5   |
| Persia . . .  | Kran . . .     | ...    | ...      | 0 0 6   |
| Russia . . .  | Rouble . . .   | 0.667  | 875      | 0 3 4   |
| Spain . . .   | Peseta . . .   | 0.166  | 899      | 0 0 10  |
| Sweden . .    | Rixdaler . . . | 1.092  | 750      | 0 4 8   |
| Turkey . . .  | 20-Piastres .  | 0.770  | 830      | 0 3 7   |

Some African tribes use cowrie-shells, 200 being value for 1d.

#### UNITED KINGDOM

According to the best economists, the amount of money at various dates was approximately as follows:—

|                | Millions £ Sterling |        |       |       | £ per inhabitant |
|----------------|---------------------|--------|-------|-------|------------------|
|                | Gold                | Silver | Paper | Total |                  |
| 1600 . . . . . | 1                   | 2      | ...   | 3     | 0.6              |
| 1700 . . . . . | 12                  | 4      | 1     | 17    | 3.0              |
| 1800 . . . . . | 37                  | 8      | 25    | 70    | 4.4              |
| 1848 . . . . . | 55                  | 11     | 34    | 100   | 3.7              |
| 1890 . . . . . | 102                 | 22     | 39    | 163   | 4.4              |

The following table shows the principal gold coins in use from the fourteenth century to date:—

| Name              | Date | Nominal Value | In Present Money |
|-------------------|------|---------------|------------------|
|                   |      | £ s. d.       | £ s. d.          |
| Noble . . . . .   | 1345 | 0 6 8         | 1 1 10           |
| Angel . . . . .   | 1465 | 0 6 8         | 0 11 9           |
| Crown . . . . .   | 1530 | 0 5 0         | 0 7 6            |
| Sovereign . . . . | 1551 | 1 10 0        | 1 8 0            |
| Noble . . . . .   | 1600 | 0 15 0        | 0 16 0           |
| Sovereign . . . . | 1626 | 1 0 0         | 1 1 4            |

The amount of gold and silver coined from Henry III. to December 1889 was as follows:—

| Reign           | Gold        | Silver      | Total       | Per Annum  |
|-----------------|-------------|-------------|-------------|------------|
|                 | £           | £           | £           | £          |
| Henry III. . .  | ...         | 3,898       | 3,898       | ...        |
| Edward I. . .   | ...         | 38,603      | 38,603      | 1,100      |
| Edward II. . .  | ...         | 45,751      | 45,751      | 2,300      |
| Edward III. .   | 11,344      | 85,703      | 97,047      | 1,600      |
| Richard II. .   | 3,988       | 2,228       | 6,216       | 300        |
| Henry IV. . .   | 396         | 315         | 711         | ...        |
| Henry V. . .    | 19,746      | 6,924       | 26,670      | 3,000      |
| Henry VI. . .   | 318,444     | 579,225     | 897,669     | 22,000     |
| Edward IV. .    | 10,248      | 47,843      | 58,091      | 2,700      |
| Henry VII. .    | 8,399       | 116,100     | 124,499     | 5,000      |
| Henry VIII. .   | 675,400     | 642,810     | 1,318,210   | 34,500     |
| Mary . . . . .  | ...         | 6,500       | 6,500       | ...        |
| Elizabeth . .   | 795,135     | 4,836,802   | 5,631,937   | 125,000    |
| James I. . .    | 3,666,400   | 1,807,300   | 5,473,700   | 248,000    |
| Charles I. . .  | 3,319,700   | 8,776,545   | 12,096,245  | 502,000    |
| Cromwell . .    | 154,512     | 1,000,000   | 1,154,512   | 115,000    |
| Charles II. .   | 4,177,254   | 3,722,180   | 7,899,434   | 320,000    |
| James II. . .   | 2,113,639   | 2,115,600   | 4,229,239   | 1,410,000  |
| William III. .  | 3,418,060   | 7,094,080   | 10,512,140  | 820,000    |
| Anne . . . . .  | 2,485,100   | 618,200     | 3,103,300   | 255,000    |
| George I. . .   | 8,492,900   | 223,050     | 8,715,950   | 670,000    |
| George II. . .  | 11,662,200  | 304,360     | 11,966,560  | 360,000    |
| George III. .   | 75,447,489  | 6,827,800   | 82,275,289  | 1,370,000  |
| George IV. .    | 36,395,100  | 2,216,168   | 38,611,268  | 3,860,000  |
| William IV. .   | 10,920,035  | 1,122,100   | 12,042,135  | 1,720,000  |
| Victoria . . .  | 312,300,000 | 231,800,000 | 544,100,000 | 10,300,000 |
| Total . . . . . | 476,390,489 | 274,040,085 | 750,430,574 | ...        |

Henry III. coined at Canterbury, Edward III. at York and Calais, Edward IV. at Bristol, the rest mostly at London. The coinage, however, of the present reign has been as follows:—

| At              | Gold, £     | Silver, £   | Total, £    |
|-----------------|-------------|-------------|-------------|
| London . . .    | 207,000,000 | 25,800,000  | 232,800,000 |
| Sydney . . .    | 61,300,000  | ...         | 61,300,000  |
| Melbourne . .   | 42,000,000  | ...         | 42,000,000  |
| India . . . . . | 2,000,000   | 206,000,000 | 208,000,000 |
| Total . . . . . | 312,300,000 | 231,800,000 | 544,100,000 |



It appears that Queen Victoria has coined 65 per cent. of the gold and 84 per cent. of the silver struck by British monarchs in 600 years. Shillings were first coined by Henry VIII. in 1544; crowns, half-crowns, sixpences, and threepennies by Edward VI. The percentage of alloy in British coins was as follows:—

| Reigns                   | Per Cent. |
|--------------------------|-----------|
| Henry III. to Henry VII. | 8         |
| Henry VIII.              | 33        |
| Edward VI.               | 25        |

Queen Elizabeth improved the character of the coinage, but reduced the size of all coins: thus 3s. of her money had only the same quality of silver as 1s. of Edward I. The following table shows how much money was coined out of 12 oz. troy weight of either metal in successive reigns:—

| Date | Gold, 12 oz.<br>(24 carats) | Silver, 12 oz.   | Reign       |
|------|-----------------------------|------------------|-------------|
| 1280 | £ s. d.<br>12 10 0          | £ s. d.<br>1 0 3 | Edward I.   |
| 1370 | 15 0 0                      | 1 5 0            | Edward III. |
| 1420 | 16 13 4                     | 1 10 0           | Henry V.    |
| 1470 | 22 10 0                     | 1 17 6           | Edward IV.  |
| 1540 | 30 0 0                      | 2 8 0            | Henry VIII. |
| 1550 | 36 0 0                      | 3 12 0           | Edward VI.  |
| 1590 | 33 0 0                      | 3 12 0           | Elizabeth   |
| 1640 | 44 10 0                     | 3 2 0            | Charles I.  |

The total amount of currency called in by Queen Elizabeth and re-minted was:—

|        | Oz.       | Value, £  |
|--------|-----------|-----------|
| Gold   | 360,000   | 1,080,000 |
| Silver | 4,800,000 | 1,200,000 |

No change was made in the weight or value of coins from 1640 until 1816, in which latter year the pound of silver (12 oz. troy) was ordered to be made into 66s. instead of 62s. as before. The Mint thus established a seignorage or profit of 4s. an ounce on silver, but no charge is made on gold; the expense of coining gold is 10s. per £100. Silver money is legal tender only up to 40s.; gold to any amount.

The paper-money of the United Kingdom has been stationary since 1830, viz.:—

|                      | 1830       | 1890       |
|----------------------|------------|------------|
|                      | £          | £          |
| Bank of England      | 20,100,000 | 24,600,000 |
| Other English banks. | 10,100,000 | 3,000,000  |
| Scotch banks         | 4,000,000  | 5,700,000  |
| Irish banks          | 4,200,000  | 5,800,000  |
| Total                | 38,400,000 | 39,100,000 |

For details of the Bank of England see *Banks*.

The suspension of specie payments caused by the war against Bonaparte began in 1797 and lasted till 1821, the value of a £5 Bank of England note varying as follows:—

#### Gold Value of Bank of England £5 Note

| Years   | Shillings | Years   | Shillings |
|---------|-----------|---------|-----------|
| 1797-99 | 100       | 1813    | 73        |
| 1800-1  | 92        | 1814    | 80        |
| 1802-3  | 96        | 1815    | 84        |
| 1804-8  | 97        | 1816    | 96        |
| 1809    | 91        | 1817    | 98        |
| 1810    | 87        | 1818-19 | 97        |
| 1811    | 83        | 1820    | 100       |
| 1812    | 79        |         |           |

In 1878 the currency of the Bank of England was found to be composed as follows:—

| Value of Note | Number    | Amount      | Ratio per Cent. |
|---------------|-----------|-------------|-----------------|
| £5            | 2,208,000 | £11,040,000 | 39              |
| £10           | 507,000   | 5,070,000   | 18              |
| £20-50-100    | 160,000   | 8,030,000   | 28              |
| £200-300-500  | 7,000     | 2,120,000   | 8               |
| £1000         | 2,000     | 2,000,000   | 7               |
| Total         | 2,884,000 | £28,260,000 | 100             |

The notes cost one halfpenny each. The life of a bank-note in 1880 was under seventy days, the number issued during the year having been 15,260,000 for an aggregate amount of 338 millions, say £22 each. The average in the above table for 1878 is only £10 each.

According to the Mint report for 1890, the gold currency of the United Kingdom consists of about 80 million sovereigns and 45 million half-sovereigns, together £102,500,000.

#### FRANCE

The following is a table of old French coins:—

| Date | Name     | Value             | Date | Name       | Value            |
|------|----------|-------------------|------|------------|------------------|
| 1226 | Angel    | £ s. d.<br>0 11 3 | 1507 | Porcupine  | £ s. d.<br>0 9 0 |
| 1258 | Tournois | 0 0 9             | 1539 | Salamander | 0 9 0            |
| 1289 | Esterlin | 0 0 3             | 1550 | Henri      | 0 9 5            |
| 1294 | Royal    | 0 19 0            | 1575 | Franc      | 0 2 3            |
| 1346 | Couronne | 0 15 0            | 1640 | Louis      | 0 16 8           |
| 1428 | Mouton   | 0 5 6             | 1652 | „ silver   | 0 4 8            |
| 1430 | Royal    | 0 10 4            | 1655 | Lily, gold | 0 10 6           |
| 1435 | Ecu      | 0 8 4             | 1656 | „ silver   | 0 1 5            |

The average value of the mark of silver and that of the livre are shown as follows from the thirteenth century:—

| Date      | Livres in One Mark of Silver | Francs in One Livre |
|-----------|------------------------------|---------------------|
| 1280-1300 | 3                            | 19.00               |
| 1301-50   | 4                            | 14.00               |
| 1351-1400 | 6                            | 9.50                |
| 1401-50   | 8                            | 7.00                |
| 1451-1500 | 11                           | 5.20                |
| 1501-50   | 13                           | 4.50                |
| 1551-1600 | 18                           | 3.20                |
| 1601-50   | 28                           | 2.00                |
| 1651-1700 | 33                           | 1.70                |
| 1701-20   | 40                           | 1.50                |
| 1726-89   | 55                           | 1.00                |

The output of the French Mint in ninety-five years has been as follows:—

| Date      | Gold, £     | Silver, £   | Total, £    | Government    |
|-----------|-------------|-------------|-------------|---------------|
| 1795-1815 | 21,200,000  | 39,800,000  | 61,000,000  | Bonaparte     |
| 1816-30   | 17,600,000  | 49,900,000  | 67,500,000  | Bourbons      |
| 1831-48   | 8,600,000   | 70,300,000  | 78,900,000  | LouisPhilippe |
| 1849-52   | 17,000,000  | 18,400,000  | 35,400,000  | Republic      |
| 1853-70   | 246,000,000 | 25,200,000  | 271,200,000 | Napoleon III. |
| 1871-89   | 40,100,000  | 17,200,000  | 57,300,000  | Republic      |
| 95 years  | 350,500,000 | 220,800,000 | 571,300,000 | ...           |

The amount of currency at various dates was estimated as follows:—

| Year | Gold, £     | Silver, £   | Paper, £    | Total, £    |
|------|-------------|-------------|-------------|-------------|
| 1805 | 3,000,000   | 99,000,000  | 2,000,000   | 104,000,000 |
| 1840 | 4,000,000   | 111,000,000 | 9,000,000   | 124,000,000 |
| 1889 | 178,000,000 | 150,000,000 | 115,000,000 | 443,000,000 |

Paper-money was first issued by John Law: the amount of his notes in 1719 reached 3000 million livres, or about 120 millions sterling.

The issue of assignats under the first Republic reached its maximum in 1790, namely, 9000 millions, or about 360 millions sterling. They fell to less than one-hundredth part of their nominal value: thus, a pair of boots cost 7500, and a pound of butter 750 of these notes.

The currency of the Bank of France in 1883 was as follows:—

| Notes, Francs | Number     | Amount, £   |
|---------------|------------|-------------|
| 5             | 175,000    | 35,000      |
| 20            | 198,000    | 158,000     |
| 25            | 28,000     | 28,000      |
| 50            | 4,725,000  | 9,450,000   |
| 100           | 10,812,000 | 43,248,000  |
| 200           | 3,000      | 24,000      |
| 500           | 625,000    | 12,496,000  |
| 1,000         | 1,263,300  | 50,532,000  |
| 5,000         | 5          | 1,000       |
| Total         | 17,829,305 | 115,972,000 |

## GERMANY

On the reconstitution of the German Empire the currency was remodelled, and the following amounts of coin issued from the Mint:—

| Period   | Gold        | Silver     | Nickel, &c. | Total       |
|----------|-------------|------------|-------------|-------------|
|          | £           | £          | £           | £           |
| 1872-80  | 87,400,000  | 21,600,000 | 2,300,000   | 111,300,000 |
| 1881-89  | 34,100,000  | 1,600,000  | ...         | 35,700,000  |
| 18 years | 121,500,000 | 23,200,000 | 2,300,000   | 147,000,000 |

The total currency in 1889 was approximately thus:—

|                |             |
|----------------|-------------|
| Gold           | 122,000,000 |
| Silver         | 45,000,000  |
| Bank-notes     | 64,300,000  |
| Treasury notes | 6,500,000   |
| Total          | 237,800,000 |

The above, however, includes 22 millions sterling of old silver money no longer in circulation.

## SCANDINAVIA

The total currency may be summed up thus:—

|            | Sweden    | Norway    | Denmark   | Total      |
|------------|-----------|-----------|-----------|------------|
|            | £         | £         | £         | £          |
| Gold       | 2,800,000 | 900,000   | 1,900,000 | 5,600,000  |
| Silver     | 900,000   | 300,000   | 1,000,000 | 2,200,000  |
| Bank-notes | 6,200,000 | 2,400,000 | 4,400,000 | 13,000,000 |
| Total      | 9,900,000 | 3,600,000 | 7,300,000 | 20,800,000 |

## RUSSIA

The Mint issued in forty years down to 1890 as follows:—

|        | Tons  | Value, £    |
|--------|-------|-------------|
| Gold   | 1,102 | 154,100,000 |
| Silver | 2,580 | 23,500,000  |
| Total  | 3,682 | 177,600,000 |

Notwithstanding the Siberian gold mines, which have produced 1500 tons of gold, worth 210 millions sterling, since 1820, Russia has been a prey to inconvertible notes.

These are the result of unscrupulous finances, the Government printing millions of roubles at will. The following table shows the issue:—

| Year | Issue, Millions | Value, Pence | Year | Issue, Millions | Value, Pence |
|------|-----------------|--------------|------|-----------------|--------------|
| 1774 | 20              | 38           | 1843 | 600             | 12           |
| 1786 | 100             | 36           | 1844 | 180             | 35           |
| 1796 | 160             | 24           | 1850 | 310             | 33           |
| 1800 | 210             | 18           | 1860 | 690             | 30           |
| 1810 | 580             | 12           | 1870 | 720             | 28           |
| 1817 | 870             | 9            | 1880 | 1,180           | 24           |
| 1823 | 605             | 10           | 1888 | 1,046           | 22           |

The conversion of 1843 consisted in calling in the old notes, and giving 30 new roubles for 100 old ones. The currency rose in 1890 to 26d. the paper rouble.

## AUSTRIA

This country, like Russia, although producing gold, has been afflicted with inconvertible currency owing to reckless issues of paper-money. The amounts and the rate of exchange were approximately as follows:—

| Date | Currency, Million Florins | Exchange, Pence | Gold Premium per Cent. |
|------|---------------------------|-----------------|------------------------|
| 1788 | 20                        | 24              | ...                    |
| 1802 | 237                       | 10              | 140                    |
| 1811 | 1,060                     | 4               | 500                    |
| 1812 | 212                       | 24              | ...                    |
| 1816 | 639                       | 6               | 300                    |
| 1838 | 200                       | 10              | 140                    |
| 1876 | 635                       | 20              | 20                     |
| 1889 | 762                       | 20              | 20                     |

In 1811, the Empire being bankrupt, the notes were "converted," the holders getting one new note for five old ones, that is, losing 80 per cent. In 1816 the new notes had fallen to 25 per cent. of their nominal value, and a second conversion was made, holders getting two new notes for seven old ones. Thus the holders of 100 florins of currency in 1810 found themselves with six florins in 1817.

The value of the currency in the last twenty-two years has been as follows:—

| Period  | Florin, Pence | Gold Premium per Cent. |
|---------|---------------|------------------------|
| 1867-70 | 19.7          | 22                     |
| 1871-75 | 21.2          | 13                     |
| 1876-80 | 20.2          | 19                     |
| 1881-89 | 19.5          | 23                     |

The paper-money in 1889 was as follows:—

|                | Florins     | £ Nominal  |
|----------------|-------------|------------|
| Bank issue     | 435,000,000 | 43,500,000 |
| Treasury notes | 327,000,000 | 32,700,000 |
| Total          | 762,000,000 | 76,200,000 |

The current of bullion during twenty-five years was as follows:—

| Period   | Imported, £ | Exported, £ |
|----------|-------------|-------------|
| 1863-70  | 23,500,000  | 27,000,000  |
| 1871-80  | 35,300,000  | 26,200,000  |
| 1881-87  | 10,300,000  | 6,500,000   |
| 25 years | 69,100,000  | 59,700,000  |

# MONEY

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# MONEY

The Hungarian Mint turned out in twenty years as follows :—

| Period         | Gold, £   | Silver, £ | Total, £   |
|----------------|-----------|-----------|------------|
| 1867-80 . . .  | 3,100,000 | 7,000,000 | 10,100,000 |
| 1881-86 . . .  | 1,500,000 | 2,900,000 | 4,400,000  |
| 20 years . . . | 4,600,000 | 9,900,000 | 14,500,000 |

The total coinage of the Empire from 1850 to 1890 was as follows :—

|                  | Tons  | Value, £   |
|------------------|-------|------------|
| Gold . . . . .   | 137   | 19,200,000 |
| Silver . . . . . | 5,360 | 48,200,000 |
| Total . . . . .  | ...   | 67,400,000 |

## ITALY

In consequence of the war with Austria in 1866, forced currency was given by the Government to Treasury notes and those of six chartered banks, with the following results :—

| Year           | Aggregate Issue, £ | Specie Reserve, £ | Gold, Premium per Cent. |
|----------------|--------------------|-------------------|-------------------------|
| 1870 . . . . . | 22,000,000         | ...               | ...                     |
| 1874 . . . . . | 35,000,000         | ...               | 13                      |
| 1877 . . . . . | 37,600,000         | 3,000,000         | 10                      |
| 1880 . . . . . | 65,000,000         | ...               | 10                      |
| 1883 . . . . . | 51,000,000         | 25,000,000        | 0                       |
| 1888 . . . . . | 56,800,000         | 11,100,000        | 0                       |

The currency in December 1884 was composed thus :—

| Note, Lire      | Number      | Value, Lire | £ Sterling |
|-----------------|-------------|-------------|------------|
| 1/2 . . . . .   | 7,600,000   | 3,800,000   | 152,000    |
| 1 . . . . .     | 33,300,000  | 33,300,000  | 1,332,000  |
| 2 . . . . .     | 27,300,000  | 54,600,000  | 2,184,000  |
| 5 . . . . .     | 35,400,000  | 177,000,000 | 7,080,000  |
| 10 . . . . .    | 23,500,000  | 235,000,000 | 9,400,000  |
| 20 . . . . .    | 2,160,000   | 43,200,000  | 1,700,000  |
| 100 . . . . .   | 525,000     | 52,500,000  | 2,100,000  |
| 250 . . . . .   | 266,000     | 66,500,000  | 2,660,000  |
| 1,000 . . . . . | 127,000     | 127,000,000 | 5,080,000  |
| Total . . . . . | 130,178,000 | 792,900,000 | 31,688,000 |

In 1888 the total paper issue was :—

|                          |              |
|--------------------------|--------------|
| Treasury notes . . . . . | £ 13,800,000 |
| Bank-notes . . . . .     | 43,000,000   |
| Total . . . . .          | 56,800,000   |

Italy resumed specie payments on April 12, 1883, after a suspension of sixteen years. The total of gold and silver minted in forty years to 1890 was as follows :—

|                  | Tons  | Value, £   |
|------------------|-------|------------|
| Gold . . . . .   | 123   | 17,200,000 |
| Silver . . . . . | 2,530 | 22,800,000 |
| Total . . . . .  | ...   | 40,000,000 |

## BELGIUM

The Mint returns for fifty-eight years show as follows :—

| Period         | Gold, £    | Silver, £  | Total, £   |
|----------------|------------|------------|------------|
| 1832-60 . . .  | 600,000    | 6,400,000  | 7,000,000  |
| 1861-70 . . .  | 7,000,000  | 8,100,000  | 15,100,000 |
| 1871-80 . . .  | 16,000,000 | 7,400,000  | 23,400,000 |
| 1881-89 . . .  | 400,000    | 300,000    | 700,000    |
| 58 years . . . | 24,000,000 | 22,200,000 | 46,200,000 |

Copper and nickel money were also issued to £640,000 worth.

## HOLLAND

The total currency in 1889 was as follows :—

|                          | £          | In Bank, £ |
|--------------------------|------------|------------|
| Gold . . . . .           | 5,000,000  | 2,000,000  |
| Silver . . . . .         | 13,000,000 | 5,000,000  |
| Bank-notes . . . . .     | 17,300,000 | ...        |
| Treasury notes . . . . . | 1,000,000  | ...        |
| Total . . . . .          | 36,300,000 | ...        |

The coinage of forty years down to 1890 was as follows :—

|                  | Tons  | Value, £   |
|------------------|-------|------------|
| Gold . . . . .   | 48    | 6,700,000  |
| Silver . . . . . | 3,290 | 29,700,000 |
| Total . . . . .  | ...   | 36,400,000 |

## SPAIN AND PORTUGAL

In 1888 the currency of these kingdoms was estimated thus :—

|                      | Spain, £   | Portugal, £ | Total, £   |
|----------------------|------------|-------------|------------|
| Gold . . . . .       | 19,000,000 | 9,000,000   | 28,000,000 |
| Silver . . . . .     | 24,000,000 | 2,000,000   | 26,000,000 |
| Bank-notes . . . . . | 29,000,000 | 1,300,000   | 30,300,000 |
| Total . . . . .      | 72,000,000 | 12,300,000  | 84,300,000 |

The total coinage from 1850 to 1881 was :—

|                    | Gold, £    | Silver, £  | Total, £   |
|--------------------|------------|------------|------------|
| Spain . . . . .    | 17,000,000 | 10,000,000 | 27,000,000 |
| Portugal . . . . . | 13,000,000 | 2,000,000  | 15,000,000 |
| Total . . . . .    | 30,000,000 | 12,000,000 | 42,000,000 |

## UNITED STATES

The currency, according to American writers, was estimated at various dates thus :—

| Year           | Coin, £     | Paper, £    | Total, £    |
|----------------|-------------|-------------|-------------|
| 1820 . . . . . | 7,400,000   | 9,400,000   | 16,800,000  |
| 1849 . . . . . | 29,300,000  | 25,000,000  | 54,300,000  |
| 1854 . . . . . | 50,900,000  | 37,500,000  | 88,400,000  |
| 1880 . . . . . | 104,000,000 | 153,000,000 | 257,000,000 |
| 1889 . . . . . | 228,000,000 | 208,000,000 | 436,000,000 |

The components in 1880 and 1889 were as follows in American currency :—

|                          | Millions of Dollars |      |                  |       |       |       |
|--------------------------|---------------------|------|------------------|-------|-------|-------|
|                          | Treasury            |      | Banks and Public |       | Total |       |
|                          | 1880                | 1889 | 1880             | 1889  | 1880  | 1889  |
| Gold . . . . .           | 126                 | 304  | 226              | 376   | 352   | 680   |
| Silver . . . . .         | 74                  | 315  | 75               | 106   | 149   | 421   |
| Bank-notes . . . . .     | 7                   | 4    | 338              | 207   | 345   | 211   |
| Treasury notes . . . . . | 40                  | 89   | 349              | 699   | 389   | 788   |
| Total . . . . .          | 247                 | 712  | 988              | 1,388 | 1,235 | 2,100 |

The above may be converted into English money at \$4.80 per £. The output of the Mint, computed in £ sterling, was as follows:—

| Period    | Gold, £     | Silver, £   | Total, £    |
|-----------|-------------|-------------|-------------|
| 1792-1820 | 1,300,000   | 2,200,000   | 3,500,000   |
| 1821-40   | 1,900,000   | 8,900,000   | 10,800,000  |
| 1841-50   | 19,800,000  | 4,500,000   | 24,300,000  |
| 1851-60   | 66,000,000  | 9,300,000   | 75,300,000  |
| 1861-70   | 60,400,000  | 4,600,000   | 65,000,000  |
| 1871-80   | 85,200,000  | 35,600,000  | 120,800,000 |
| 1881-89   | 73,200,000  | 58,900,000  | 132,100,000 |
| 98 years  | 307,800,000 | 124,000,000 | 431,800,000 |

The Silver Law, passed by Congress in July 1890, obliges Government to coin \$4,500,000 of silver monthly, equal to £11,300,000 sterling per annum.

The war for the Union in 1861 caused a suspension of specie payments, which lasted nineteen years. The quotations of paper-money were as follows:—

| Year | Value compared with Gold |         |         | Value of \$100 |
|------|--------------------------|---------|---------|----------------|
|      | Maximum                  | Minimum | Average |                |
| 1862 | 98                       | 75      | 88      | £ 5. 6. 0      |
| 1863 | 79                       | 62      | 69      | 14 6 6         |
| 1864 | 64                       | 39      | 49      | 10 4 0         |
| 1865 | 74                       | 46      | 64      | 13 6 4         |
| 1866 | 79                       | 66      | 71      | 14 15 0        |
| 1867 | 74                       | 70      | 72      | 14 19 0        |
| 1868 | 74                       | 69      | 72      | 14 19 0        |
| 1869 | 82                       | 72      | 75      | 15 12 0        |
| 1870 | 90                       | 82      | 87      | 18 2 0         |
| 1871 | 92                       | 87      | 90      | 18 14 0        |
| 1872 | 92                       | 87      | 89      | 18 10 0        |
| 1873 | 92                       | 85      | 88      | 18 6 0         |
| 1874 | 91                       | 88      | 90      | 18 14 0        |
| 1875 | 89                       | 85      | 87      | 18 2 0         |
| 1876 | 93                       | 87      | 90      | 18 14 0        |
| 1877 | 97                       | 94      | 96      | 19 19 0        |
| 1878 | ...                      | ...     | 98      | 20 7 0         |
| 1879 | 100                      | 100     | 100     | 20 16 0        |

The average for ten years ending 1870 was 75, and for the following decade 93.

## PERSIA

The currency has been depreciated since 1875 by increasing the alloy in gold and silver coins. The kran has now but 71 grains of silver, against 83 in the year 1875, and the alloy of gold has been raised from 109 to 115 per 1000. The kran has fallen from a value of 10d. to 6½d., and the gold is at 45 per cent. premium. Baron Reuter has a concession to issue bank-notes up to £800,000, with bullion reserve 50 per cent.

## JAPAN

In 1888 the currency was as follows:—

|                |            |
|----------------|------------|
| Gold           | 19,000,000 |
| Silver         | 9,000,000  |
| Bank-notes     | 15,500,000 |
| Treasury notes | 10,500,000 |
| Total          | 54,000,000 |

Paper-money is at a discount, gold being 25 per cent. premium.

## ARGENTINA

The currency consists wholly of paper-money notes, ranging from one halfpenny up to £20 sterling. The halfpenny notes are nominally for 5 cents, the dollar being worth about 12d. In December 1884 the paper dollar

was worth 48d., but specie payments were suspended in January 1885, and the quotations since then have been:—

|           | Value of Dollar, Pence |      |      |      |      |      |
|-----------|------------------------|------|------|------|------|------|
|           | 1885                   | 1886 | 1887 | 1888 | 1889 | 1890 |
| January   | 39.5                   | 33.2 | 38.5 | 33.0 | 31.8 | 21.3 |
| February  | 37.5                   | 32.6 | 37.2 | 32.2 | 31.0 | 21.3 |
| March     | 36.2                   | 31.5 | 36.3 | 31.8 | 30.2 | 19.0 |
| April     | 32.8                   | 31.0 | 35.6 | 33.0 | 30.2 | 17.8 |
| May       | 35.8                   | 31.0 | 35.0 | 32.8 | 30.4 | 20.4 |
| June      | 36.8                   | 32.2 | 36.1 | 32.0 | 29.2 | 17.0 |
| July      | 36.5                   | 35.0 | 36.5 | 31.1 | 28.1 | 16.5 |
| August    | 33.5                   | 36.8 | 37.2 | 32.0 | 27.4 | 19.2 |
| September | 34.0                   | 40.1 | 36.0 | 32.5 | 23.7 | 19.0 |
| October   | 33.2                   | 41.0 | 33.6 | 32.3 | 22.7 | 18.0 |
| November  | 32.4                   | 37.5 | 33.0 | 33.2 | 21.8 | 17.0 |
| December  | 33.5                   | 37.0 | 32.9 | 33.6 | 20.4 | 15.5 |
| Average   | 35.0                   | 34.2 | 36.0 | 32.5 | 27.0 | 18.5 |

## MONUMENTS

According to Strabo, the Tower of Babel was 600 feet high. The following are remarkable monuments and obelisks:—

| Name                | Locality       | Height, Feet | Weight, Tons |
|---------------------|----------------|--------------|--------------|
| Wellington Monument | Dublin         | 205          | 1,000        |
| Nelson              | London         | 202          | 1,800        |
| Nelson              | London         | 177          | 1,500        |
| Nelson              | Dublin         | 125          | 1,000        |
| *Lateran            | Rome           | 105          | 445          |
| Alexander           | St. Petersburg | 84           | 200          |
| *Vatican            | Rome           | 83           | 220          |
| *Luxor              | Paris          | 76           | 240          |
| *Cleopatra          | London         | 68           | 140          |
| *Meidan             | Constantinople | 50           | 60           |
| *Quirinal           | Rome           | 48           | 60           |

In the foregoing table those marked with an asterisk are Egyptian monoliths, or real obelisks, of extreme antiquity. There is also a fine obelisk at Heliopolis, still standing. The second of Cleopatra's Needles has been removed to the United States, for erection in New York.

The height of certain edifices is as follows:—

|                       | Feet |                     | Feet |
|-----------------------|------|---------------------|------|
| Eiffel Tower, Paris   | 990  | Freyburg Cathedral  | 412  |
| Cologne Cathedral     | 528  | Salisbury Cathedral | 406  |
| St. Nicholas, Hamburg | 475  | Florence Cathedral  | 393  |
| St. Peter's, Rome     | 472  | St. Paul's, London  | 366  |
| Strasbourg Cathedral  | 468  | Milan Cathedral     | 360  |
| Pyramid of Cheops     | 452  | Brussels Townhall   | 355  |
| St. Stephen's, Vienna | 445  | Invalides, Paris    | 346  |
| Amiens Cathedral      | 440  |                     |      |

The diameter of the following domes and arches is:—

|                  | Feet |                      | Feet |
|------------------|------|----------------------|------|
| Milan Cathedral  | 55   | St. Paul's, London   | 112  |
| Pantheon, Paris  | 67   | St. Sophia           | 115  |
| Invalides, Paris | 80   | Sta. Maria, Florence | 139  |
| Achmet's Mosque  | 92   | St. Peter's, Rome    | 139  |

The cost of certain buildings is stated to have been:—

|                         |            |
|-------------------------|------------|
| Opera House, Paris      | £1,600,000 |
| Law Courts, Brussels    | 1,200,000  |
| Cathedral, Cologne      | 2,100,000  |
| Parliament, Westminster | 3,500,000  |
| St. Peter's, Rome       | 3,500,000  |

The Great Pyramid of Cheops has 85 million cubic feet of material, the Wall of China 6350 millions. The Pyramids are supposed to have been built 1500 B.C., the Wall of China 202 B.C. Next in antiquity are the Round Towers of Ireland, probably of the 6th century or earlier: there are 45, the highest at Kilmacduagh, Galway, 108 ft. diameter 18½ ft.

## MOORS

The Moors built in Cordoba 4437 mosques, 4300 towers, 900 public baths, 28 squares, 80,400 shops, 60,000 palaces and hotels, and 213,000 houses. At Granada they built 1030 towers and 70,000 houses.

## MORTGAGES

*United Kingdom.*—Lord Reay estimates the mortgages at 58 per cent. in England of the value of real estate. In Ireland, according to Commissioner Greene, they amount to 40 per cent., say 120 millions sterling.

*France.*—New mortgages average 30 millions sterling per annum: on December 31, 1876, all existing mortgages were officially estimated at 575 millions sterling.

*Germany.*—In 1870 the mortgages in Prussia reached 190, and in all Germany 273, millions sterling. Professor Meitzen, however, considers that 41 per cent. of all real estate in the Empire is mortgaged. An official return for 1883 shows that the houses of Berlin were mortgaged for 105 millions sterling, being 67 per cent. of their assessed value.

*Russia.*—Mortgages on land are known to reach 148 millions sterling, but probably amount to much more.

*Austria.*—In 1860 the amount on mortgage was 165 millions sterling, average interest 5 per cent.: in 1884 the amount was 320 millions sterling. The new mortgages registered in the years 1876 and 1884 were:—

|               | 1876       | 1884      |
|---------------|------------|-----------|
|               | £          | £         |
| Austria . . . | 4,400,000  | 2,400,000 |
| Hungary . . . | 5,600,000  | 6,400,000 |
| Total . . .   | 10,000,000 | 8,800,000 |

*Belgium.*—The registration of mortgages was as follows:—

| Year           | Amount, £ |
|----------------|-----------|
| 1860 . . . . . | 3,400,000 |
| 1870 . . . . . | 4,400,000 |
| 1886 . . . . . | 8,200,000 |

*Holland.*—In 1883 the existing mortgages were 77 millions sterling, as against £37,500,000 in 1869.

*Spain.*—Estimated amount, 172 millions sterling; annual average of new mortgages, £8,500,000.

*Italy.*—The total reaches 580 millions sterling, but of this sum only 288 millions bear interest.

*Norway.*—The amount of mortgage bonds is £4,600,000 sterling.

*New Zealand.*—New mortgages average £9,000,000 per annum; releases, one-third of that amount.

*Australia.*—The colony of New South Wales had new mortgages for 113 millions sterling between 1876 and 1888.

*Argentina.*—Cedulas or mortgage-bonds in 1890 amounted to 450 million dollars, nominally 90 millions sterling.

*Egypt.*—New mortgages average £1,300,000 per annum.

*Canada.*—Sir R. Cartwright ascertained in 1889 that Ontario had mortgages to the amount of 42 millions sterling.

*United States.*—Commissioner Loring summed up the mortgages during thirty-eight years in one of the Western States, and found:—

|                            |             |
|----------------------------|-------------|
| No. of mortgages . . . . . | 200,000     |
| Amount . . . . .           | £36,000,000 |
| Paid off . . . . .         | 20,400,000  |
| Still due . . . . .        | 15,600,000  |

The name of the State is not given.

## MOUNTAINS

Some of the most remarkable are:—

|                       | Feet   |                        | Feet   |
|-----------------------|--------|------------------------|--------|
| Gibraltar . . . . .   | 1,432  | Morrison . . . . .     | 12,847 |
| Snowdon . . . . .     | 3,571  | Fuziyama . . . . .     | 14,180 |
| Vesuvius . . . . .    | 3,978  | Big Horn . . . . .     | 14,430 |
| Ben Nevis . . . . .   | 4,358  | Blanc . . . . .        | 15,781 |
| Puy-Dome . . . . .    | 4,750  | Ararat . . . . .       | 17,266 |
| Olympus . . . . .     | 6,500  | Orizaba . . . . .      | 17,371 |
| Sinai . . . . .       | 7,500  | Kaa Mowna . . . . .    | 18,400 |
| Kosciusko . . . . .   | 7,176  | Elburz . . . . .       | 18,514 |
| Ankaratra . . . . .   | 8,887  | Kilimanjaro . . . . .  | 18,800 |
| Lebanon . . . . .     | 9,520  | Cotopaxi . . . . .     | 19,620 |
| Etna . . . . .        | 10,963 | Wrangel . . . . .      | 20,000 |
| St. Bernard . . . . . | 11,006 | Schopenhauer . . . . . | 20,073 |
| Petermann . . . . .   | 11,400 | Chimborazo . . . . .   | 21,440 |
| Egmont . . . . .      | 11,433 | Illimani . . . . .     | 24,450 |
| Teneriffe . . . . .   | 12,036 | Sorata . . . . .       | 25,250 |
| Cook . . . . .        | 12,400 | Everest . . . . .      | 29,002 |

Everest is the highest of the Himalayas, Schopenhauer is in New Guinea, Wrangel in North America, Morrison in Formosa, Petermann in Greenland, Ankaratra in Madagascar, and Kosciusko in Australia. The greatest height attained by Humboldt was 19,510 feet, in the Andes, but Mr. Whymper, in 1880, ascended Cotopaxi to 19,620 feet, and Chimborazo to 20,545 feet, and W. Graham in 1883 the Kabru peak of the Himalayas to 23,500 feet, the greatest height yet attained by any individual. The passes of the Alps and the Andes are:—

| Alps                         | Feet over Sea | Andes               | Feet over Sea |
|------------------------------|---------------|---------------------|---------------|
| St. Gothard . . . . .        | 6,848         | Bariloche . . . . . | 2,770         |
| Simplon . . . . .            | 6,616         | Antuco . . . . .    | 6,930         |
| St. Bernard . . . . .        | 8,158         | Planchon . . . . .  | 8,225         |
| Little St. Bernard . . . . . | 6,576         | Uspallata . . . . . | 12,870        |
| Mont Cenis . . . . .         | 6,818         | Patos . . . . .     | 13,200        |
| Madelaide . . . . .          | 6,584         | Humahuaca . . . . . | 14,060        |
| Col di Tenda . . . . .       | 5,925         | Portillo . . . . .  | 13,860        |

There are carriage-roads over all the above Alpine passes except the St. Gothard and St. Bernard. There are none over the Andes, but a railway is in construction over the Uspallata Pass.

## MUNIFICENCE

| Donor                | £       | Locality   | Object        |
|----------------------|---------|------------|---------------|
| Astor . . . . .      | 100,000 | New York   | Library       |
| Baird . . . . .      | 500,000 | Aberdeen   | Church        |
| Berridge . . . . .   | 200,000 | London     | Schools       |
| Cooper . . . . .     | 160,000 | New York   | Schools       |
| Crossley . . . . .   | 100,000 | Yorkshire  | Orphanage     |
| Day . . . . .        | 100,000 | London     | Blind         |
| Firth . . . . .      | 100,000 | Sheffield  | Asylum        |
| Galignani . . . . .  | 100,000 | Paris      | Asylum        |
| Galliera . . . . .   | 400,000 | Genoa      | Hospitals     |
| Gardner . . . . .    | 300,000 | London     | Blind         |
| Guinness . . . . .   | 150,000 | Dublin     | Church        |
| Guinness . . . . .   | 200,000 | London     | Lodging-house |
| Guy . . . . .        | 240,000 | London     | Hospital      |
| Holloway . . . . .   | 350,000 | London     | Hospital      |
| Jeejeebhoy . . . . . | 500,000 | Bombay     | Schools       |
| Lick . . . . .       | 200,000 | California | Observatory   |
| Mason . . . . .      | 430,000 | Birmingham | Orphanage     |
| M'Calmont . . . . .  | 100,000 | London     | Hospital      |
| M'Kellar . . . . .   | 100,000 | London     | Schools       |
| Peabody . . . . .    | 500,000 | London     | Lodging-house |
| Quinn . . . . .      | 200,000 | Newry      | Aged          |
| Robinson . . . . .   | 100,000 | New York   | Schools       |
| Ross . . . . .       | 200,000 | Glasgow    | Hospitals     |
| Rossiui . . . . .    | 100,000 | Paris      | Asylum        |
| Rowe . . . . .       | 120,000 | Dublin     | Church        |
| Rylands . . . . .    | 200,000 | Birmingham | Asylum        |
| Salt . . . . .       | 100,000 | Yorkshire  | Hospital      |
| Stewart . . . . .    | 150,000 | New York   | Hospital      |
| Sturge . . . . .     | 300,000 | London     | Asylum        |
| Urquijo . . . . .    | 180,000 | Madrid     | Orphanage     |
| Vanderbilt . . . . . | 200,000 | New York   | Asylum        |
| Whitworth . . . . .  | 100,000 | Manchester | Schools       |

**MURDER**

According to Professor Bodio (see p. 162), the number of criminals tried for murder in the years 1876-84 averaged as follows :—

|                          | Number Yearly | Per Million Population |
|--------------------------|---------------|------------------------|
| United Kingdom . . . . . | 450           | 12                     |
| France . . . . .         | 816           | 23                     |
| Germany . . . . .        | 602           | 14                     |
| Hungary . . . . .        | 1,682         | 107                    |
| Italy . . . . .          | 3,712         | 134                    |
| Spain . . . . .          | 1,807         | 105                    |

**MUSIC**

In 1890, at an auction in London, the following prices were obtained for copyrights of songs :—

| Song                          | Composer  | Price, £ |
|-------------------------------|-----------|----------|
| Wild Winds . . . . .          | Mattei    | 611      |
| In the Gloaming . . . . .     | Lady Hill | 286      |
| The Old Way . . . . .         | Roedel    | 253      |
| Jolly Smiths . . . . .        | Leslie    | 265      |
| Kathleen Mavourneen . . . . . | Crouch    | 400      |

The price of "Wild Winds" (Odi tu) is the highest on record.

**N.****NAMES**

The ratio in England per 1000 shows :—

|                      |                     |                      |                     |
|----------------------|---------------------|----------------------|---------------------|
| Mary . . . . . 68    | Thomas . . . . . 39 | James . . . . . 31   | Joseph . . . . . 18 |
| William . . . . . 66 | George . . . . . 36 | Charles . . . . . 23 | Jane . . . . . 17   |
| John . . . . . 62    | Sarah . . . . . 36  | Henry . . . . . 21   | Ellen . . . . . 16  |
| Eliza . . . . . 61   | Anne . . . . . 33   | Alice . . . . . 19   |                     |

**NATIONS**

|                           | Square Miles | Population    | Steam-Power | Millions £ Sterling |          |        |
|---------------------------|--------------|---------------|-------------|---------------------|----------|--------|
|                           |              |               |             | Revenue             | Commerce | Wealth |
| United Kingdom . . . . .  | 121,000      | 38,000,000    | 9,200,000   | 89                  | 740      | 9,400  |
| France . . . . .          | 201,000      | 38,500,000    | 4,520,000   | 122                 | 311      | 8,598  |
| Germany . . . . .         | 212,000      | 48,000,000    | 6,200,000   | 155                 | 367      | 6,437  |
| Russia . . . . .          | 2,262,000    | 92,000,000    | 2,240,000   | 89                  | 118      | 5,089  |
| Austria . . . . .         | 269,000      | 40,000,000    | 2,150,000   | 75                  | 92       | 3,855  |
| Italy . . . . .           | 114,000      | 30,000,000    | 830,000     | 72                  | 94       | 2,963  |
| Spain . . . . .           | 183,000      | 18,000,000    | 740,000     | 35                  | 59       | 2,516  |
| Portugal . . . . .        | 37,000       | 4,700,000     | 80,000      | 8                   | 18       | 408    |
| Sweden . . . . .          | 171,000      | 4,800,000     | 300,000     | 5                   | 30       | 637    |
| Norway . . . . .          | 122,000      | 2,000,000     | 180,000     | 2                   | 16       | 243    |
| Denmark . . . . .         | 15,000       | 2,000,000     | 150,000     | 3                   | 26       | 404    |
| Holland . . . . .         | 21,000       | 4,500,000     | 340,000     | 10                  | 199      | 980    |
| Belgium . . . . .         | 11,000       | 6,100,000     | 810,000     | 13                  | 111      | 1,007  |
| Switzerland . . . . .     | 16,000       | 3,000,000     | 290,000     | 3                   | 60       | 494    |
| Greece . . . . .          | 20,000       | 2,000,000     | 600,000     | 3                   | 7        | 300    |
| Roumania . . . . .        | 48,000       | 5,500,000     |             | 6                   | 23       | 593    |
| Servia . . . . .          | 21,000       | 2,000,000     |             | 2                   | 4        | 217    |
| Bulgaria . . . . .        | 39,000       | 3,000,000     |             | 3                   | 6        | 205    |
| Turkey . . . . .          | 67,000       | 4,700,000     |             | 16                  | 33       | 593    |
| Europe . . . . .          | 3,950,000    | 348,300,000   | 28,630,000  | 711                 | 2,314    | 44,939 |
| United States . . . . .   | 3,604,000    | 62,500,000    | 14,400,000  | 81                  | 320      | 12,824 |
| Canada . . . . .          | 3,372,000    | 5,100,000     | ...         | 8                   | 42       | 980    |
| Mexico . . . . .          | 751,000      | 10,500,000    | ...         | 5                   | 20       | 638    |
| Central America . . . . . | 169,000      | 3,000,000     | ...         | 2                   | 7        | ...    |
| Venezuela . . . . .       | 567,000      | 2,500,000     | ...         | 1                   | 6        | ...    |
| Peru . . . . .            | 405,000      | 3,000,000     | ...         | 1                   | 3        | ...    |
| Ecuador . . . . .         | 248,000      | 1,100,000     | ...         | 1                   | 4        | ...    |
| Columbia . . . . .        | 331,000      | 4,000,000     | ...         | 3                   | 4        | ...    |
| Chili . . . . .           | 257,000      | 2,600,000     | ...         | 5                   | 14       | ...    |
| Bolivia . . . . .         | 472,000      | 2,300,000     | ...         | 1                   | 2        | ...    |
| Argentina . . . . .       | 1,095,000    | 3,600,000     | ...         | 5                   | 27       | 509    |
| Uruguay . . . . .         | 72,000       | 600,000       | ...         | 2                   | 12       | 100    |
| Brazil . . . . .          | 3,288,000    | 12,400,000    | ...         | 14                  | 41       | ...    |
| Australia . . . . .       | 3,104,000    | 3,700,000     | ...         | 28                  | 130      | 1,373  |
| South Africa . . . . .    | 230,000      | 1,900,000     | ...         | 4                   | 19       | 135    |
| Algeria . . . . .         | 123,000      | 3,800,000     | ...         | 2                   | 17       | ...    |
| Egypt . . . . .           | 494,000      | 6,800,000     | ...         | 10                  | 19       | ...    |
| India . . . . .           | 870,000      | 215,000,000   | ...         | 83                  | 131      | ...    |
| Siberia . . . . .         | 6,179,000    | 9,400,000     | ...         | ...                 | 8        | ...    |
| China . . . . .           | 3,925,000    | 320,000,000   | ...         | 26                  | 49       | ...    |
| Persia . . . . .          | 636,000      | 7,600,000     | ...         | 2                   | 8        | ...    |
| Java . . . . .            | 51,000       | 18,000,000    | ...         | 10                  | 30       | ...    |
| Japan . . . . .           | 148,000      | 38,000,000    | ...         | 13                  | 22       | ...    |
| Total . . . . .           | 34,341,000   | 1,085,700,000 | 50,150,000  | 1,018               | 3,249    | ...    |

## NAVY

The following is a table of the principal navies:—

|                  | 1810  |        | 1840  |        | 1880  |       |
|------------------|-------|--------|-------|--------|-------|-------|
|                  | Ships | Guns   | Ships | Guns   | Ships | Guns  |
| G. Britain . . . | 450   | 24,800 | 392   | 16,310 | 373   | 1,460 |
| France . . .     | 212   | 6,000  | 146   | 7,600  | 348   | 1,450 |
| Germany . . .    | ...   | ...    | ...   | ...    | 101   | 519   |
| Russia . . .     | 346   | 4,450  | 83    | 5,460  | 391   | 942   |
| Austria . . .    | ...   | ...    | ...   | ...    | 106   | 295   |
| Italy . . .      | 36    | 200    | ...   | ...    | 140   | 318   |
| Spain . . .      | 301   | 8,000  | 57    | 1,200  | 135   | 492   |
| Holland . . .    | 76    | 1,600  | 30    | 1,640  | 147   | 560   |
| Turkey . . .     | 42    | 1,700  | 33    | 2,440  | 90    | 200   |
| U. States . . .  | 158   | 526    | 60    | 3,250  | 75    | 542   |
| Various . . .    | 60    | 1,300  | 57    | 2,779  | 385   | 1,605 |
| Total . . .      | 1,681 | 48,576 | 858   | 40,679 | 2,291 | 8,383 |

The average of guns to a vessel was 29 in 1810, rising to 46 in 1840, and declining to less than 4 in 1889. Modern naval warfare has been changed by the invention of armour-plated ships, the first of which were built for the Crimean war, 4-inch plates perfectly shot-proof, in 1853. The *Merrimacs* and *Monitors* of the United States in 1862 marked a great advance. Finally, the Italians used plates 36 inches thick for the *Lepanto*. The ironclad fleets of the world stand at present approximately as follows:—

| Vessels             | Tons | Max. Plating, Inches | Guns | Tonnage of Guns |
|---------------------|------|----------------------|------|-----------------|
| Great Britain . . . | 66   | 460,000              | 24   | 610             |
| France . . .        | 52   | 310,000              | 22   | 470             |
| Germany . . .       | 27   | 104,000              | 12   | 160             |
| Russia . . .        | 40   | 160,000              | 16   | 421             |
| Austria . . .       | 10   | 55,000               | 14   | 137             |
| Italy . . .         | 14   | 82,000               | 36   | 110             |
| Spain . . .         | 13   | 35,000               | 20   | 254             |
| Portugal . . .      | 1    | 2,000                | 8    | 3               |
| Sweden . . .        | 15   | 8,000                | 12   | 24              |
| Norway . . .        | 4    | 2,000                | ...  | 12              |
| Denmark . . .       | 8    | 25,000               | 12   | 107             |
| Holland . . .       | 24   | 45,000               | 8    | 72              |
| Greece . . .        | 4    | 7,000                | ...  | 24              |
| Turkey . . .        | 15   | 61,000               | 12   | 134             |
| United States . . . | 13   | 40,000               | 12   | 74              |
| Brazil . . .        | 12   | 15,000               | 12   | 60              |
| Argentina . . .     | 3    | 8,000                | 9    | 15              |
| Chili . . .         | 3    | 9,000                | 9    | 22              |
| China . . .         | 9    | 38,000               | 14   | 50              |
| Japan . . .         | 1    | 4,000                | 9    | 6               |
| Total . . .         | 334  | 1,470,000            | 36   | 2,765           |

The average cost of building ironclads has been, per ton: British £48, French £55, Italian £57, German £60. Including guns and equipment, an ordinary ironclad now costs £80 per ton. The largest war-vessels now are:—

| Name             | Flag                | Tons   | Horse-Power |
|------------------|---------------------|--------|-------------|
| Italia . . .     | Italian . . .       | 13,900 | 18,000      |
| Trafalgar . . .  | British . . .       | 12,000 | 12,000      |
| Formidable . . . | French . . .        | 11,400 | 8,300       |
| Catherine . . .  | Russian . . .       | 10,200 | 9,000       |
| Peiayo . . .     | Spanish . . .       | 10,000 | 8,000       |
| Wilhelm . . .    | German . . .        | 9,800  | 8,000       |
| Mesoudiyé . . .  | Turkish . . .       | 8,800  | 6,800       |
| Tegethoff . . .  | Austrian . . .      | 7,400  | 5,000       |
| Ting . . .       | Chinese . . .       | 7,300  | 6,000       |
| Maine . . .      | United States . . . | 6,600  | 8,600       |
| Heigloland . . . | Danish . . .        | 5,400  | 4,000       |
| Koenig . . .     | Holland . . .       | 5,400  | 4,500       |

The following comparison of navies was published in the *Daily News*, 1890:—

|                           | Great Britain | France | Germany | Russia | Italy |
|---------------------------|---------------|--------|---------|--------|-------|
| Sea-going ironclads . . . | 56            | 33     | 13      | 22     | 21    |
| Cruisers (16 knots) . . . | 28            | 17     | 7       | 2      | 3     |
| Coast ironclads . . .     | 6             | 21     | 12      | 13     | ...   |
| Gunboats . . .            | 95            | 45     | 12      | 36     | 15    |
| Various . . .             | 185           | 190    | 131     | 188    | 124   |
| Total . . .               | 370           | 306    | 175     | 261    | 163   |

The same paper says: "In ships we are well ahead of any competitor. It is in the matter of guns that our weakness lies. We have afloat or ready to go afloat 1065 modern heavy guns; France has 1447, Russia has 423, Italy has 180, and Germany has 508. When all our war-ships are armed, we shall have afloat of guns that can pierce 15 in. of armour and upwards 104, while France will have 124, Russia 38, Italy 40, and Germany 61."

The torpedo fleets of the various flags are as follows:—

|                     |     |                 |    |
|---------------------|-----|-----------------|----|
| Great Britain . . . | 165 | Austria . . .   | 42 |
| France . . .        | 175 | Holland . . .   | 31 |
| Germany . . .       | 135 | Brazil . . .    | 18 |
| Russia . . .        | 185 | Chili . . .     | 25 |
| Italy . . .         | 116 | Turkey . . .    | 52 |
| Spain . . .         | 26  | China . . .     | 31 |
| Sweden . . .        | 19  | Portugal . . .  | 6  |
| Denmark . . .       | 42  | Argentina . . . | 9  |

The number of seamen and annual cost of the navies are:—

|                     | Men     | Annual Expenditure, £ | Per Man, £ |
|---------------------|---------|-----------------------|------------|
| Great Britain . . . | 65,000  | 13,700,000            | 211        |
| France . . .        | 54,000  | 9,000,000             | 165        |
| Germany . . .       | 16,600  | 2,000,000             | 120        |
| Russia . . .        | 29,000  | 4,000,000             | 140        |
| Austria . . .       | 8,500   | 900,000               | 106        |
| Italy . . .         | 13,000  | 5,000,000             | 386        |
| Spain . . .         | 14,000  | 1,600,000             | 114        |
| Holland . . .       | 8,000   | 1,100,000             | 138        |
| Turkey . . .        | 39,500  | 800,000               | 20         |
| United States . . . | 10,000  | 3,000,000             | 300        |
| Total . . .         | 257,600 | 41,100,000            | 160        |

## GREAT BRITAIN

The statistics of the Royal Navy may be summed up as follows:—

| Year       | Vessels | Tons    | Guns   | Men     | Cost per Annum, £ |
|------------|---------|---------|--------|---------|-------------------|
| 1603 . . . | 42      | 17,000  | ...    | ...     | 180,000           |
| 1685 . . . | 179     | 104,000 | 6,930  | 10,000  | 390,000           |
| 1760 . . . | 325     | 321,000 | 10,600 | 51,000  | 5,611,000         |
| 1803 . . . | 450     | 461,000 | 24,800 | 180,000 | 12,037,000        |
| 1850 . . . | 585     | 570,000 | 17,200 | 48,000  | 6,438,000         |
| 1890 . . . | 373     | 680,000 | 1,460  | 65,000  | 13,700,000        |

When Philip II. sent the Armada in 1588 for the conquest of England it comprised:—

|              |       |                |        |
|--------------|-------|----------------|--------|
| Ships . . .  | 132   | Seamen . . .   | 10,854 |
| Cannon . . . | 3,165 | Soldiers . . . | 23,200 |

The British fleet under Lord Howard, supported by Drake and Hawkins, consisted of:—

|               | Royal Navy | Vessels Hired | Total  |
|---------------|------------|---------------|--------|
| Ships . . .   | 41         | 135           | 176    |
| Tonnage . . . | 16,000     | 18,500        | 34,500 |
| Seamen . . .  | 8,200      | 6,600         | 14,800 |

The Spaniards lost 35 ships and 13,600 men. During the wars with Bonaparte, according to Hawkin the British navy captured or destroyed the following:—

|                         |       |               |       |
|-------------------------|-------|---------------|-------|
| Ships of the line . . . | 207   | French . . .  | 683   |
| Frigates . . .          | 351   | Spanish . . . | 213   |
| Corvettes . . .         | 552   | Various . . . | 214   |
| Total . . .             | 1,110 | Total . . .   | 1,110 |

The above is exclusive of 1396 brigs and small vessels.

In 1888 the Channel Fleet consisted as follows:—

|                      | Tons    | Guns | Broadsides, Lbs. | Men    |
|----------------------|---------|------|------------------|--------|
| Inflexible . . .     | 11,880  | 4    | 3,400            | 460    |
| Northumberland . . . | 10,780  | 27   | 2,630            | 710    |
| Agincourt . . .      | 10,690  | 17   | 2,150            | 710    |
| Benbow . . .         | 10,600  | 12   | 2,300            | 500    |
| Rodney . . .         | 10,300  | 10   | 2,300            | 500    |
| 64 others . . .      | 185,750 | 354  | 32,720           | 12,120 |
| Total . . .          | 240,000 | 424  | 45,500           | 15,100 |

The Channel Fleet represents nearly one-third of the strength of the British navy.

The strength of the navy in 1889 was as follows:—

|                     | Number | In Commission |       |
|---------------------|--------|---------------|-------|
|                     |        | Number        | Guns  |
| Ironclads . . .     | 66     | 32            | 310   |
| Steamers . . .      | 292    | 172           | 790   |
| Sailing . . .       | 212    | 63            | 380   |
| Torpedo-boats . . . | 146    | 13            | ...   |
| Total . . .         | 716    | 280           | 1,480 |

The navy counts 65,000 seamen, including 14,000 marines and 5300 coastguards. In fifteen years ending 1880 the cost of vessels built was as follows:—

| Built by          | Tons    |         |         | Cost, £   |           |            |
|-------------------|---------|---------|---------|-----------|-----------|------------|
|                   | Iron    | Wooden  | Total   | Iron      | Wooden    | Total      |
| Government . . .  | 123,000 | 85,000  | 208,000 | 5,466,000 | 3,964,000 | 9,430,000  |
| Contractors . . . | 55,000  | 41,000  | 96,000  | 2,709,000 | 2,321,000 | 5,030,000  |
| Total . . .       | 178,000 | 126,000 | 304,000 | 8,175,000 | 6,285,000 | 14,460,000 |

The cost of construction per ton of displacement was less in Government yards, but less per ton of hull in contractors' yards, viz:—

|                            | Dockyard |    |    | Contractors' |    |    |
|----------------------------|----------|----|----|--------------|----|----|
|                            | £        | s. | d. | £            | s. | d. |
| Per ton displacement . . . | 45       | 7  | 0  | 52           | 8  | 0  |
| Per ton of hull . . .      | 43       | 8  | 0  | 41           | 12 | 0  |

The cost of French ironclads built in State dockyards has been 30 per cent. more than those built by contractors. Lord Brassey gives the cost of vessels built for the British and French fighting navies since 1864 thus:—

| Period         | England, £ | France, £  |
|----------------|------------|------------|
| 1864-70 . . .  | 9,900,000  | 5,700,000  |
| 1871-80 . . .  | 15,700,000 | 9,900,000  |
| 1881-90 . . .  | 24,200,000 | 16,100,000 |
| 27 years . . . | 49,800,000 | 31,700,000 |

The cost of the effective ships afloat has been as follows:—

|                     | Number | £          |
|---------------------|--------|------------|
| Ironclads . . .     | 66     | 24,000,000 |
| Torpedo-boats . . . | 146    | 1,500,000  |
| Steamers, &c. . .   | 161    | 11,100,000 |
| Total . . .         | 373    | 36,600,000 |

There are in construction 11 ironclads and 128 other vessels, to be completed before 1894, at a cost of 22 millions sterling. In 1889 there were 26 war-vessels launched, besides 23 new torpedo-boats, and the most remarkable were:—

| Name          | Tons  | Horse-Power | Cost, £ | Speed, Knots per Hour |
|---------------|-------|-------------|---------|-----------------------|
| Blake . . .   | 9,000 | 20,000      | 440,000 | 22                    |
| Vulcan . . .  | 6,600 | 12,000      | 300,000 | 20                    |
| Barham . . .  | 1,800 | 6,000       | 100,000 | 19                    |
| Blanche . . . | 1,600 | 3,000       | 100,000 | 16                    |

The *Blake* is 400 ft. long, 65 ft. beam, and carries two 24-ton guns and 10 smaller: the hull cost £213,000, the engines £134,000, the guns £25,000 (£310 per ton), and the fittings £68,000. Lord Armstrong, comparing the new ship *Victoria* with Nelson's ship *Victory*, says:—"Nelson's heaviest shot was 68 lbs., but the *Victoria* weighs 1800 lbs.; his broadside consumed 325 lbs. of powder, that of the *Victoria* 3000 lbs. He required one man to every 4 tons, but now we can do with one man for 17 tons." A first-class ironclad, built of steel, has this weight:—

|                 | Tons   |
|-----------------|--------|
| Hull . . .      | 3,400  |
| Plating . . .   | 2,800  |
| Machinery . . . | 1,400  |
| Guns, &c. . .   | 1,100  |
| Coal, &c. . .   | 1,370  |
| Total . . .     | 10,070 |

## FRANCE

The strength at various dates has been as follows:—

| Year       | Vessels | Guns   | Men    |
|------------|---------|--------|--------|
| 1780 . . . | 266     | 13,300 | 78,000 |
| 1810 . . . | 212     | 6,000  | 94,000 |
| 1840 . . . | 146     | 7,600  | 24,500 |
| 1868 . . . | 480     | 2,750  | 43,100 |
| 1889 . . . | 348     | 1,450  | 54,000 |

The expenditure has averaged yearly approximately thus:—

| Period        | £         |
|---------------|-----------|
| 1831-50 . . . | 3,400,000 |
| 1851-70 . . . | 5,700,000 |
| 1871-88 . . . | 9,400,000 |

In 1889 the navy comprised 52 ironclads and 296 smaller vessels, the total valued at £20,100,000, and



carrying 29,000 blue-jackets, 25,000 marines, and 1450 guns. Some of the heaviest vessels are:—

|                | Tons   | Armour,<br>Inches | Guns | Horse-<br>Power | Knots<br>per Hour |
|----------------|--------|-------------------|------|-----------------|-------------------|
| Formidable . . | 11,400 | 22                | 15   | 8,300           | 15                |
| Duperré . . .  | 10,500 | 22                | 19   | 8,000           | 15                |
| Bandin . . .   | 11,200 | 22                | 15   | 8,000           | 15                |
| Duquesne . .   | 5,700  | ...               | 21   | 8,000           | 17                |
| Courbet . . .  | 9,500  | 15                | 14   | 8,000           | 15                |

In 1882 the following comparative table of the French and British ironclad fleets was published:—

|               | Vessels | Tonnage of Guns | Per Ship |
|---------------|---------|-----------------|----------|
| British . . . | 51      | 7,030           | 138      |
| French . . .  | 59      | 5,960           | 101      |

In 1869 the largest vessel in the French navy was the *Magenta*, 1000 horse-power, being one-eighth of that of the present first-class ironclads.

#### GERMANY

In 1888 the fleet was composed thus:—

|                | Num-<br>ber | Guns | Tons    | Horse-<br>Power | Men    |
|----------------|-------------|------|---------|-----------------|--------|
| Ironclads . .  | 27          | 160  | 104,000 | 84,000          | 7,300  |
| Frigates . .   | 9           | 122  | 28,000  | 28,000          | 3,700  |
| Corvettes, &c. | 65          | 237  | 50,000  | 56,000          | 5,600  |
| Total . . .    | 101         | 519  | 182,000 | 168,000         | 16,600 |

The heaviest ships are the following:—

|               | Tons  | Horse-<br>Power | Guns | Armour,<br>Inches |
|---------------|-------|-----------------|------|-------------------|
| Wilhelm . . . | 9,800 | 8,000           | 29   | 12                |
| Kaiser . . .  | 7,700 | 8,000           | 15   | 10                |

The navy costs £2,000,000 per annum.

#### RUSSIA

The strength of the Russian navy at various dates was:—

| Year       | Ships | Guns  |
|------------|-------|-------|
| 1779 . . . | 56    | 3,400 |
| 1791 . . . | 94    | 5,200 |
| 1810 . . . | 346   | 4,450 |
| 1840 . . . | 83    | 5,460 |
| 1868 . . . | 292   | 3,690 |
| 1889 . . . | 391   | 942   |

The navy in 1889 was as follows:—

| Fleets          | Ironclads | Other Vessels | Total |
|-----------------|-----------|---------------|-------|
| Baltic . . .    | 26        | 209           | 235   |
| Black Sea . .   | 5         | 67            | 72    |
| Caspian . . .   | 9         | 14            | 23    |
| Siberian, &c. . | ...       | 61            | 61    |
| Total . . .     | 40        | 351           | 391   |

|               | Guns | Tons    | Horse-Power |
|---------------|------|---------|-------------|
| Ironclads . . | 421  | 160,000 | 17,000      |
| Steamers, &c. | 521  | 126,000 | 32,000      |
| Total . . .   | 942  | 286,000 | 49,000      |

The whole manned by 29,000 officers and men.

The heaviest ships are:—

| Name          | Tons   | Horse-<br>Power | Guns | Armour,<br>Inches | Knots<br>per Hour |
|---------------|--------|-----------------|------|-------------------|-------------------|
| Sinope . . .  | 10,200 | 9,000           | 13   | 16                | 16                |
| Catherine . . | 10,200 | 9,000           | 13   | 16                | 16                |

The navy costs £4,000,000 per annum.

#### HOLLAND

In 1888 the navy comprised 24 ironclads and 123 corvettes and smaller vessels, carrying 560 guns and 8000 men, the heaviest ship being the *King of Holland*, 5400 tons, 4500 horse-power, 8 guns, 8-inch armour, speed 12 knots. The navy costs £1,100,000 a year.

#### AUSTRIA

The actual strength is as follows:—

|                  | Num-<br>ber | Tons    | Horse-<br>Power | Guns | Men    |
|------------------|-------------|---------|-----------------|------|--------|
| Ironclads . .    | 10          | 55,000  | 11,000          | 137  | 4,000  |
| Corvettes, &c. . | 96          | 69,000  | 13,000          | 158  | 7,000  |
| Total . . .      | 106         | 124,000 | 24,000          | 295  | 11,000 |

The heaviest vessels are:—

|               | Tons  | Horse-<br>Power | Guns | Armour,<br>Inches | Knots<br>per Hour |
|---------------|-------|-----------------|------|-------------------|-------------------|
| Tegethoff . . | 7,400 | 5,000           | 6    | 14                | 14                |
| Custoza . . . | 7,000 | 4,500           | 8    | 9                 | 14                |

The navy costs £900,000 per annum, and is manned by 8500 men.

#### ITALY

The navy is composed as follows:—

|                  | Vessels | Guns | Tons    | Horse-<br>Power | Men    |
|------------------|---------|------|---------|-----------------|--------|
| Ironclads . .    | 14      | 110  | 82,000  | 64,000          | 6,000  |
| Corvettes, &c. . | 23      | 117  | 34,000  | 41,000          | 4,000  |
| Small vessels .  | 103     | 91   | 34,000  | 35,000          | 3,000  |
| Total . . .      | 140     | 318  | 150,000 | 140,000         | 13,000 |

The heaviest ships are:—

|              | Tons   | Horse-<br>Power | Guns | Armour,<br>Inches | Knots per<br>Hour |
|--------------|--------|-----------------|------|-------------------|-------------------|
| Italia . . . | 13,900 | 18,000          | 12   | 36                | 18                |
| Lepanto . .  | 13,600 | 18,000          | 12   | 36                | 18                |
| Humberto . . | 13,300 | 15,200          | 12   | 36                | 18                |

There are 17,000 officers and seamen, the navy costing £5,000,000 sterling per annum.

#### SPAIN

In 1889 the naval strength was as follows:—

|                 | Number | Guns | Horse-Power |
|-----------------|--------|------|-------------|
| Ironclads . .   | 13     | 254  | 19,000      |
| Other vessels . | 122    | 238  | 46,000      |
| Total . . .     | 135    | 492  | 65,000      |

The fleet is manned by 14,000 men. The largest ship is the *Pelayo*, 10,000 tons, 8000 horse-power, armour 20 inches, carrying 17 guns. The navy in 1708 was one of the greatest in Europe, manned by 16,400 seamen.

## PORTUGAL

The actual strength is as follows :—

|                | Number | Guns | Horse-Power |
|----------------|--------|------|-------------|
| Steam . . . .  | 38     | 139  | 20,000      |
| Sail . . . . . | 15     | 42   | ...         |
| Total . . . .  | 53     | 181  | 20,000      |

There are 3000 seamen. The only ironclad is the *Vasco da Gama*, 2400 tons, 3200 horse-power, 8-inch armour, speed 13 knots. The navy costs £250,000 a year.

## SWEDEN

The navy is composed thus :—

|                  | Number | Horse-Power | Guns |
|------------------|--------|-------------|------|
| Ironclads . . .  | 15     | 6,000       | 24   |
| Corvettes, &c. . | 53     | 22,000      | 127  |
| Total . . . .    | 68     | 28,000      | 151  |

The heaviest ship is the *Scor*, 12-inch armour, 2900 tons, 6 guns, and 3100 horse-power. The fleet has 4000 seamen, and costs £350,000 a year.

## NORWAY

The fleet counts as follows :—

|                  | Number | Horse-Power | Guns |
|------------------|--------|-------------|------|
| Ironclads . . .  | 4      | 1,800       | 12   |
| Corvettes, &c. . | 17     | 8,000       | 157  |
| Small boats . .  | 27     | 4,200       | 23   |
| Total . . . .    | 48     | 14,000      | 192  |

They are manned by 1100 men; naval reserve, 27,000. The cost of the navy is £110,000 a year.

## DENMARK

The navy before its destruction by Nelson consisted in 1805 of 35 vessels, carrying 2350 guns. In 1850 it counted 25 vessels with 940 guns. The present strength is :—

|                  | Number | Horse-Power | Guns |
|------------------|--------|-------------|------|
| Ironclads . . .  | 8      | 19,000      | 107  |
| Corvettes, &c. . | 31     | 18,000      | 122  |
| Total . . . .    | 39     | 37,000      | 229  |

The heaviest vessel is the *Heligoland*, 12-inch armour, 5400 tons, 4000 horse-power, 5 guns, speed 14 knots. The navy costs £600,000 a year.

## GREECE

The actual strength is :—

|                  | Number | Tons  | Guns |
|------------------|--------|-------|------|
| Ironclads . . .  | 4      | 7,000 | 24   |
| Brigs, &c. . . . | 31     | ...   | 176  |
| Total . . . .    | 35     | ...   | 200  |

The whole is manned by 2900 men. The heaviest ship is the *Olga*, 2000 tons, 6 guns, 10 knots. The navy costs £160,000 a year.

## TURKEY

The navy comprises 15 ironclads, 15 corvettes, 60 gunboats, &c., the whole carrying 200 guns, and supposed

to be manned by 30,000 blue-jackets, and 9500 marines. The Turkish navy has been repeatedly almost annihilated. At Lepanto in 1571, Ali Pacha's fleet counted 372 vessels, manned by 120,000 men; that of Don John of Austria, 208 vessels with 80,000 men. The Turks lost 175 captured and 129 sunk or burnt, only 68 escaping. Again, at Navarino in 1827, the English and French destroyed 30 Turkish war-vessels, and in 1853 the Russians at Sinope destroyed an Ottoman fleet of 11 vessels with 4000 men.

At present the heaviest ships are :—

|                | Tons  | Horse-Power | Guns | Armour, Inches | Knots per Hour |
|----------------|-------|-------------|------|----------------|----------------|
| Mesoudiyeh . . | 8,800 | 6,800       | 12   | 12             | 14             |
| Hamidieh . . . | 6,500 | 4,500       | 9    | 9              | 13             |

The navy costs £800,000 a year.

## BRAZIL

The fleet comprises 12 ironclads and 30 war-steamers, carrying 222 guns and 6000 men. The heaviest vessel is the *Jacaré*, 3500 tons, 2200 horse-power, 4 guns, 12-inch armour. The navy costs £1,100,000 a year.

## ARGENTINA

The actual strength is 3 ironclads and 16 gunboats, carrying 58 guns and 1500 men. The *Admiral Brown* is 4200 tons, 5400 horse-power, 8 guns, 9-inch armour. The navy costs £300,000 a year.

## CHILI

There are 3 ironclads and 18 smaller vessels, carrying 55 guns and 2000 men. The *Cochrane* is 3500 tons, 2900 horse-power, 9-inch armour, 3 guns, speed 12 knots. A steel ironclad of 6000 tons is in construction.

## UNITED STATES

The strength of the navy at various dates was :—

|                | Vessels | Guns  |
|----------------|---------|-------|
| 1812 . . . . . | 158     | 526   |
| 1815 . . . . . | 276     | 1,636 |
| 1840 . . . . . | 60      | 3,250 |
| 1865 . . . . . | 684     | 4,477 |
| 1888 . . . . . | 75      | 542   |

Americans are fairly entitled to claim the invention of ironclad war-vessels. In 1811 Robert Stevens of New Jersey, a youth of twenty-two years, proposed iron-plating for ships, and in 1842 made a contract with the Navy Department for ironclad floating batteries. Ericsson invented turret-ships in 1860 with plates 8-inch thick, carrying a pair of 15-inch guns.

The actual fleet comprises 13 ironclads, 37 corvettes, and 25 small vessels, manned by 8000 blue-jackets, and 2000 marines. The sums spent on the navy have averaged yearly thus :—

| Period            | £         |
|-------------------|-----------|
| 1801-40 . . . . . | 700,000   |
| 1841-50 . . . . . | 1,900,000 |
| 1851-70 . . . . . | 7,500,000 |
| 1871-80 . . . . . | 4,000,000 |
| 1881-88 . . . . . | 3,100,000 |

Congress has recently ordered the construction of 10 ironclads and 18 other vessels. The *Puritan*, *Maine*, and *Texas* will be each over 6000 tons, 8000 horse-power, 12-inch armour, speed 17 knots. The new corvette *Baltimore*, 10,000 horse-power, goes 20 knots.

## JAPAN.

The navy is as follows :—

|                  | Num-ber | Guns | Tons   | Horse-Power | Knots |
|------------------|---------|------|--------|-------------|-------|
| Ironclads . . .  | 1       | 6    | 3,700  | 3,500       | 13    |
| Corvettes, &c. . | 24      | 169  | 35,400 | 31,000      | ...   |
| Total . . .      | 25      | 175  | 39,100 | 34,500      | ...   |

The vessels are manned by 5000 blue-jackets, and at £800,000 a year.

## CHINA

In 1888 the navy comprised 9 ironclads and 121 small vessels. The heaviest vessels were the *Ting* and *Chen*, each 7300 tons, 6000 horse-power, 14-inch plating, with Krupp guns of 12-inch bore.

## NIGHT

The following table shows the longest and shortest nights, according to latitude :—

| Latitude | Longest |         | Shortest |         |
|----------|---------|---------|----------|---------|
|          | Hours   | Minutes | Hours    | Minutes |
| 5 . . .  | 12      | 17      | 11       | 43      |
| 15 . . . | 12      | 53      | 11       | 7       |
| 25 . . . | 13      | 34      | 10       | 26      |
| 35 . . . | 14      | 22      | 9        | 38      |
| 45 . . . | 15      | 26      | 8        | 34      |
| 50 . . . | 16      | 9       | 7        | 51      |
| 55 . . . | 17      | 7       | 6        | 53      |
| 60 . . . | 18      | 30      | 5        | 30      |
| 65 . . . | 21      | 10      | 2        | 50      |

At 66½ north or south the midnight sun is visible in summer. The above table is equally true of the length of days.

## NOBLES

In Austria-Hungary the number declines, viz. :—

|                 | 1840    | 1865    |
|-----------------|---------|---------|
| Austria . . . . | 140,000 | 87,000  |
| Hungary . . . . | 260,000 | 163,400 |
| Total . . . .   | 400,000 | 250,400 |

In Spain they are as follows :—

|                 | Grandeess | Only Titular | Total |
|-----------------|-----------|--------------|-------|
| Dukes . . . .   | 79        | 2            | 81    |
| Marquises . . . | 60        | 615          | 675   |
| Counts . . . .  | 60        | 480          | 540   |
| Barons . . . .  | 4         | 156          | 160   |
| Total . . . .   | 203       | 1,253        | 1,456 |

The British House of Lords comprises 4 princes, 23 dukes, 19 marquises, 139 earls, 32 viscounts, 26 bishops, and 272 barons; in all, 515 members.

The total nobility of the United Kingdom is as follows :—

|                | Dukes | Marquises | Earls | Viscounts | Barons | Total |
|----------------|-------|-----------|-------|-----------|--------|-------|
| England . . .  | 27    | 21        | 120   | 28        | 294    | 490   |
| Scotland . . . | 8     | 4         | 43    | 5         | 25     | 85    |
| Ireland . . .  | 2     | 11        | 64    | 36        | 64     | 177   |
| Total . . .    | 37    | 36        | 227   | 69        | 383    | 752   |

There are also 26 English bishops who rank as peers.

## O.

## OCCUPATION

The following table shows approximately the number of persons supported by the principal industries in the several countries :—

|                 | Agriculture | Manu-factures | Commerce, &c. | Total       |
|-----------------|-------------|---------------|---------------|-------------|
| England . . .   | 3,435,000   | 7,313,000     | 15,226,000    | 25,974,000  |
| Scotland . . .  | 523,000     | 1,155,000     | 2,058,000     | 3,736,000   |
| Ireland . . .   | 2,562,000   | 640,000       | 1,898,000     | 5,100,000   |
| U. Kingdom . .  | 6,520,000   | 9,108,000     | 19,182,000    | 34,810,000  |
| France . . .    | 18,249,000  | 8,194,000     | 10,035,000    | 36,478,000  |
| Germany . . .   | 18,841,000  | 16,058,000    | 10,323,000    | 45,222,000  |
| Russia . . .    | 56,815,000  | 10,520,000    | 8,965,000     | 76,300,000  |
| Austria . . .   | 16,710,000  | 5,499,000     | 12,252,000    | 34,461,000  |
| Italy . . .     | 9,169,000   | 4,494,000     | 12,007,000    | 25,670,000  |
| Spain . . .     | 8,170,000   | 3,490,000     | 5,040,000     | 16,700,000  |
| Portugal . . .  | 3,200,000   | 700,000       | 300,000       | 4,200,000   |
| Sweden . . .    | 2,130,000   | 850,000       | 1,520,000     | 4,500,000   |
| Norway . . .    | 903,000     | 300,000       | 598,000       | 1,807,000   |
| Denmark . . .   | 940,000     | 560,000       | 450,000       | 1,950,000   |
| Belgium . . .   | 1,200,000   | 1,910,000     | 2,300,000     | 5,500,000   |
| Holland . . .   | 2,600,000   | 900,000       | 800,000       | 4,300,000   |
| Switzerland . . | 1,140,000   | 970,000       | 730,000       | 2,840,000   |
| Greece . . .    | 940,000     | 260,000       | 440,000       | 1,640,000   |
| Europe . . .    | 147,527,000 | 63,819,000    | 85,032,000    | 296,378,000 |
| U. States . . . | 23,010,000  | 11,520,000    | 15,620,000    | 50,150,000  |
| Australia . . . | 1,200,000   | 950,000       | 1,450,000     | 3,600,000   |
| Total . . .     | 171,737,000 | 76,289,000    | 102,102,000   | 350,128,000 |

As the Census returns of different countries adopt no uniform classification, some including children and dependents, the tables cannot be followed unreservedly. The actual number of persons engaged in the various industries is approximately as follows :—

|                 | Agri-culture | Manu-factures | Commerce, &c. | Total       |
|-----------------|--------------|---------------|---------------|-------------|
| England . . .   | 1,341,000    | 4,161,000     | 6,210,000     | 11,712,000  |
| Scotland . . .  | 234,000      | 641,000       | 773,000       | 1,648,000   |
| Ireland . . .   | 986,000      | 387,000       | 1,002,000     | 2,375,000   |
| U. Kingdom . .  | 2,561,000    | 5,189,000     | 7,985,000     | 15,735,000  |
| France . . .    | 6,455,000    | 4,443,000     | 5,210,000     | 16,108,000  |
| Germany . . .   | 8,120,000    | 5,350,000     | 5,910,000     | 19,380,000  |
| Russia . . .    | 22,700,000   | 4,760,000     | 3,600,000     | 31,060,000  |
| Austria . . .   | 10,682,000   | 3,090,000     | 2,438,000     | 16,210,000  |
| Italy . . .     | 5,397,000    | 2,281,000     | 2,200,000     | 9,878,000   |
| Spain . . .     | 2,723,000    | 1,167,000     | 1,200,000     | 5,090,000   |
| Portugal . . .  | 873,000      | 300,000       | 100,000       | 1,273,000   |
| Sweden . . .    | 853,000      | 400,000       | 350,000       | 1,603,000   |
| Norway . . .    | 380,000      | 170,000       | 150,000       | 700,000     |
| Denmark . . .   | 420,000      | 250,000       | 160,000       | 830,000     |
| Belgium . . .   | 980,000      | 953,000       | 280,000       | 2,213,000   |
| Holland . . .   | 840,000      | 400,000       | 360,000       | 1,600,000   |
| Switzerland . . | 440,000      | 370,000       | 290,000       | 1,100,000   |
| Greece . . .    | 187,000      | 52,000        | 91,000        | 330,000     |
| Europe . . .    | 63,611,000   | 29,175,000    | 30,324,000    | 123,110,000 |
| U. States . . . | 7,671,000    | 3,837,000     | 5,884,000     | 17,392,000  |
| Australia . . . | 398,000      | 327,000       | 563,000       | 1,288,000   |
| Total . . .     | 71,680,000   | 33,339,000    | 36,771,000    | 141,790,000 |

The following table shows the number of persons in 1000 of the population dedicated to each industry:—

The following table shows the number of persons in 1000 of the population dedicated to each industry :—

| Per 1000 of Population   |             |              |               |       |
|--------------------------|-------------|--------------|---------------|-------|
|                          | Agriculture | Manufactures | Commerce, &c. | Total |
| England . . . . .        | 52          | 160          | 238           | 450   |
| Scotland . . . . .       | 61          | 168          | 202           | 431   |
| Ireland . . . . .        | 195         | 76           | 196           | 467   |
| United Kingdom . . . . . | 73          | 148          | 229           | 450   |
| France . . . . .         | 170         | 117          | 137           | 424   |
| Germany . . . . .        | 178         | 118          | 130           | 426   |
| Russia . . . . .         | 298         | 65           | 47            | 410   |
| Austria . . . . .        | 280         | 81           | 64            | 425   |
| Italy . . . . .          | 190         | 80           | 77            | 347   |
| Spain . . . . .          | 160         | 70           | 72            | 302   |
| Portugal . . . . .       | 220         | 70           | 23            | 313   |
| Sweden . . . . .         | 190         | 90           | 80            | 360   |

|                         | Per 1000 of Population |             |               |       |
|-------------------------|------------------------|-------------|---------------|-------|
|                         | Agriculture            | Manufacture | Commerce, &c. | Total |
| Norway . . . . .        | 190                    | 85          | 75            | 350   |
| Denmark . . . . .       | 210                    | 120         | 80            | 410   |
| Holland . . . . .       | 200                    | 93          | 85            | 378   |
| Belgium . . . . .       | 166                    | 160         | 46            | 372   |
| Switzerland . . . . .   | 150                    | 125         | 100           | 375   |
| Greece . . . . .        | 115                    | 32          | 55            | 202   |
| Europe . . . . .        | 187                    | 80          | 90            | 357   |
| United States . . . . . | 153                    | 77          | 117           | 347   |
| Australia . . . . .     | 110                    | 88          | 154           | 352   |

The number of persons occupied is no test of industry or the reverse. In some countries women and children are engaged in manufacture, which swells the ratio of workers ; in others, the children are at school, the women prudently employed at home.

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## UNITED KINGDOM

In his *Resources of Nations* (1835) M'Gregor gives the following:—

|                                  | England, Families | Great Britain, Families |           |           | Ireland, Adults |
|----------------------------------|-------------------|-------------------------|-----------|-----------|-----------------|
|                                  | 1811              | 1811                    | 1821      | 1831      | 1833            |
| Agriculture . . . . .            | 697,000           | 896,000                 | 979,000   | 961,000   | 1,138,000       |
| Trade, manufactures, &c. . . . . | 1,315,000         | 1,648,000               | 1,963,000 | 2,453,000 | 1,699,000       |
| Total . . . . .                  | 2,012,000         | 2,544,000               | 2,942,000 | 3,414,000 | 2,837,000       |

Booth's digest of the Census returns 1841-81 shows the principal occupations of the United Kingdom as follows:—

|                        | 1841       | 1851       | 1861       | 1871       | 1881       |
|------------------------|------------|------------|------------|------------|------------|
| Agriculture . . . . .  | 3,401,000  | 3,519,000  | 3,149,000  | 2,808,000  | 2,561,000  |
| Manufactures . . . . . | 3,137,000  | 3,922,000  | 4,164,000  | 4,377,000  | 4,535,000  |
| Commerce . . . . .     | 684,000    | 1,165,000  | 1,418,000  | 1,712,000  | 1,946,000  |
| Mines . . . . .        | 245,000    | 299,000    | 497,000    | 561,000    | 654,000    |
| Building . . . . .     | 485,000    | 588,000    | 687,000    | 817,000    | 964,000    |
| Professions . . . . .  | 223,000    | 320,000    | 363,000    | 422,000    | 524,000    |
| Domestics . . . . .    | 1,555,000  | 1,542,000  | 1,914,000  | 2,233,000  | 2,448,000  |
| Various . . . . .      | 1,632,000  | 1,406,000  | 1,368,000  | 1,754,000  | 2,103,000  |
| Total . . . . .        | 11,362,000 | 12,761,000 | 13,560,000 | 14,684,000 | 15,735,000 |

## Agriculture

|                          | 1841      | 1851      | 1861      | 1871      | 1881      |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| England . . . . .        | 1,297,000 | 1,760,000 | 1,700,000 | 1,504,000 | 1,341,000 |
| Scotland . . . . .       | 260,000   | 299,000   | 276,000   | 258,000   | 234,000   |
| Ireland . . . . .        | 1,844,000 | 1,460,000 | 1,173,000 | 1,046,000 | 986,000   |
| United Kingdom . . . . . | 3,401,000 | 3,519,000 | 3,149,000 | 2,808,000 | 2,561,000 |

## Manufactures

|                          | 1841      | 1851      | 1861      | 1871      | 1881      |
|--------------------------|-----------|-----------|-----------|-----------|-----------|
| England . . . . .        | 1,798,000 | 2,755,000 | 3,117,000 | 3,359,000 | 3,599,000 |
| Scotland . . . . .       | 350,000   | 480,000   | 481,000   | 518,000   | 557,000   |
| Ireland . . . . .        | 989,000   | 687,000   | 566,000   | 500,000   | 379,000   |
| United Kingdom . . . . . | 3,137,000 | 3,922,000 | 4,164,000 | 4,377,000 | 4,535,000 |

## Commerce

|                          | 1841    | 1851      | 1861      | 1871      | 1881      |
|--------------------------|---------|-----------|-----------|-----------|-----------|
| England . . . . .        | 499,000 | 892,000   | 1,110,000 | 1,362,000 | 1,578,000 |
| Scotland . . . . .       | 74,000  | 121,000   | 145,000   | 179,000   | 208,000   |
| Ireland . . . . .        | 111,000 | 152,000   | 163,000   | 171,000   | 160,000   |
| United Kingdom . . . . . | 684,000 | 1,165,000 | 1,418,000 | 1,712,000 | 1,946,000 |

## OCCUPATION

421

## OCCUPATION

*Mines*

|                        | 1841    | 1851    | 1861    | 1871    | 1881    |
|------------------------|---------|---------|---------|---------|---------|
| England . . . . .      | 210,000 | 235,000 | 425,000 | 475,000 | 562,000 |
| Scotland . . . . .     | 26,000  | 52,000  | 62,000  | 77,000  | 84,000  |
| Ireland . . . . .      | 9,000   | 12,000  | 10,000  | 9,000   | 8,000   |
| United Kingdom . . . . | 245,000 | 299,000 | 497,000 | 561,000 | 654,000 |

*Building*

|                        | 1841    | 1851    | 1861    | 1871    | 1881    |
|------------------------|---------|---------|---------|---------|---------|
| England . . . . .      | 353,000 | 461,000 | 539,000 | 664,000 | 797,000 |
| Scotland . . . . .     | 60,000  | 69,000  | 82,000  | 95,000  | 111,000 |
| Ireland . . . . .      | 72,000  | 58,000  | 66,000  | 58,000  | 56,000  |
| United Kingdom . . . . | 485,000 | 588,000 | 687,000 | 817,000 | 964,000 |

*Learned Professions*

|                        | 1841    | 1851    | 1861    | 1871    | 1881    |
|------------------------|---------|---------|---------|---------|---------|
| England . . . . .      | 159,000 | 246,000 | 284,000 | 337,000 | 423,000 |
| Scotland . . . . .     | 24,000  | 30,000  | 34,000  | 36,000  | 49,000  |
| Ireland . . . . .      | 40,000  | 44,000  | 45,000  | 49,000  | 52,000  |
| United Kingdom . . . . | 223,000 | 320,000 | 363,000 | 422,000 | 524,000 |

*Domestic Servants*

|                        | 1841      | 1851      | 1861      | 1871      | 1881      |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| England . . . . .      | 1,078,000 | 1,121,000 | 1,384,000 | 1,684,000 | 1,838,000 |
| Scotland . . . . .     | 135,000   | 138,000   | 165,000   | 160,000   | 183,000   |
| Ireland . . . . .      | 342,000   | 283,000   | 365,000   | 389,000   | 427,000   |
| United Kingdom . . . . | 1,555,000 | 1,542,000 | 1,914,000 | 2,233,000 | 2,448,000 |

*Total Employed Population*

|                        | 1841       | 1851       | 1861       | 1871       | 1881       |
|------------------------|------------|------------|------------|------------|------------|
| England . . . . .      | 6,631,000  | 8,429,000  | 9,452,000  | 10,623,000 | 11,712,000 |
| Scotland . . . . .     | 1,107,000  | 1,317,000  | 1,374,000  | 1,494,000  | 1,648,000  |
| Ireland . . . . .      | 3,624,000  | 3,015,000  | 2,734,000  | 2,567,000  | 2,375,000  |
| United Kingdom . . . . | 11,362,000 | 12,761,000 | 13,560,000 | 14,684,000 | 15,735,000 |

The useless classes in the three kingdoms were :—

|                     | England |           |         | Scotland       |           |           |
|---------------------|---------|-----------|---------|----------------|-----------|-----------|
|                     | 1841    | 1871      | 1881    | 1841           | 1871      | 1881      |
| Paupers . . . . .   | 843,000 | 977,000   | 758,000 | 117,000        | 124,000   | 99,000    |
| Insane . . . . .    | 40,000  | 57,000    | 73,000  | 9,000          | 11,000    | 14,000    |
| Prisoners . . . . . | 26,000  | 29,000    | 28,000  | 2,000          | 3,000     | 3,000     |
| Total . . . . .     | 909,000 | 1,063,000 | 859,000 | 128,000        | 138,000   | 116,000   |
|                     | Ireland |           |         | United Kingdom |           |           |
|                     | 1841    | 1871      | 1881    | 1841           | 1871      | 1881      |
| Paupers . . . . .   | 217,000 | 282,000   | 590,000 | 1,177,000      | 1,383,000 | 1,447,000 |
| Insane . . . . .    | 14,000  | 17,000    | 17,000  | 63,000         | 85,000    | 104,000   |
| Prisoners . . . . . | 4,000   | 4,000     | 3,000   | 32,000         | 36,000    | 34,000    |
| Total . . . . .     | 235,000 | 303,000   | 610,000 | 1,272,000      | 1,504,000 | 1,585,000 |

The following table shows manufacturing industries :—

|                     | 1841      | 1851      | 1861      | 1871      | 1881      |
|---------------------|-----------|-----------|-----------|-----------|-----------|
| Chemicals . . . . . | 7,000     | 21,000    | 31,000    | 46,000    | 55,000    |
| Paper . . . . .     | 15,000    | 28,000    | 32,000    | 44,000    | 61,000    |
| Leather . . . . .   | 44,000    | 63,000    | 65,000    | 70,000    | 72,000    |
| Pottery . . . . .   | 34,000    | 51,000    | 61,000    | 73,000    | 78,000    |
| Food . . . . .      | 119,000   | 170,000   | 190,000   | 206,000   | 230,000   |
| Carpentry . . . . . | 197,000   | 235,000   | 265,000   | 280,000   | 286,000   |
| Metals . . . . .    | 250,000   | 362,000   | 451,000   | 522,000   | 572,000   |
| Clothing . . . . .  | 795,000   | 1,150,000 | 1,230,000 | 1,210,000 | 1,223,000 |
| Textiles . . . . .  | 1,481,000 | 1,605,000 | 1,457,000 | 1,400,000 | 1,283,000 |
| Various . . . . .   | 195,000   | 237,000   | 382,000   | 526,000   | 675,000   |
| Total . . . . .     | 3,137,000 | 3,922,000 | 4,164,000 | 4,377,000 | 4,535,000 |

The learned professions in the United Kingdom show almost twice as great a relative increase as the population in general. The numbers were :—

|                          | 1841    | 1851    | 1861    | 1871    | 1881    |
|--------------------------|---------|---------|---------|---------|---------|
| Divinity . . . . .       | 30,000  | 44,000  | 56,000  | 64,000  | 78,000  |
| Law . . . . .            | 39,000  | 45,000  | 45,000  | 50,000  | 56,000  |
| Medicine . . . . .       | 56,000  | 75,000  | 76,000  | 87,000  | 102,000 |
| Arts and science . . . . | 22,000  | 33,000  | 38,000  | 52,000  | 64,000  |
| Education . . . . .      | 76,000  | 123,000 | 148,000 | 169,000 | 224,000 |
| Total . . . . .          | 223,000 | 320,000 | 363,000 | 422,000 | 524,000 |

## OCCUPATION

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## OCCUPATION

|                    | Ratio of Persons Employed in the United Kingdom |       |       |       |       |
|--------------------|-------------------------------------------------|-------|-------|-------|-------|
|                    | 1841                                            | 1851  | 1861  | 1871  | 1881  |
| Agriculture . . .  | 298                                             | 276   | 233   | 192   | 162   |
| Manufactures . . . | 277                                             | 307   | 307   | 298   | 288   |
| Commerce . . .     | 60                                              | 92    | 104   | 116   | 124   |
| Mines . . .        | 22                                              | 24    | 37    | 38    | 41    |
| Building . . .     | 43                                              | 46    | 51    | 55    | 61    |
| Professions . . .  | 19                                              | 25    | 26    | 28    | 33    |
| Domestics . . .    | 137                                             | 120   | 141   | 153   | 156   |
| Various . . .      | 144                                             | 110   | 101   | 120   | 135   |
| Total . . .        | 1,000                                           | 1,000 | 1,000 | 1,000 | 1,000 |

The occupations according to sexes were as follows :—

|                    | 1841      |           |            | Ratio |         |       |
|--------------------|-----------|-----------|------------|-------|---------|-------|
|                    | Males     | Females   | Total      | Males | Females | Total |
| Agriculture . . .  | 3,151,000 | 250,000   | 3,401,000  | 276   | 22      | 298   |
| Manufactures . . . | 1,823,000 | 1,314,000 | 3,137,000  | 161   | 116     | 277   |
| Commerce . . .     | 577,000   | 107,000   | 684,000    | 51    | 9       | 60    |
| Professions . . .  | 162,000   | 61,000    | 223,000    | 14    | 5       | 19    |
| Domestics . . .    | 325,000   | 1,230,000 | 1,555,000  | 29    | 108     | 137   |
| Various . . .      | 1,989,000 | 373,000   | 2,362,000  | 176   | 33      | 209   |
| Total . . .        | 8,027,000 | 3,335,000 | 11,362,000 | 707   | 293     | 1,000 |

|                    | 1851      |           |            | Ratio |         |       |
|--------------------|-----------|-----------|------------|-------|---------|-------|
|                    | Males     | Females   | Total      | Males | Females | Total |
| Agriculture . . .  | 3,123,000 | 396,000   | 3,519,000  | 245   | 31      | 276   |
| Manufactures . . . | 1,262,000 | 1,660,000 | 2,922,000  | 177   | 130     | 307   |
| Commerce . . .     | 977,000   | 188,000   | 1,165,000  | 77    | 15      | 92    |
| Professions . . .  | 207,000   | 113,000   | 320,000    | 16    | 9       | 25    |
| Domestics . . .    | 197,000   | 1,345,000 | 1,542,000  | 15    | 105     | 120   |
| Various . . .      | 2,086,000 | 207,000   | 2,293,000  | 164   | 16      | 180   |
| Total . . .        | 8,852,000 | 3,909,000 | 12,761,000 | 694   | 306     | 1,000 |

|                    | 1861      |           |            | Ratio |         |       |
|--------------------|-----------|-----------|------------|-------|---------|-------|
|                    | Males     | Females   | Total      | Males | Females | Total |
| Agriculture . . .  | 2,885,000 | 264,000   | 3,149,000  | 214   | 19      | 233   |
| Manufactures . . . | 2,427,000 | 1,737,000 | 4,164,000  | 179   | 128     | 307   |
| Commerce . . .     | 1,196,000 | 222,000   | 1,418,000  | 88    | 16      | 104   |
| Professions . . .  | 224,000   | 139,000   | 363,000    | 16    | 10      | 26    |
| Domestics . . .    | 229,000   | 1,685,000 | 1,914,000  | 16    | 125     | 141   |
| Various . . .      | 2,363,000 | 189,000   | 2,552,000  | 175   | 14      | 189   |
| Total . . .        | 9,324,000 | 4,236,000 | 13,560,000 | 688   | 312     | 1,000 |

| Age               | Agriculture |           |           | Manufacture |           |            |
|-------------------|-------------|-----------|-----------|-------------|-----------|------------|
|                   | 1861        | 1871      | 1881      | 1861        | 1871      | 1881       |
| 0-15 . . . . .    | 177,000     | 158,000   | 95,000    | 178,000     | 166,000   | 126,000    |
| 15-65 . . . . .   | 2,458,000   | 2,141,000 | 2,008,000 | 2,131,000   | 2,289,000 | 2,496,000  |
| Over 65 . . . . . | 250,000     | 270,000   | 245,000   | 118,000     | 128,000   | 118,000    |
| Total . . . . .   | 2,885,000   | 2,569,000 | 2,348,000 | 2,427,000   | 2,583,000 | 2,740,000  |
|                   | Various     |           |           | Total       |           |            |
|                   | 1861        | 1871      | 1881      | 1861        | 1871      | 1881       |
| 0-15 . . . . .    | 184,000     | 209,000   | 173,000   | 539,000     | 533,000   | 394,000    |
| 15-65 . . . . .   | 3,581,000   | 4,278,000 | 5,149,000 | 8,170,000   | 8,708,000 | 9,653,000  |
| Over 65 . . . . . | 247,000     | 325,000   | 410,000   | 615,000     | 723,000   | 773,000    |
| Total . . . . .   | 4,012,000   | 4,812,000 | 5,732,000 | 9,324,000   | 9,964,000 | 10,820,000 |

|                    | 1871      |           |            | Ratio |         |       |
|--------------------|-----------|-----------|------------|-------|---------|-------|
|                    | Males     | Females   | Total      | Males | Females | Total |
| Agriculture . . .  | 2,569,000 | 239,000   | 2,808,000  | 176   | 16      | 192   |
| Manufactures . . . | 2,583,000 | 1,794,000 | 4,377,000  | 176   | 122     | 298   |
| Commerce . . .     | 1,436,000 | 276,000   | 1,712,000  | 98    | 18      | 116   |
| Professions . . .  | 253,000   | 169,000   | 422,000    | 17    | 11      | 28    |
| Domestics . . .    | 248,000   | 1,985,000 | 2,233,000  | 17    | 135     | 152   |
| Various . . .      | 2,875,000 | 257,000   | 3,132,000  | 197   | 17      | 214   |
| Total . . .        | 9,964,000 | 4,720,000 | 14,684,000 | 681   | 319     | 1,000 |

|                    | 1881       |           |            | Ratio |         |       |
|--------------------|------------|-----------|------------|-------|---------|-------|
|                    | Males      | Females   | Total      | Males | Females | Total |
| Agriculture . . .  | 2,348,000  | 213,000   | 2,561,000  | 149   | 13      | 162   |
| Manufactures . . . | 2,740,000  | 1,795,000 | 4,535,000  | 174   | 114     | 288   |
| Commerce . . .     | 1,650,000  | 296,000   | 1,946,000  | 105   | 19      | 124   |
| Professions . . .  | 299,000    | 225,000   | 524,000    | 19    | 14      | 33    |
| Domestics . . .    | 359,000    | 2,089,000 | 2,448,000  | 23    | 133     | 156   |
| Various . . .      | 3,424,000  | 297,000   | 3,721,000  | 218   | 19      | 237   |
| Total . . .        | 10,820,000 | 4,915,000 | 15,735,000 | 688   | 312     | 1,000 |

The number of adults and that of actual workers are shown as follows :—

|                | Males                |            |           |            |
|----------------|----------------------|------------|-----------|------------|
|                | Over 15 years of Age |            | Workers   |            |
|                | 1841                 | 1881       | 1841      | 1881       |
| England . . .  | 4,940,000            | 7,961,000  | 4,797,000 | 8,108,000  |
| Scotland . . . | 778,000              | 1,106,000  | 764,000   | 1,130,000  |
| Ireland . . .  | 2,444,000            | 1,609,000  | 2,466,000 | 1,582,000  |
| U. Kingdom     | 8,162,000            | 10,676,000 | 8,027,000 | 10,820,000 |

|                | Females   |            |           |           |
|----------------|-----------|------------|-----------|-----------|
|                | 1841      | 1881       | 1841      | 1881      |
|                | 1841      | 1881       | 1841      | 1881      |
| England . . .  | 5,325,000 | 8,613,000  | 1,834,000 | 3,604,000 |
| Scotland . . . | 898,000   | 1,263,000  | 343,000   | 518,000   |
| Ireland . . .  | 2,624,000 | 1,741,000  | 1,158,000 | 793,000   |
| U. Kingdom     | 8,847,000 | 11,617,000 | 3,335,000 | 4,915,000 |

|                | Total      |            |            |            |
|----------------|------------|------------|------------|------------|
|                | 1841       | 1881       | 1841       | 1881       |
|                | 1841       | 1881       | 1841       | 1881       |
| England . . .  | 10,265,000 | 16,574,000 | 6,631,000  | 11,712,000 |
| Scotland . . . | 1,676,000  | 2,369,000  | 1,107,000  | 1,648,000  |
| Ireland . . .  | 5,068,000  | 3,350,000  | 3,624,000  | 2,375,000  |
| U. Kingdom     | 17,009,000 | 22,293,000 | 11,362,000 | 15,735,000 |

It appears that the number of males employed in 1881 was greater than that of male adults in the population. Males are classified thus according to age :—

## OCCUPATION

423

## OCCUPATION

| Agriculture |           |           |           |           |
|-------------|-----------|-----------|-----------|-----------|
|             | 1851      | 1861      | 1871      | 1881      |
| Men . . .   | 2,930,000 | 2,708,000 | 2,411,000 | 2,253,000 |
| Women . .   | 396,000   | 264,000   | 239,000   | 213,000   |
| Boys . . .  | 193,000   | 177,000   | 158,000   | 95,000    |
| Total . .   | 3,519,000 | 3,149,000 | 2,808,000 | 2,561,000 |

| Various    |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|
|            | 1851      | 1861      | 1871      | 1881      |
| Men . . .  | 3,318,000 | 3,828,000 | 4,603,000 | 5,559,000 |
| Women . .  | 1,853,000 | 2,235,000 | 2,687,000 | 2,907,000 |
| Boys . . . | 149,000   | 184,000   | 209,000   | 173,000   |
| Total . .  | 5,320,000 | 6,247,000 | 7,499,000 | 8,639,000 |

| Manufactures |           |           |           |           |
|--------------|-----------|-----------|-----------|-----------|
|              | 1851      | 1861      | 1871      | 1881      |
| Men . . .    | 2,083,000 | 2,249,000 | 2,417,000 | 2,614,000 |
| Women . .    | 1,660,000 | 1,737,000 | 1,794,000 | 1,795,000 |
| Boys . . .   | 179,000   | 178,000   | 166,000   | 126,000   |
| Total . .    | 3,922,000 | 4,164,000 | 4,377,000 | 4,535,000 |

| All Occupations |            |            |            |            |
|-----------------|------------|------------|------------|------------|
|                 | 1851       | 1861       | 1871       | 1881       |
| Men . . .       | 8,331,000  | 8,785,000  | 9,431,000  | 10,426,000 |
| Women . .       | 3,909,000  | 4,236,000  | 4,720,000  | 4,915,000  |
| Boys . . .      | 521,000    | 539,000    | 533,000    | 394,000    |
| Total . .       | 12,761,000 | 13,560,000 | 14,684,000 | 15,735,000 |

If we compare the total number of persons of all occupations in 1881 with that in 1851, we find an increase of 25 per cent. in the men and 57 per cent. in the women, but a decrease of 25 per cent. in boys, which latter is doubtless due to the Board Schools.

The number of persons supported or making a living out of the several occupations is shown by Booth as follows :—

## ENGLAND

|                       | 1841       | 1851       | 1861       | 1871       | 1881       |
|-----------------------|------------|------------|------------|------------|------------|
| Agriculture . . . . . | 3,875,000  | 4,247,000  | 4,194,000  | 3,746,000  | 3,435,000  |
| Manufacture . . . . . | 4,006,000  | 5,203,000  | 5,940,000  | 6,553,000  | 7,313,000  |
| Transport . . . . .   | 474,000    | 868,000    | 1,177,000  | 1,406,000  | 1,799,000  |
| Dealing . . . . .     | 973,000    | 1,385,000  | 1,684,000  | 2,054,000  | 2,334,000  |
| Mines . . . . .       | 564,000    | 828,000    | 1,065,000  | 1,231,000  | 1,553,000  |
| Building . . . . .    | 1,126,000  | 1,381,000  | 1,633,000  | 1,984,000  | 2,464,000  |
| Domestics . . . . .   | 1,111,000  | 1,211,000  | 1,523,000  | 1,859,000  | 2,230,000  |
| Sundry . . . . .      | 3,783,000  | 2,745,000  | 2,850,000  | 3,879,000  | 4,846,000  |
| Total . . . . .       | 15,912,000 | 17,928,000 | 20,066,000 | 22,712,000 | 25,974,000 |

## SCOTLAND

|                       | 1841      | 1851      | 1861      | 1871      | 1881      |
|-----------------------|-----------|-----------|-----------|-----------|-----------|
| Agriculture . . . . . | 669,000   | 688,000   | 663,000   | 604,000   | 523,000   |
| Manufacture . . . . . | 726,000   | 925,000   | 940,000   | 1,040,000 | 1,155,000 |
| Transport . . . . .   | 84,000    | 141,000   | 173,000   | 215,000   | 252,000   |
| Dealing . . . . .     | 129,000   | 180,000   | 214,000   | 248,000   | 287,000   |
| Mines . . . . .       | 74,000    | 142,000   | 176,000   | 217,000   | 239,000   |
| Building . . . . .    | 200,000   | 225,000   | 254,000   | 293,000   | 347,000   |
| Domestics . . . . .   | 146,000   | 147,000   | 184,000   | 190,000   | 242,000   |
| Sundry . . . . .      | 592,000   | 440,000   | 458,000   | 553,000   | 691,000   |
| Total . . . . .       | 2,620,000 | 2,888,000 | 3,062,000 | 3,360,000 | 3,736,000 |

## IRELAND

|                       | 1841      | 1851      | 1861      | 1871      | 1881      |
|-----------------------|-----------|-----------|-----------|-----------|-----------|
| Agriculture . . . . . | 5,074,000 | 3,650,000 | 3,020,000 | 2,635,000 | 2,562,000 |
| Manufacture . . . . . | 1,498,000 | 1,059,000 | 879,000   | 777,000   | 640,000   |
| Transport . . . . .   | 60,000    | 122,000   | 137,000   | 154,000   | 148,000   |
| Dealing . . . . .     | 195,000   | 214,000   | 227,000   | 237,000   | 234,000   |
| Mines . . . . .       | 27,000    | 33,000    | 29,000    | 25,000    | 23,000    |
| Building . . . . .    | 229,000   | 171,000   | 192,000   | 172,000   | 176,000   |
| Domestics . . . . .   | 346,000   | 286,000   | 371,000   | 409,000   | 457,000   |
| Sundry . . . . .      | 746,000   | 1,017,000 | 944,000   | 1,004,000 | 935,000   |
| Total . . . . .       | 8,175,000 | 6,552,000 | 5,799,000 | 5,413,000 | 5,175,000 |

## UNITED KINGDOM

|                       | 1841       | 1851       | 1861       | 1871       | 1881       |
|-----------------------|------------|------------|------------|------------|------------|
| Agriculture . . . . . | 9,618,000  | 8,585,000  | 7,877,000  | 6,985,000  | 6,520,000  |
| Manufacture . . . . . | 6,230,000  | 7,247,000  | 7,759,000  | 8,370,000  | 9,108,000  |
| Transport . . . . .   | 618,000    | 1,131,000  | 1,487,000  | 1,775,000  | 2,199,000  |
| Dealing . . . . .     | 1,297,000  | 1,779,000  | 2,125,000  | 2,539,000  | 2,855,000  |
| Mines . . . . .       | 665,000    | 1,003,000  | 1,270,000  | 1,473,000  | 1,815,000  |
| Building . . . . .    | 1,555,000  | 1,777,000  | 2,079,000  | 2,449,000  | 2,987,000  |
| Domestics . . . . .   | 1,603,000  | 1,644,000  | 2,078,000  | 2,458,000  | 2,929,000  |
| Sundry . . . . .      | 5,121,000  | 4,202,000  | 4,252,000  | 5,436,000  | 6,472,000  |
| Total . . . . .       | 26,707,000 | 27,368,000 | 28,927,000 | 31,485,000 | 34,885,000 |

*Ratios for the United Kingdom*

|                        | 1841  | 1851  | 1861  | 1871  | 1881  |
|------------------------|-------|-------|-------|-------|-------|
| Agriculture . . . . .  | 360   | 314   | 272   | 223   | 187   |
| Manufactures . . . . . | 233   | 265   | 268   | 267   | 261   |
| Domestics . . . . .    | 60    | 60    | 73    | 77    | 84    |
| Building . . . . .     | 58    | 65    | 73    | 77    | 86    |
| Dealing . . . . .      | 48    | 65    | 74    | 80    | 81    |
| Mines . . . . .        | 25    | 36    | 44    | 47    | 52    |
| Transport . . . . .    | 23    | 41    | 51    | 56    | 63    |
| Sundry . . . . .       | 193   | 154   | 145   | 173   | 186   |
| Total . . . . .        | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

## ENGLAND AND WALES

The following are the official classifications :—

| Year | Agriculture | Trade and Manufactures | Various   | Total      | Percentage of Total Population |
|------|-------------|------------------------|-----------|------------|--------------------------------|
| 1811 | 896,000     | 1,129,000              | 519,000   | 2,544,000  | 25.0                           |
| 1821 | 979,000     | 1,350,000              | 612,000   | 2,941,000  | 24.3                           |
| 1831 | 961,000     | 1,435,000              | 1,018,000 | 3,414,000  | 24.4                           |
| 1841 | 1,499,000   | 3,111,000              | 2,180,000 | 3,990,000  | 24.9                           |
| 1851 | 2,029,000   | 3,692,000              | 5,927,000 | 11,648,000 | 64.0                           |
| 1861 | 2,011,000   | 4,829,000              | 6,234,000 | 13,074,000 | 64.7                           |
| 1871 | 1,657,000   | 5,953,000              | 7,153,000 | 14,763,000 | 64.8                           |
| 1881 | 1,383,000   | 7,353,000              | ...       | ...        | ...                            |

Booth's digest of the Censuses from 1841 is as follows for England and Wales :—

|                        | 1841      | 1851      | 1861      | 1871       | 1881       |
|------------------------|-----------|-----------|-----------|------------|------------|
| Agriculture . . . . .  | 1,297,000 | 1,760,000 | 1,700,000 | 1,504,000  | 1,341,000  |
| Manufactures . . . . . | 1,798,000 | 2,755,000 | 3,117,000 | 3,359,000  | 3,599,000  |
| Commerce . . . . .     | 499,000   | 892,000   | 1,110,000 | 1,362,000  | 1,578,000  |
| Professions . . . . .  | 159,000   | 246,000   | 284,000   | 337,000    | 423,000    |
| Domestics . . . . .    | 1,078,000 | 1,121,000 | 1,384,000 | 1,684,000  | 1,838,000  |
| Various . . . . .      | 1,800,000 | 1,655,000 | 1,857,000 | 2,377,000  | 2,933,000  |
| Total . . . . .        | 6,631,000 | 8,429,000 | 9,452,000 | 10,623,000 | 11,712,000 |

|                        | 1841      |           |           | Ratio per 1000 |         |       |
|------------------------|-----------|-----------|-----------|----------------|---------|-------|
|                        | Males     | Females   | Total     | Males          | Females | Total |
| Agriculture . . . . .  | 1,239,000 | 58,000    | 1,297,000 | 187            | 9       | 196   |
| Manufactures . . . . . | 1,306,000 | 492,000   | 1,798,000 | 198            | 74      | 272   |
| Commerce . . . . .     | 439,000   | 60,000    | 499,000   | 66             | 9       | 75    |
| Professions . . . . .  | 112,000   | 47,000    | 159,000   | 17             | 7       | 24    |
| Domestics . . . . .    | 234,000   | 843,000   | 1,077,000 | 35             | 127     | 162   |
| Various . . . . .      | 1,467,000 | 334,000   | 1,801,000 | 221            | 50      | 271   |
| Total . . . . .        | 4,797,000 | 1,834,000 | 6,631,000 | 724            | 276     | 1,000 |

|                        | 1851      |           |            | Ratio per 1000 |         |       |
|------------------------|-----------|-----------|------------|----------------|---------|-------|
|                        | Males     | Females   | Total      | Males          | Females | Total |
| Agriculture . . . . .  | 1,275,000 | 66,000    | 1,341,000  | 109            | 6       | 115   |
| Manufactures . . . . . | 2,236,000 | 1,363,000 | 3,599,000  | 191            | 116     | 307   |
| Commerce . . . . .     | 1,360,000 | 218,000   | 1,578,000  | 115            | 18      | 134   |
| Professions . . . . .  | 234,000   | 189,000   | 423,000    | 20             | 15      | 35    |
| Domestics . . . . .    | 292,000   | 1,546,000 | 1,838,000  | 25             | 132     | 157   |
| Various . . . . .      | 2,711,000 | 222,000   | 2,933,000  | 233            | 19      | 252   |
| Total . . . . .        | 8,108,000 | 3,604,000 | 11,712,000 | 694            | 306     | 1,000 |

The following table shows the relative increase or decrease of the number of hands in each decade for each industry :—

| 1851                   |           |           |           |     |     |       |
|------------------------|-----------|-----------|-----------|-----|-----|-------|
| Agriculture . . . . .  | 1,591,000 | 169,000   | 1,760,000 | 189 | 20  | 209   |
| Manufactures . . . . . | 1,720,000 | 1,035,000 | 2,755,000 | 205 | 122 | 327   |
| Commerce . . . . .     | 772,000   | 120,000   | 892,000   | 92  | 14  | 106   |
| Professions . . . . .  | 149,000   | 97,000    | 246,000   | 17  | 12  | 29    |
| Domestics . . . . .    | 150,000   | 971,000   | 1,121,000 | 17  | 115 | 132   |
| Various . . . . .      | 1,494,000 | 161,000   | 1,655,000 | 178 | 19  | 197   |
| Total . . . . .        | 5,876,000 | 2,553,000 | 8,429,000 | 698 | 302 | 1,000 |

| 1861                   |           |           |           |     |     |       |
|------------------------|-----------|-----------|-----------|-----|-----|-------|
| Agriculture . . . . .  | 1,584,000 | 116,000   | 1,700,000 | 167 | 12  | 179   |
| Manufactures . . . . . | 1,916,000 | 1,201,000 | 3,117,000 | 204 | 127 | 331   |
| Commerce . . . . .     | 962,000   | 148,000   | 1,110,000 | 102 | 16  | 118   |
| Professions . . . . .  | 167,000   | 117,000   | 284,000   | 18  | 12  | 30    |
| Domestics . . . . .    | 169,000   | 1,215,000 | 1,384,000 | 18  | 128 | 146   |
| Various . . . . .      | 1,720,000 | 137,000   | 1,857,000 | 182 | 14  | 196   |
| Total . . . . .        | 6,518,000 | 2,934,000 | 9,452,000 | 691 | 309 | 1,000 |

| 1871                   |           |           |            |     |     |       |
|------------------------|-----------|-----------|------------|-----|-----|-------|
| Agriculture . . . . .  | 1,419,000 | 81,000    | 1,504,000  | 133 | 8   | 141   |
| Manufactures . . . . . | 2,079,000 | 1,280,000 | 3,359,000  | 196 | 120 | 316   |
| Commerce . . . . .     | 1,169,000 | 193,000   | 1,362,000  | 110 | 18  | 128   |
| Professions . . . . .  | 196,000   | 141,000   | 337,000    | 18  | 13  | 31    |
| Domestics . . . . .    | 197,000   | 1,487,000 | 1,684,000  | 18  | 141 | 159   |
| Various . . . . .      | 2,190,000 | 187,000   | 2,377,000  | 207 | 18  | 225   |
| Total . . . . .        | 7,250,000 | 3,373,000 | 10,623,000 | 682 | 318 | 1,000 |

## Males

| Year | Agriculture | Manufactures | Commerce | Professions | Domestics | Total |
|------|-------------|--------------|----------|-------------|-----------|-------|
| 1841 | 100         | 100          | 100      | 100         | 100       | 100   |
| 1851 | 128         | 132          | 175      | 133         | 64        | 122   |
| 1861 | 128         | 147          | 219      | 149         | 72        | 135   |
| 1871 | 115         | 159          | 266      | 175         | 84        | 151   |
| 1881 | 103         | 171          | 309      | 209         | 125       | 167   |

## Females

| Year | Agriculture | Manufactures | Commerce | Professions | Domestics | Total |
|------|-------------|--------------|----------|-------------|-----------|-------|
| 1841 | 100         | 100          | 100      | 100         | 100       | 100   |
| 1851 | 291         | 211          | 162      | 206         | 115       | 140   |
| 1861 | 200         | 245          | 247      | 248         | 144       | 160   |
| 1871 | 146         | 261          | 322      | 300         | 177       | 183   |
| 1881 | 114         | 278          | 363      | 402         | 184       | 196   |

## Total

| Year | Agriculture | Manufactures | Commerce | Professions | Domestics | Total |
|------|-------------|--------------|----------|-------------|-----------|-------|
| 1841 | 100         | 100          | 100      | 100         | 100       | 100   |
| 1851 | 135         | 153          | 178      | 154         | 104       | 127   |
| 1861 | 130         | 173          | 222      | 179         | 127       | 142   |
| 1871 | 116         | 187          | 272      | 210         | 155       | 160   |
| 1881 | 103         | 201          | 316      | 264         | 170       | 176   |



## OCCUPATION

425

## OCCUPATION

Males are classified according to age :—

| <i>Agriculture</i>    |                  |                  |                  |                  |
|-----------------------|------------------|------------------|------------------|------------------|
| Age                   | 1851             | 1861             | 1871             | 1881             |
| 0-15 . . .            | 110,000          | 123,000          | 103,000          | 72,000           |
| 15-65 . . .           | 1,352,000        | 1,311,000        | 1,164,000        | 1,083,000        |
| Over 65 . . .         | 129,000          | 150,000          | 152,000          | 120,000          |
| <b>Total . . .</b>    | <b>1,591,000</b> | <b>1,584,000</b> | <b>1,419,000</b> | <b>1,275,000</b> |
| <i>Manufactures</i>   |                  |                  |                  |                  |
| 0-15 . . .            | 139,000          | 147,000          | 137,000          | 107,000          |
| 15-65 . . .           | 1,498,000        | 1,678,000        | 1,840,000        | 2,035,000        |
| Over 65 . . .         | 83,000           | 91,000           | 102,000          | 94,000           |
| <b>Total . . .</b>    | <b>1,720,000</b> | <b>1,916,000</b> | <b>2,079,000</b> | <b>2,236,000</b> |
| <i>Commerce</i>       |                  |                  |                  |                  |
| 0-15 . . .            | 57,000           | 54,000           | 69,000           | 74,000           |
| 15-65 . . .           | 675,000          | 858,000          | 1,036,000        | 1,228,000        |
| Over 65 . . .         | 40,000           | 50,000           | 64,000           | 58,000           |
| <b>Total . . .</b>    | <b>772,000</b>   | <b>962,000</b>   | <b>1,169,000</b> | <b>1,360,000</b> |
| <i>Domestics</i>      |                  |                  |                  |                  |
| 0-15 . . .            | 8,000            | 10,000           | 10,000           | 10,000           |
| 15-65 . . .           | 138,000          | 153,000          | 180,000          | 269,000          |
| Over 65 . . .         | 4,000            | 6,000            | 7,000            | 13,000           |
| <b>Total . . .</b>    | <b>150,000</b>   | <b>169,000</b>   | <b>197,000</b>   | <b>292,000</b>   |
| <i>Various</i>        |                  |                  |                  |                  |
| 0-15 . . .            | 60,000           | 80,000           | 85,000           | 58,000           |
| 15-65 . . .           | 1,463,000        | 1,681,000        | 2,136,000        | 2,636,000        |
| Over 65 . . .         | 120,000          | 126,000          | 165,000          | 251,000          |
| <b>Total . . .</b>    | <b>1,643,000</b> | <b>1,887,000</b> | <b>2,386,000</b> | <b>2,945,000</b> |
| <i>Total of Males</i> |                  |                  |                  |                  |
| 0-15 . . .            | 374,000          | 414,000          | 404,000          | 321,000          |
| 15-65 . . .           | 5,126,000        | 5,681,000        | 6,356,000        | 7,251,000        |
| Over 65 . . .         | 376,000          | 423,000          | 490,000          | 536,000          |
| <b>Total . . .</b>    | <b>5,876,000</b> | <b>6,518,000</b> | <b>7,250,000</b> | <b>8,108,000</b> |

*Agriculture*

|                    | 1851             | 1861             | 1871             | 1881             |
|--------------------|------------------|------------------|------------------|------------------|
| Men . . .          | 1,481,000        | 1,461,000        | 1,316,000        | 1,203,000        |
| Women . . .        | 169,000          | 116,000          | 85,000           | 66,000           |
| Boys . . .         | 110,000          | 123,000          | 103,000          | 72,000           |
| <b>Total . . .</b> | <b>1,760,000</b> | <b>1,700,000</b> | <b>1,504,000</b> | <b>1,341,000</b> |

*Manufactures*

|                    |                  |                  |                  |                  |
|--------------------|------------------|------------------|------------------|------------------|
| Men . . .          | 1,581,000        | 1,769,000        | 1,942,000        | 2,129,000        |
| Women . . .        | 1,035,000        | 1,201,000        | 1,280,000        | 1,363,000        |
| Boys . . .         | 139,000          | 147,000          | 137,000          | 107,000          |
| <b>Total . . .</b> | <b>2,755,000</b> | <b>3,117,000</b> | <b>3,359,000</b> | <b>3,599,000</b> |

*Commerce*

|                    |                |                  |                  |                  |
|--------------------|----------------|------------------|------------------|------------------|
| Men . . .          | 715,000        | 908,000          | 1,100,000        | 1,286,000        |
| Women . . .        | 120,000        | 148,000          | 193,000          | 218,000          |
| Boys . . .         | 57,000         | 54,000           | 69,000           | 74,000           |
| <b>Total . . .</b> | <b>892,000</b> | <b>1,110,000</b> | <b>1,362,000</b> | <b>1,578,000</b> |

*Domestics*

|                    |                  |                  |                  |                  |
|--------------------|------------------|------------------|------------------|------------------|
| Men . . .          | 142,000          | 159,000          | 187,000          | 282,000          |
| Women . . .        | 971,000          | 1,215,000        | 1,487,000        | 1,546,000        |
| Boys . . .         | 8,000            | 10,000           | 10,000           | 10,000           |
| <b>Total . . .</b> | <b>1,121,000</b> | <b>1,384,000</b> | <b>1,684,000</b> | <b>1,838,000</b> |

*Various*

|                    |                  |                  |                  |                  |
|--------------------|------------------|------------------|------------------|------------------|
| Men . . .          | 1,583,000        | 1,807,000        | 2,301,000        | 2,887,000        |
| Women . . .        | 258,000          | 254,000          | 328,000          | 411,000          |
| Boys . . .         | 60,000           | 80,000           | 85,000           | 58,000           |
| <b>Total . . .</b> | <b>1,901,000</b> | <b>2,141,000</b> | <b>2,714,000</b> | <b>3,356,000</b> |

*Total*

|                    |                  |                  |                   |                   |
|--------------------|------------------|------------------|-------------------|-------------------|
| Men . . .          | 5,502,000        | 6,104,000        | 6,846,000         | 7,787,000         |
| Women . . .        | 2,553,000        | 2,934,000        | 3,373,000         | 3,604,000         |
| Boys . . .         | 374,000          | 414,000          | 404,000           | 321,000           |
| <b>Total . . .</b> | <b>8,429,000</b> | <b>9,452,000</b> | <b>10,623,000</b> | <b>11,712,000</b> |

## SCOTLAND

Booth's digest of the Censuses classifies as follows :—

|                        | 1841             | 1851             | 1861             | 1871             | 1881             |
|------------------------|------------------|------------------|------------------|------------------|------------------|
| Agriculture . . . . .  | 260,000          | 299,000          | 276,000          | 258,000          | 234,000          |
| Manufactures . . . . . | 350,000          | 480,000          | 481,000          | 518,000          | 557,000          |
| Commerce . . . . .     | 74,000           | 121,000          | 145,000          | 179,000          | 208,000          |
| Professions . . . . .  | 24,000           | 30,000           | 34,000           | 36,000           | 49,000           |
| Domestics . . . . .    | 135,000          | 138,000          | 165,000          | 160,000          | 183,000          |
| Various . . . . .      | 264,000          | 249,000          | 273,000          | 343,000          | 417,000          |
| <b>Total . . . . .</b> | <b>1,107,000</b> | <b>1,317,000</b> | <b>1,374,000</b> | <b>1,494,000</b> | <b>1,648,000</b> |

|                        | 1841           |                |                  | Ratio per 1000 |            |              |                        | 1851           |                |                  | Ratio per 1000 |            |              |
|------------------------|----------------|----------------|------------------|----------------|------------|--------------|------------------------|----------------|----------------|------------------|----------------|------------|--------------|
|                        | Males          | Females        | Total            | Males          | Females    | Total        |                        | Males          | Females        | Total            | Males          | Females    | Total        |
| Agriculture . . . . .  | 213,000        | 47,000         | 260,000          | 192            | 43         | 235          | Agriculture . . . . .  | 239,000        | 60,000         | 299,000          | 181            | 45         | 226          |
| Manufactures . . . . . | 214,000        | 136,000        | 350,000          | 192            | 123        | 315          | Manufactures . . . . . | 285,000        | 195,000        | 480,000          | 217            | 148        | 365          |
| Commerce . . . . .     | 60,000         | 14,000         | 74,000           | 54             | 13         | 67           | Commerce . . . . .     | 99,000         | 22,000         | 121,000          | 75             | 17         | 92           |
| Professions . . . . .  | 20,000         | 4,000          | 24,000           | 18             | 4          | 22           | Professions . . . . .  | 26,000         | 4,000          | 30,000           | 20             | 3          | 23           |
| Domestics . . . . .    | 20,000         | 115,000        | 135,000          | 18             | 104        | 122          | Domestics . . . . .    | 12,000         | 126,000        | 138,000          | 9              | 96         | 105          |
| Various . . . . .      | 237,000        | 27,000         | 264,000          | 214            | 25         | 239          | Various . . . . .      | 220,000        | 29,000         | 249,000          | 167            | 22         | 189          |
| <b>Total . . . . .</b> | <b>764,000</b> | <b>343,000</b> | <b>1,107,000</b> | <b>688</b>     | <b>312</b> | <b>1,000</b> | <b>Total . . . . .</b> | <b>881,000</b> | <b>436,000</b> | <b>1,317,000</b> | <b>669</b>     | <b>331</b> | <b>1,000</b> |

|               | 1861    |         |           | Ratio per 1000 |         |       |
|---------------|---------|---------|-----------|----------------|---------|-------|
|               | Males   | Females | Total     | Males          | Females | Total |
| Agriculture . | 229,000 | 47,000  | 276,000   | 166            | 34      | 200   |
| Manufactures  | 280,000 | 201,000 | 481,000   | 204            | 146     | 350   |
| Commerce .    | 117,000 | 28,000  | 145,000   | 85             | 20      | 105   |
| Professions . | 26,000  | 8,000   | 34,000    | 19             | 6       | 25    |
| Domestics .   | 15,000  | 190,000 | 205,000   | 11             | 109     | 120   |
| Various . .   | 254,000 | 19,000  | 273,000   | 185            | 15      | 200   |
| Total .       | 921,000 | 453,000 | 1,374,000 | 670            | 330     | 1,000 |

| 1871          |           |         |           |     |     |       |
|---------------|-----------|---------|-----------|-----|-----|-------|
| Agriculture . | 207,000   | 51,000  | 258,000   | 138 | 34  | 172   |
| Manufactures  | 310,000   | 208,000 | 518,000   | 207 | 139 | 346   |
| Commerce .    | 142,000   | 37,000  | 179,000   | 95  | 25  | 120   |
| Professions . | 26,000    | 10,000  | 36,000    | 17  | 7   | 24    |
| Domestics .   | 21,000    | 139,000 | 160,000   | 14  | 93  | 107   |
| Various . .   | 310,000   | 33,000  | 343,000   | 206 | 25  | 231   |
| Total .       | 1,016,000 | 478,000 | 1,494,000 | 677 | 323 | 1,000 |

| 1881          |           |         |           |     |     |       |
|---------------|-----------|---------|-----------|-----|-----|-------|
| Agriculture . | 183,000   | 51,000  | 234,000   | 111 | 31  | 142   |
| Manufactures  | 340,000   | 217,000 | 557,000   | 206 | 132 | 338   |
| Commerce .    | 169,000   | 39,000  | 208,000   | 102 | 24  | 126   |
| Professions . | 34,000    | 15,000  | 49,000    | 20  | 9   | 29    |
| Domestics .   | 31,000    | 152,000 | 183,000   | 19  | 92  | 111   |
| Various . .   | 373,000   | 44,000  | 417,000   | 227 | 27  | 254   |
| Total .       | 1,130,000 | 518,000 | 1,648,000 | 685 | 315 | 1,000 |

The following table shows the relative increase or decrease of hands in each decade for each industry :—

| Year | Agriculture | Manufactures | Commerce | Professions | Domestics | Total |
|------|-------------|--------------|----------|-------------|-----------|-------|
| 1841 | 100         | 100          | 100      | 100         | 100       | 100   |
| 1851 | 115         | 137          | 162      | 125         | 102       | 119   |
| 1861 | 106         | 137          | 196      | 141         | 122       | 124   |
| 1871 | 99          | 148          | 242      | 150         | 118       | 135   |
| 1881 | 90          | 159          | 281      | 204         | 135       | 149   |

Males are classified thus according to age :—

| Agriculture |         |         |         |         |
|-------------|---------|---------|---------|---------|
| Age         | 1861    | 1861    | 1871    | 1881    |
| 0-15 . . .  | 11,000  | 11,000  | 9,000   | 6,000   |
| 15-65 . .   | 208,000 | 196,000 | 177,000 | 159,000 |
| Over 65 . . | 20,000  | 22,000  | 21,000  | 18,000  |
| Total .     | 239,000 | 229,000 | 207,000 | 183,000 |

| Manufactures |         |         |         |         |
|--------------|---------|---------|---------|---------|
| 0-15 . . .   | 23,000  | 19,000  | 18,000  | 12,000  |
| 15-65 . .    | 247,000 | 246,000 | 278,000 | 314,000 |
| Over 65 . .  | 15,000  | 15,000  | 14,000  | 14,000  |
| Total .      | 285,000 | 280,000 | 310,000 | 340,000 |

| Commerce    |        |         |         |         |
|-------------|--------|---------|---------|---------|
| 0-15 . . .  | 6,000  | 5,000   | 8,000   | 9,000   |
| 15-65 . .   | 88,000 | 106,000 | 128,000 | 154,000 |
| Over 65 . . | 5,000  | 6,000   | 6,000   | 6,000   |
| Total .     | 99,000 | 117,000 | 142,000 | 169,000 |

| Various     |         |         |         |         |
|-------------|---------|---------|---------|---------|
| Age         | 1861    | 1861    | 1871    | 1881    |
| 0-15 . . .  | 9,000   | 13,000  | 18,000  | 13,000  |
| 15-65 . .   | 231,000 | 263,000 | 307,000 | 386,000 |
| Over 65 . . | 18,000  | 19,000  | 32,000  | 39,000  |
| Total .     | 258,000 | 295,000 | 357,000 | 438,000 |

| Total of Males |         |         |           |           |
|----------------|---------|---------|-----------|-----------|
| 0-15 . . .     | 49,000  | 48,000  | 53,000    | 40,000    |
| 15-65 . .      | 774,000 | 811,000 | 890,000   | 1,013,000 |
| Over 65 . .    | 58,000  | 62,000  | 73,000    | 77,000    |
| Total .        | 881,000 | 921,000 | 1,016,000 | 1,130,000 |

| Agriculture |         |         |         |         |
|-------------|---------|---------|---------|---------|
| Men . . .   | 228,000 | 218,000 | 198,000 | 177,000 |
| Women . .   | 60,000  | 47,000  | 51,000  | 51,000  |
| Boys . . .  | 11,000  | 11,000  | 9,000   | 6,000   |
| Total .     | 299,000 | 276,000 | 258,000 | 234,000 |

| Manufactures |         |         |         |         |
|--------------|---------|---------|---------|---------|
| Men . . .    | 262,000 | 261,000 | 292,000 | 328,000 |
| Women . .    | 195,000 | 201,000 | 208,000 | 217,000 |
| Boys . . .   | 23,000  | 19,000  | 18,000  | 12,000  |
| Total .      | 480,000 | 481,000 | 518,000 | 557,000 |

| Commerce   |         |         |         |         |
|------------|---------|---------|---------|---------|
| Men . . .  | 93,000  | 112,000 | 134,000 | 163,000 |
| Women . .  | 22,000  | 28,000  | 37,000  | 39,000  |
| Boys . . . | 6,000   | 5,000   | 8,000   | 6,000   |
| Total .    | 121,000 | 145,000 | 179,000 | 208,000 |

| Domestics |         |         |         |         |
|-----------|---------|---------|---------|---------|
| Men . . . | 12,000  | 15,000  | 21,000  | 31,000  |
| Women . . | 126,000 | 150,000 | 139,000 | 152,000 |
| Total .   | 138,000 | 165,000 | 160,000 | 183,000 |

| Various    |         |         |         |         |
|------------|---------|---------|---------|---------|
| Men . . .  | 237,000 | 267,000 | 318,000 | 391,000 |
| Women . .  | 33,000  | 27,000  | 43,000  | 59,000  |
| Boys . . . | 9,000   | 13,000  | 18,000  | 16,000  |
| Total .    | 279,000 | 307,000 | 379,000 | 466,000 |

| Total      |           |           |           |           |
|------------|-----------|-----------|-----------|-----------|
| Men . . .  | 832,000   | 873,000   | 963,000   | 1,090,000 |
| Women . .  | 436,000   | 453,000   | 478,000   | 518,000   |
| Boys . . . | 49,000    | 48,000    | 53,000    | 40,000    |
| Total .    | 1,317,000 | 1,374,000 | 1,494,000 | 1,648,000 |

The number of men employed in Scotland in all occupations rose 30 per cent. in 30 years, that of women 18 per cent., while that of boys (as in England) shows a falling off.

## IRELAND

Booth's digest of the Censuses is condensed as follows :—

|                        | 1841      | 1851      | 1861      | 1871      | 1881      |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| Agriculture . . . . .  | 1,844,000 | 1,460,000 | 1,173,000 | 1,046,000 | 986,000   |
| Manufactures . . . . . | 989,000   | 687,000   | 566,000   | 500,000   | 379,000   |
| Commerce . . . . .     | 111,000   | 152,000   | 163,000   | 171,000   | 160,000   |
| Professions . . . . .  | 40,000    | 44,000    | 45,000    | 49,000    | 52,000    |
| Domestics . . . . .    | 342,000   | 283,000   | 365,000   | 389,000   | 427,000   |
| Various . . . . .      | 298,000   | 389,000   | 422,000   | 412,000   | 371,000   |
| Total . . . . .        | 3,624,000 | 3,015,000 | 2,734,000 | 2,567,000 | 2,375,000 |

|                        | 1841      |           |           | Ratio |         |       |
|------------------------|-----------|-----------|-----------|-------|---------|-------|
|                        | Males     | Females   | Total     | Males | Females | Total |
| Agriculture . . . . .  | 1,699,000 | 145,000   | 1,844,000 | 467   | 40      | 507   |
| Manufactures . . . . . | 303,000   | 686,000   | 989,000   | 84    | 190     | 274   |
| Commerce . . . . .     | 78,000    | 33,000    | 111,000   | 22    | 9       | 31    |
| Professions . . . . .  | 30,000    | 10,000    | 40,000    | 8     | 3       | 11    |
| Domestics . . . . .    | 71,000    | 271,000   | 342,000   | 20    | 75      | 95    |
| Various . . . . .      | 285,000   | 13,000    | 298,000   | 79    | 3       | 82    |
| Total . . . . .        | 2,466,000 | 1,158,000 | 3,624,000 | 680   | 320     | 1,000 |

|                        | 1871      |         |           | Ratio |         |       |
|------------------------|-----------|---------|-----------|-------|---------|-------|
|                        | Males     | Females | Total     | Males | Females | Total |
| Agriculture . . . . .  | 943,000   | 103,000 | 1,046,000 | 367   | 40      | 407   |
| Manufactures . . . . . | 194,000   | 306,000 | 500,000   | 76    | 119     | 195   |
| Commerce . . . . .     | 125,000   | 46,000  | 171,000   | 48    | 18      | 66    |
| Professions . . . . .  | 31,000    | 18,000  | 49,000    | 12    | 7       | 19    |
| Domestics . . . . .    | 30,000    | 359,000 | 389,000   | 12    | 140     | 152   |
| Various . . . . .      | 375,000   | 37,000  | 412,000   | 146   | 15      | 161   |
| Total . . . . .        | 1,698,000 | 869,000 | 2,567,000 | 661   | 339     | 1,000 |

| 1851                   |           |         |           |     |     |       |
|------------------------|-----------|---------|-----------|-----|-----|-------|
| Agriculture . . . . .  | 1,293,000 | 167,000 | 1,460,000 | 428 | 56  | 484   |
| Manufactures . . . . . | 257,000   | 430,000 | 687,000   | 86  | 142 | 228   |
| Commerce . . . . .     | 106,000   | 46,000  | 152,000   | 35  | 15  | 50    |
| Professions . . . . .  | 32,000    | 12,000  | 44,000    | 11  | 4   | 15    |
| Domestics . . . . .    | 35,000    | 248,000 | 283,000   | 12  | 82  | 94    |
| Various . . . . .      | 372,000   | 17,000  | 389,000   | 123 | 6   | 129   |
| Total . . . . .        | 2,095,000 | 920,000 | 3,015,000 | 695 | 305 | 1,000 |

| 1861                   |           |         |           |     |     |       |
|------------------------|-----------|---------|-----------|-----|-----|-------|
| Agriculture . . . . .  | 890,000   | 96,000  | 986,000   | 376 | 40  | 416   |
| Manufactures . . . . . | 164,000   | 215,000 | 379,000   | 70  | 90  | 160   |
| Commerce . . . . .     | 121,000   | 39,000  | 160,000   | 50  | 17  | 67    |
| Professions . . . . .  | 31,000    | 21,000  | 52,000    | 12  | 8   | 20    |
| Domestics . . . . .    | 36,000    | 391,000 | 427,000   | 15  | 164 | 179   |
| Various . . . . .      | 340,000   | 31,000  | 371,000   | 145 | 13  | 158   |
| Total . . . . .        | 1,582,000 | 793,000 | 2,375,000 | 668 | 332 | 1,000 |

The following table shows the relative increase or decrease of hands in each decade for each industry :—

| Year | Agriculture | Manufactures | Commerce | Professions | Domestics | Total |
|------|-------------|--------------|----------|-------------|-----------|-------|
| 1841 | 100         | 100          | 100      | 100         | 100       | 100   |
| 1851 | 79          | 70           | 138      | 110         | 82        | 83    |
| 1861 | 63          | 57           | 148      | 112         | 107       | 75    |
| 1871 | 57          | 51           | 155      | 122         | 114       | 71    |
| 1881 | 53          | 38           | 146      | 130         | 125       | 65    |

Males are classified thus according to age :—

| Age               | Agriculture |         |         | Manufactures |           |           |
|-------------------|-------------|---------|---------|--------------|-----------|-----------|
|                   | 1861        | 1871    | 1881    | 1861         | 1871      | 1881      |
| 0-15 . . . . .    | 43,000      | 46,000  | 17,000  | 12,000       | 11,000    | 7,000     |
| 15-45 . . . . .   | 951,000     | 800,000 | 766,000 | 207,000      | 171,000   | 147,000   |
| Over 45 . . . . . | 78,000      | 97,000  | 107,000 | 12,000       | 12,000    | 10,000    |
| Total . . . . .   | 1,072,000   | 943,000 | 890,000 | 231,000      | 194,000   | 164,000   |
| Age               | Various     |         |         | Total        |           |           |
|                   | 1861        | 1871    | 1881    | 1861         | 1871      | 1881      |
| 0-15 . . . . .    | 22,000      | 19,000  | 9,000   | 77,000       | 76,000    | 33,000    |
| 15-45 . . . . .   | 520,000     | 491,000 | 476,000 | 1,678,000    | 1,462,000 | 1,389,000 |
| Over 45 . . . . . | 40,000      | 51,000  | 43,000  | 130,000      | 160,000   | 160,000   |
| Total . . . . .   | 582,000     | 561,000 | 528,000 | 1,885,000    | 1,698,000 | 1,582,000 |

## OCCUPATION

428

## OCCUPATION

| <i>Agriculture</i>  |           |           |           |         | <i>Various</i> |           |           |           |           |
|---------------------|-----------|-----------|-----------|---------|----------------|-----------|-----------|-----------|-----------|
|                     | 1851      | 1861      | 1871      | 1881    |                | 1851      | 1861      | 1871      | 1881      |
| Men . . .           | 1,221,000 | 1,029,000 | 897,000   | 873,000 | Men . . .      | 536,000   | 560,000   | 542,000   | 519,000   |
| Women . .           | 167,000   | 101,000   | 103,000   | 96,000  | Women . .      | 323,000   | 413,000   | 460,000   | 482,000   |
| Boys . . .          | 72,000    | 43,000    | 46,000    | 17,000  | Boys . . .     | 9,000     | 22,000    | 19,000    | 9,000     |
| Total . .           | 1,460,000 | 1,173,000 | 1,046,000 | 986,000 | Total . .      | 868,000   | 995,000   | 1,021,000 | 1,010,000 |
| <i>Manufactures</i> |           |           |           |         | <i>Total</i>   |           |           |           |           |
| Men . . .           | 240,000   | 219,000   | 183,000   | 157,000 | Men . . .      | 1,997,000 | 1,808,000 | 1,622,000 | 1,549,000 |
| Women . .           | 430,000   | 335,000   | 306,000   | 215,000 | Women . .      | 920,000   | 849,000   | 869,000   | 793,000   |
| Boys . . .          | 17,000    | 12,000    | 11,000    | 7,000   | Boys . . .     | 98,000    | 77,000    | 76,000    | 33,000    |
| Total . .           | 687,000   | 566,000   | 500,000   | 379,000 | Total . .      | 3,015,000 | 2,734,000 | 2,567,000 | 2,375,000 |

## FRANCE

Successive Censuses have distinguished agricultural from other population as follows :—

|                        | 1851       | 1861       | 1872       | 1881       |
|------------------------|------------|------------|------------|------------|
| Agricultural . . . . . | 21,920,000 | 19,870,000 | 18,513,000 | 18,249,000 |
| Various . . . . .      | 13,863,000 | 17,876,000 | 18,500,000 | 19,157,000 |
| Total . . . . .        | 35,783,000 | 36,746,000 | 37,013,000 | 37,406,000 |

The Censuses of 1872 and 1881 compare as follows :—

|                        | 1872       |            |            | 1881       |            |            |
|------------------------|------------|------------|------------|------------|------------|------------|
|                        | Principals | Dependents | Total      | Principals | Dependents | Total      |
| Agriculture . . . . .  | 5,970,000  | 12,543,000 | 18,513,000 | 6,456,000  | 11,793,000 | 18,249,000 |
| Manufactures . . . . . | 3,827,000  | 4,624,000  | 8,451,000  | 3,980,000  | 4,214,000  | 8,194,000  |
| Commerce . . . . .     | 1,151,000  | 1,809,000  | 2,960,000  | 1,163,000  | 1,516,000  | 2,679,000  |
| Various . . . . .      | 2,461,000  | 2,737,000  | 5,198,000  | 3,309,000  | 4,047,000  | 7,356,000  |
| Total . . . . .        | 13,409,000 | 21,713,000 | 35,122,000 | 14,908,000 | 21,570,000 | 36,478,000 |

|                         | 1881              |           |            |                                  |            |            |
|-------------------------|-------------------|-----------|------------|----------------------------------|------------|------------|
|                         | Heads of Families |           |            | Principals, Family, and Servants |            |            |
|                         | Males             | Females   | Total      | Males                            | Females    | Total      |
| Agriculture . . . . .   | 4,757,000         | 1,698,000 | 6,455,000  | 9,157,000                        | 9,092,000  | 18,249,000 |
| Factories . . . . .     | 658,000           | 379,000   | 1,037,000  | 1,032,000                        | 1,069,000  | 2,101,000  |
| Artisans . . . . .      | 1,931,000         | 1,012,000 | 2,943,000  | 2,999,000                        | 3,094,000  | 6,093,000  |
| Mines . . . . .         | 387,000           | 76,000    | 463,000    | 616,000                          | 513,000    | 1,129,000  |
| Transport . . . . .     | 285,000           | 22,000    | 307,000    | 444,000                          | 357,000    | 801,000    |
| Commerce . . . . .      | 818,000           | 345,000   | 1,163,000  | 1,330,000                        | 1,349,000  | 2,679,000  |
| Innkeepers, &c. . . . . | 306,000           | 137,000   | 443,000    | 562,000                          | 603,000    | 1,165,000  |
| Civil service . . . . . | 265,000           | 49,000    | 314,000    | 418,000                          | 388,000    | 806,000    |
| Capitalists . . . . .   | 437,000           | 425,000   | 862,000    | 734,000                          | 1,116,000  | 1,850,000  |
| Professions . . . . .   | 240,000           | 135,000   | 375,000    | 353,000                          | 426,000    | 779,000    |
| Various . . . . .       | 523,000           | 23,000    | 546,000    | 609,000                          | 217,000    | 826,000    |
| Total . . . . .         | 10,607,000        | 4,301,000 | 14,908,000 | 18,254,000                       | 18,224,000 | 36,478,000 |

## GERMANY

The Census of 1882 gave the following results :—

|                        | Agriculture | Manufactures | Commerce  | Sundry    | Total      |
|------------------------|-------------|--------------|-----------|-----------|------------|
| Prussia . . . . .      | 11,678,000  | 9,394,000    | 2,725,000 | 3,491,000 | 27,288,000 |
| Bavaria . . . . .      | 2,644,000   | 1,492,000    | 436,000   | 697,000   | 5,269,000  |
| Saxony . . . . .       | 579,000     | 1,696,000    | 361,000   | 379,000   | 3,015,000  |
| Wurtemberg . . . . .   | 927,000     | 674,000      | 143,000   | 213,000   | 1,957,000  |
| Baden . . . . .        | 752,000     | 492,000      | 141,000   | 174,000   | 1,559,000  |
| Small states . . . . . | 2,261,000   | 2,310,000    | 725,000   | 838,000   | 6,134,000  |
| Total . . . . .        | 18,841,000  | 16,058,000   | 4,531,000 | 5,792,000 | 45,222,000 |

The item of "Sundry" comprises 3,546,000 persons of various occupations, and 2,246,000 who have none.

The Prussian Census of 1867 was as follows :—

|                        | 1867       |            |            |            |            |
|------------------------|------------|------------|------------|------------|------------|
|                        | Principals | Dependents | Males      | Females    | Total      |
| Agriculture . . . . .  | 4,105,000  | 7,422,000  | 5,612,000  | 5,915,000  | 11,527,000 |
| Manufactures . . . . . | 1,990,000  | 3,448,000  | 2,965,000  | 2,473,000  | 5,438,000  |
| Mines . . . . .        | 202,000    | 426,000    | 344,000    | 284,000    | 628,000    |
| Commerce . . . . .     | 290,000    | 540,000    | 430,000    | 400,000    | 830,000    |
| Various . . . . .      | 2,539,000  | 3,009,000  | 2,519,000  | 3,029,000  | 5,548,000  |
| Total . . . . .        | 9,126,000  | 14,845,000 | 11,870,000 | 12,101,000 | 23,971,000 |

The occupations of the people of Saxony were in the following ratio :—

|                        | 1849  |         | 1871  |         | 1882  |
|------------------------|-------|---------|-------|---------|-------|
|                        | Males | Females | Males | Females | All   |
| Agriculture . . . . .  | 209   | 228     | 158   | 166     | 193   |
| Manufactures . . . . . | 486   | 443     | 532   | 506     | 563   |
| Commerce . . . . .     | 61    | 55      | 99    | 103     | 120   |
| Sundry . . . . .       | 244   | 274     | 211   | 225     | 124   |
| Total . . . . .        | 1,000 | 1,000   | 1,000 | 1,000   | 1,000 |

#### RUSSIA

The Census of 1872 gave approximately as follows for Russia and Poland :—

|                       | Males      | Females    | Total      | Ratio |
|-----------------------|------------|------------|------------|-------|
| Nobles . . . . .      | 437,300    | 436,800    | 874,100    | 12    |
| Merchants . . . . .   | 232,600    | 216,100    | 448,700    | 6     |
| Clergy . . . . .      | 281,500    | 315,000    | 596,500    | 8     |
| Artisans, &c. . . . . | 3,044,000  | 3,105,000  | 6,149,000  | 85    |
| Peasants . . . . .    | 31,941,600 | 32,223,000 | 64,164,700 | 889   |
| Total . . . . .       | 35,937,000 | 36,296,100 | 72,233,000 | 1,000 |

The following table of ratios was published in 1867 :—

|                       | Ratio  |        |
|-----------------------|--------|--------|
|                       | Russia | Poland |
| Clergy . . . . .      | 10     | 2      |
| Nobles . . . . .      | 13     | 14     |
| Soldiers . . . . .    | 57     | 13     |
| Citizens, &c. . . . . | 96     | 267    |
| Peasants . . . . .    | 824    | 704    |
| Total . . . . .       | 1,000  | 1,000  |

Lendheim gave the following table in 1873, apparently excluding Poland :—

|                                  | Ratio |
|----------------------------------|-------|
| Nobles . . . . .                 | 13    |
| Clergy . . . . .                 | 9     |
| Foreigners . . . . .             | 2     |
| Military . . . . .               | 53    |
| Merchants, artisans, &c. . . . . | 99    |
| Peasants . . . . .               | 824   |
| Total . . . . .                  | 1,000 |

#### AUSTRIA-HUNGARY

The Census of 1870 showed as follows :—

|                        | Austria    | Hungary   | Total      |
|------------------------|------------|-----------|------------|
| Agriculture . . . . .  | 5,520,000  | 5,010,000 | 10,530,000 |
| Manufactures . . . . . | 2,198,000  | 647,000   | 2,845,000  |
| Commerce . . . . .     | 303,000    | 105,000   | 408,000    |
| Transport . . . . .    | 139,000    | 29,000    | 168,000    |
| Mines . . . . .        | 104,000    | 50,000    | 154,000    |
| Capitalists . . . . .  | 435,000    | 81,000    | 516,000    |
| Servants, &c. . . . .  | 2,806,000  | 1,143,000 | 3,949,000  |
| Various . . . . .      | 465,000    | 264,000   | 729,000    |
| Total . . . . .        | 11,970,000 | 7,329,000 | 19,299,000 |

That of 1880 was as follows :—

|                         | Austria    | Hungary   | Total      |
|-------------------------|------------|-----------|------------|
| Agriculture . . . . .   | 6,161,000  | 4,521,000 | 10,682,000 |
| Manufactures . . . . .  | 2,157,000  | 789,000   | 2,946,000  |
| Commerce . . . . .      | 435,000    | 186,000   | 621,000    |
| Mines . . . . .         | 118,000    | 26,000    | 144,000    |
| Capitalists . . . . .   | 278,000    | 53,000    | 331,000    |
| Civil service . . . . . | 99,000     | 66,000    | 165,000    |
| Domestics . . . . .     | 890,000    | 430,000   | 1,320,000  |
| Various . . . . .       | 1,217,000  | 1,216,000 | 2,433,000  |
| Total . . . . .         | 11,355,000 | 7,287,000 | 18,642,000 |

|                        | Austria   |           | Hungary   |           | All Empire |           |
|------------------------|-----------|-----------|-----------|-----------|------------|-----------|
|                        | Males     | Females   | Males     | Females   | Males      | Females   |
| Agriculture . . . . .  | 3,432,000 | 2,729,000 | 3,548,000 | 973,000   | 6,980,000  | 3,702,000 |
| Manufactures . . . . . | 1,632,000 | 525,000   | 714,000   | 75,000    | 2,346,000  | 600,000   |
| Commerce . . . . .     | 351,000   | 84,000    | 166,000   | 20,000    | 517,000    | 104,000   |
| Servants . . . . .     | 245,000   | 645,000   | 46,000    | 384,000   | 291,000    | 1,029,000 |
| Various . . . . .      | 1,101,000 | 611,000   | 734,000   | 628,000   | 1,835,000  | 1,239,000 |
| Total . . . . .        | 6,761,000 | 4,594,000 | 5,208,000 | 2,080,000 | 11,969,000 | 6,674,000 |

In 1880 the population of Austria was classified thus :—

|                        | Principals | Family     | Servants  | Total      | Ratio |
|------------------------|------------|------------|-----------|------------|-------|
| Agriculture . . . . .  | 2,365,000  | 5,697,000  | 4,127,000 | 12,189,000 | 550   |
| Manufactures . . . . . | 576,000    | 2,399,000  | 1,735,000 | 4,710,000  | 212   |
| Commerce . . . . .     | 185,000    | 459,000    | 196,000   | 840,000    | 38    |
| Transport . . . . .    | 18,000     | 227,000    | 114,000   | 359,000    | 16    |
| Capitalists . . . . .  | 207,000    | 273,000    | 63,000    | 543,000    | 24    |
| Various . . . . .      | 518,000    | 1,691,000  | 1,294,000 | 3,503,000  | 160   |
| Total . . . . .        | 3,869,000  | 10,746,000 | 7,529,000 | 22,144,000 | 1,000 |

The population of Hungary is classified thus :—

|                        | Principals | Family, &c. | Total      | Ratio |
|------------------------|------------|-------------|------------|-------|
| Agriculture . . . . .  | 1,475,000  | 3,046,000   | 4,521,000  | 367   |
| Manufactures . . . . . | 381,000    | 408,000     | 789,000    | 64    |
| Commerce . . . . .     | 97,000     | 89,000      | 186,000    | 15    |
| Various . . . . .      | 264,000    | 6,557,000   | 6,821,000  | 554   |
| Total . . . . .        | 2,217,000  | 10,100,000  | 12,317,000 | 1,000 |

Besides the above, there were in Hungary 3,325,000 persons of no occupation.

Adding together the two foregoing tables, we find for the whole monarchy as follows :—

|                        | Principals | Family, &c. | Total      | Ratio |
|------------------------|------------|-------------|------------|-------|
| Agriculture . . . . .  | 3,840,000  | 12,870,000  | 16,710,000 | 484   |
| Manufactures . . . . . | 957,000    | 4,542,000   | 5,499,000  | 160   |
| Commerce . . . . .     | 282,000    | 744,000     | 1,026,000  | 30    |
| Various . . . . .      | 1,007,000  | 10,219,000  | 11,226,000 | 326   |
| Total . . . . .        | 6,086,000  | 28,375,000  | 34,461,000 | 1,000 |

## ITALY

The Census of 1861 gave the following classification :—

|                               |            |
|-------------------------------|------------|
| Agriculture . . . . .         | 8,290,000  |
| Manufactures . . . . .        | 3,230,000  |
| Sundry and children . . . . . | 10,250,000 |

Total population . . . . . 21,770,000

That of 1871 was as follows :—

|                               |            |
|-------------------------------|------------|
| Agriculture . . . . .         | 8,566,000  |
| Manufactures, &c. . . . .     | 5,817,000  |
| Sundry and children . . . . . | 12,423,000 |

Total population . . . . . 26,801,000

That of 1881 was as follows :—

|                                    | Men        | Women      | Children  | Total      |
|------------------------------------|------------|------------|-----------|------------|
| Agriculture . . . . .              | 5,397,000  | 3,094,000  | 678,000   | 9,169,000  |
| Manufactures . . . . .             | 2,281,000  | 1,904,000  | 309,000   | 4,494,000  |
| Commerce . . . . .                 | 247,000    | 33,000     | 5,000     | 285,000    |
| Transport . . . . .                | 310,000    | 3,000      | 9,000     | 322,000    |
| Mines . . . . .                    | 60,000     | ...        | 5,000     | 65,000     |
| Professions . . . . .              | 215,000    | 80,000     | ...       | 295,000    |
| Domestics . . . . .                | 266,000    | 448,000    | 47,000    | 761,000    |
| Various . . . . .                  | 1,102,000  | 675,000    | 42,000    | 1,819,000  |
| Useful occupations } . . . . .     | 9,878,000  | 6,237,000  | 1,095,000 | 17,210,000 |
| Indefinite } . . . . .             | 1,308,000  | 4,999,000  | 2,150,000 | 8,457,000  |
| Prisoners and vagrants } . . . . . | 73,000     | 56,000     | 5,000     | 134,000    |
| Total . . . . .                    | 11,259,000 | 11,292,000 | 3,250,000 | 25,801,000 |

The total population was 28,460,000, including 2,659,000 infants under 9 years, of whom the Census took no cognisance. Children in the above table are all over 9 and under 14 years.

## SPAIN

The Census of 1877 showed as follows :—

|                                  | Ratio         |
|----------------------------------|---------------|
| Agriculture . . . . .            | 2,723,000 475 |
| Manufactures . . . . .           | 1,167,000 203 |
| Commerce, &c. . . . .            | 213,000 37    |
| Vagrants, smugglers, &c. . . . . | 1,630,000 285 |

Total . . . . . 5,736,000 1,000

Women and children . . . . . 11,018,000

Total population . . . . . 16,754,000

## SWEDEN

The classification of the people down to 1855 was as follows :—

|                    | 1805      | 1830      | 1855      | Families in 1855 |
|--------------------|-----------|-----------|-----------|------------------|
| Nobles . . . . .   | 9,503     | 10,458    | 11,742    | 1,666            |
| Clergy . . . . .   | 15,145    | 14,153    | 15,362    | 2,232            |
| Citizens . . . . . | 65,411    | 66,693    | 81,408    | 13,366           |
| Peasants . . . . . | 1,759,000 | 2,169,000 | 2,378,000 | 394,610          |
| Various . . . . .  | 563,641   | 627,796   | 1,152,788 | 180,489          |
| Total . . . . .    | 2,412,700 | 2,888,100 | 3,639,300 | 592,303          |

The Census of 1870 showed as follows :—

|                        | Principals |          |         | Principals and Dependents, Ratio |         |       |
|------------------------|------------|----------|---------|----------------------------------|---------|-------|
|                        | Males      | Fe-males | Total   | Males                            | Females | Total |
| Agriculture . . . . .  | 414,000    | 33,000   | 447,000 | 270                              | 271     | 541   |
| Manufactures . . . . . | 62,000     | 6,000    | 68,000  | 52                               | 47      | 99    |
| Commerce . . . . .     | 22,000     | 2,000    | 24,000  | 17                               | 17      | 34    |
| Various . . . . .      | 190,000    | 214,000  | 404,000 | 145                              | 181     | 326   |
| Total . . . . .        | 688,000    | 255,000  | 943,000 | 484                              | 516     | 1,000 |

The Census of Sweden for 1880 gave the following results :—

|                            | Principals |         |           | Families |           |           |
|----------------------------|------------|---------|-----------|----------|-----------|-----------|
|                            | Males      | Females | Total     | Males    | Females   | Total     |
| Agriculture . . . . .      | 641,000    | 212,000 | 853,000   | 434,000  | 840,000   | 1,274,000 |
| Manufactures . . . . .     | 157,000    | 17,000  | 174,000   | 134,000  | 243,000   | 377,000   |
| Commerce . . . . .         | 68,000     | 5,000   | 73,000    | 41,000   | 81,000    | 122,000   |
| Various . . . . .          | 66,000     | 8,000   | 174,000   | ...      | ...       | ...       |
| Total . . . . .            | 932,000    | 242,000 | 1,174,000 | 664,000  | 1,265,000 | 1,929,000 |
| Unoccupied . . . . .       | 270,000    | 214,000 | 484,000   | 237,000  | 428,000   | 665,000   |
| Total population . . . . . | 1,202,000  | 456,000 | 1,658,000 | 901,000  | 1,693,000 | 2,594,000 |

|                        | Total Population |           |           | Ratio |         |       |
|------------------------|------------------|-----------|-----------|-------|---------|-------|
|                        | Males            | Females   | Total     | Males | Females | Total |
| Agriculture . . . . .  | 1,172,000        | 1,173,000 | 2,345,000 | 257   | 257     | 514   |
| Manufactures . . . . . | 297,000          | 280,000   | 577,000   | 64    | 62      | 126   |
| Commerce . . . . .     | 113,000          | 109,000   | 222,000   | 25    | 24      | 49    |
| Various . . . . .      | 125,000          | 128,000   | 253,000   | 27    | 27      | 54    |
| Unoccupied . . . . .   | 509,000          | 660,000   | 1,169,000 | 112   | 145     | 257   |
| Total . . . . .        | 2,216,000        | 2,350,000 | 4,566,000 | 485   | 515     | 1,000 |

## NORWAY

The Censuses of 1865 and 1875 gave these results :—

|                    | Principals, 1875 |         | Total Population, 1875 |         |           | Total Population, 1865 |
|--------------------|------------------|---------|------------------------|---------|-----------|------------------------|
|                    | Males            | Females | Males                  | Females | Total     |                        |
| Agriculture . . .  | 106,000          | 9,000   | 437,000                | 466,000 | 903,000   | 1,035,000              |
| Manufactures . . . | 39,000           | 26,000  | 155,000                | 151,000 | 306,000   | 343,000                |
| Commerce . . .     | 12,000           | 2,000   | 96,000                 | 99,000  | 195,000   | 149,000                |
| Various . . .      | 75,000           | 4,000   | 189,000                | 214,000 | 403,000   | 175,000                |
| Total . . .        | 232,000          | 41,000  | 877,000                | 930,000 | 1,807,000 | 1,702,000              |

There was a further classification in 1875 as follows :—

|                    | Principals | Families | Servants | Total     |
|--------------------|------------|----------|----------|-----------|
| Agriculture . . .  | 115,000    | 523,000  | 265,000  | 903,000   |
| Manufactures . . . | 65,000     | 91,000   | 150,000  | 306,000   |
| Commerce . . .     | 14,000     | 39,000   | 142,000  | 195,000   |
| Various . . .      | 79,000     | 86,000   | 238,000  | 403,000   |
| Total . . .        | 273,000    | 739,000  | 795,000  | 1,807,000 |

## DENMARK

The official tables give the occupations of the people thus :—

|                    | 1860  | 1880  | No. in 1880 |
|--------------------|-------|-------|-------------|
| Agriculture . . .  | 395   | 469   | 931,000     |
| Manufactures . . . | 228   | 229   | 590,000     |
| Commerce . . .     | 53    | 68    | 459,000     |
| Various . . .      | 324   | 234   |             |
| Total . . .        | 1,000 | 1,000 | 1,980,000   |

The numbers in 1880 include children, and are double the real numbers.

## FINLAND

The Census of 1865 showed the following ratios :—

|                    | Males | Females | Total Population |
|--------------------|-------|---------|------------------|
| Agriculture . . .  | 834   | 755     | 793              |
| Manufactures . . . | 55    | 43      | 49               |
| Commerce . . .     | 20    | 12      | 16               |
| Various . . .      | 91    | 190     | 142              |
| Total . . .        | 1,000 | 1,000   | 1,000            |

## BELGIUM

The Census of 1856 was as follows :—

|                    | Males     | Females   | Total     |
|--------------------|-----------|-----------|-----------|
| Agriculture . . .  | 709,000   | 353,000   | 1,062,000 |
| Manufactures . . . | 466,000   | 326,000   | 792,000   |
| Commerce . . .     | 80,000    | 49,000    | 129,000   |
| Transport . . .    | 26,000    | 1,000     | 27,000    |
| Domestics . . .    | 19,000    | 68,000    | 87,000    |
| Mines . . .        | 63,000    | 10,000    | 73,000    |
| Capitalists . . .  | 22,000    | 28,000    | 50,000    |
| Various . . .      | 88,000    | 19,000    | 107,000   |
| Total . . .        | 1,473,000 | 854,000   | 2,327,000 |
| Children, &c. . .  | 799,000   | 1,404,000 | 2,203,000 |
| Population . . .   | 2,272,000 | 2,258,000 | 4,530,000 |

That of 1880 for Belgium was as follows :—

|                    | Males     | Females   | Total     |
|--------------------|-----------|-----------|-----------|
| Mines . . .        | 226,000   | 18,000    | 244,000   |
| Manufactures . . . | 467,000   | 242,000   | 709,000   |
| Commerce . . .     | 143,000   | 101,000   | 244,000   |
| Agriculture . . .  | 530,000   | 452,000   | 982,000   |
| Various . . .      | 433,000   | 148,000   | 581,000   |
| Total . . .        | 1,799,000 | 961,000   | 2,760,000 |
| Children, &c. . .  | 1,010,000 | 1,825,000 | 2,835,000 |
| Population . . .   | 2,809,000 | 2,786,000 | 5,595,000 |

## GREECE

The principal occupations in 1861 were :—

|                    | Ratio   |
|--------------------|---------|
| Agriculture . . .  | 187,000 |
| Manufactures . . . | 52,000  |
| Commerce, &c. . .  | 91,000  |
| Total . . .        | 330,000 |

The above is exclusive of 1,003,000 women and children.

## SWITZERLAND

The Census of 1880 gave as follows :—

|                    | Ratio     |
|--------------------|-----------|
| Agriculture . . .  | 1,139,000 |
| Manufactures . . . | 971,000   |
| Commerce . . .     | 206,000   |
| Transport . . .    | 112,000   |
| Various . . .      | 418,000   |
| Total . . .        | 2,846,000 |

That of 1870 was as follows :—

|                    | Ratio     |
|--------------------|-----------|
| Agriculture . . .  | 543,000   |
| Manufactures . . . | 492,000   |
| Commerce . . .     | 49,000    |
| Various . . .      | 233,000   |
| Total . . .        | 1,317,000 |

The latter is apparently only of adults, that of 1880 of the whole population. In 1860 the number of hands employed in manufactures was 330,000.

## PORTUGAL

The Census of 1861 gave as follows :—

|                    | Ratio     |
|--------------------|-----------|
| Agriculture . . .  | 873,000   |
| Manufactures . . . | 210,000   |
| Commerce . . .     | 30,000    |
| Various . . .      | 20,000    |
| Total . . .        | 1,133,000 |

The above is exclusive of 2,650,000 women and children.

## UNITED STATES

The first Census as to occupation was taken in 1820, the second in 1840, since which latter date they have been decennial, viz. :—

| Year | Agriculture | Manufactures | Commerce, &c. | Total      |
|------|-------------|--------------|---------------|------------|
| 1820 | 2,071,000   | 350,000      | 72,000        | 2,493,000  |
| 1840 | 3,718,000   | 792,000      | 287,000       | 4,797,000  |
| 1850 | 2,401,000   | 958,000      | 2,013,000     | 5,372,000  |
| 1860 | 3,220,000   | 1,311,000    | 3,756,000     | 8,287,000  |
| 1870 | 5,923,000   | 2,054,000    | 4,529,000     | 12,506,000 |
| 1880 | 7,671,000   | 2,707,000    | 7,014,000     | 17,392,000 |

The returns for 1820 and 1840 include all ages and colours, but those for 1850 and 1860 are only for free male adults. Assuming that in these years 50 per cent. of negro adults were engaged in agriculture, and 50 per cent. in commerce, &c., the real number of workers would be :—

| Year | Agriculture | Manufactures | Commerce, &c. | Total      |
|------|-------------|--------------|---------------|------------|
| 1820 | 2,071,000   | 350,000      | 72,000        | 2,493,000  |
| 1840 | 3,718,000   | 792,000      | 287,000       | 4,797,000  |
| 1850 | 3,329,000   | 958,000      | 2,950,000     | 7,237,000  |
| 1860 | 4,342,000   | 1,311,000    | 4,878,000     | 10,531,000 |
| 1870 | 5,923,000   | 2,054,000    | 4,529,000     | 12,506,000 |
| 1880 | 7,671,000   | 2,707,000    | 7,014,000     | 17,392,000 |

Adopting the second table as more correct, and comparing the numbers of persons occupied with that of all inhabitants, male and female, between 16 and 60 years of age, we find as follows :—

|              | Workers    | Persons of Working Age | Ratio of Workers |
|--------------|------------|------------------------|------------------|
| 1820 . . . . | 2,493,000  | 4,816,000              | 51.7             |
| 1840 . . . . | 4,797,000  | 8,887,000              | 53.9             |
| 1850 . . . . | 7,237,000  | 12,596,000             | 57.4             |
| 1860 . . . . | 10,531,000 | 17,301,000             | 60.7             |
| 1870 . . . . | 12,506,000 | 21,561,000             | 58.2             |
| 1880 . . . . | 17,392,000 | 27,307,000             | 63.6             |

The Census for 1820 showed as follows :—

| States       | Agriculture | Manufactures | Commerce, &c. | Total     |
|--------------|-------------|--------------|---------------|-----------|
| New England  | 285,000     | 82,000       | 22,000        | 389,000   |
| Middle . . . | 523,000     | 160,000      | 23,000        | 706,000   |
| South . . .  | 1,064,000   | 83,000       | 22,000        | 1,169,000 |
| West . . .   | 199,000     | 25,000       | 5,000         | 229,000   |
| Total . . .  | 2,071,000   | 350,000      | 72,000        | 2,493,000 |

That of 1840 was as follows :—

| States       | Agriculture | Manufactures | Commerce, &c. | Total     |
|--------------|-------------|--------------|---------------|-----------|
| New England  | 415,000     | 187,000      | 74,000        | 676,000   |
| Middle . . . | 810,000     | 334,000      | 108,000       | 1,252,000 |
| South . . .  | 1,790,000   | 149,000      | 63,000        | 2,002,000 |
| West . . .   | 703,000     | 122,000      | 42,000        | 867,000   |
| Total . . .  | 3,718,000   | 792,000      | 287,000       | 4,797,000 |

| In 1870            | Americans | Irish   | Germans | British | Various | Total      |
|--------------------|-----------|---------|---------|---------|---------|------------|
| Agriculture . . .  | 5,303,000 | 138,000 | 225,000 | 95,000  | 162,000 | 5,923,000  |
| Manufactures . . . | 1,778,000 | 265,000 | 308,000 | 176,000 | 180,000 | 2,707,000  |
| Commerce, &c. . .  | 2,721,000 | 544,000 | 303,000 | 103,000 | 205,000 | 3,876,000  |
| Total . . .        | 9,802,000 | 947,000 | 836,000 | 374,000 | 547,000 | 12,506,000 |

The minor industries of 1840 were in detail thus :—

| States       | Commerce | Navigation | Professions | Mining | Total   |
|--------------|----------|------------|-------------|--------|---------|
| New England  | 18,000   | 44,000     | 11,000      | 1,000  | 74,000  |
| Middle . . . | 50,000   | 27,000     | 24,000      | 7,000  | 108,000 |
| South . . .  | 31,000   | 11,000     | 17,000      | 4,000  | 63,000  |
| West . . .   | 19,000   | 7,000      | 13,000      | 3,000  | 42,000  |
| Total . . .  | 118,000  | 89,000     | 65,000      | 15,000 | 287,000 |

The Census of 1850 excluded the slave population, as already observed, and showed as follows :—

| States       | Agriculture | Manufactures | Commerce, &c. | Total     |
|--------------|-------------|--------------|---------------|-----------|
| New England  | 269,000     | 313,000      | 230,000       | 812,000   |
| Middle . . . | 592,000     | 418,000      | 780,000       | 1,790,000 |
| South . . .  | 736,000     | 104,000      | 360,000       | 1,200,000 |
| West . . .   | 804,000     | 123,000      | 643,000       | 1,570,000 |
| Total . . .  | 2,401,000   | 958,000      | 2,013,000     | 5,372,000 |

The Census of 1860 also excluded the slave population, and showed thus :—

| States       | Occupied  | Persons of Working Age (16-60) |           |            | Ratio of Workers |
|--------------|-----------|--------------------------------|-----------|------------|------------------|
|              |           | Males                          | Females   | Total      |                  |
| New England  | 1,104,000 | 915,000                        | 968,000   | 1,883,000  | 58.7             |
| Middle . . . | 2,684,000 | 2,357,000                      | 2,406,000 | 4,763,000  | 56.4             |
| South . . .  | 1,645,000 | 2,548,000                      | 2,163,000 | 5,011,000  | 33.0             |
| West . . .   | 2,854,000 | 3,098,000                      | 2,554,000 | 5,652,000  | 50.5             |
| Total . . .  | 8,287,000 | 9,918,000                      | 8,391,000 | 17,309,000 | 47.8             |

| States       | Agriculture | Manufactures | Commerce, &c. | Total     |
|--------------|-------------|--------------|---------------|-----------|
| New England  | 293,000     | 390,000      | 421,000       | 1,104,000 |
| Middle . . . | 721,000     | 542,000      | 1,421,000     | 2,684,000 |
| South . . .  | 860,000     | 126,000      | 659,000       | 1,645,000 |
| West . . .   | 1,346,000   | 253,000      | 1,255,000     | 2,854,000 |
| Total . . .  | 3,220,000   | 1,311,000    | 3,756,000     | 8,287,000 |

That of 1870 included the entire population, and gave the following results :—

| States        | Agriculture | Manufactures | Commerce, &c. | Total      |
|---------------|-------------|--------------|---------------|------------|
| New England   | 316,000     | 555,000      | 428,000       | 1,299,000  |
| Middle . . .  | 793,000     | 1,012,000    | 1,302,000     | 3,107,000  |
| South . . .   | 2,669,000   | 283,000      | 792,000       | 3,744,000  |
| West . . .    | 2,145,000   | 857,000      | 1,354,000     | 4,356,000  |
| Total . . .   | 5,923,000   | 2,707,000    | 3,876,000     | 12,506,000 |
| Males . . .   | 5,526,000   | 2,353,000    | 2,790,000     | 10,670,000 |
| Females . . . | 397,000     | 354,000      | 1,086,000     | 1,836,000  |
| Total . . .   | 5,923,000   | 2,707,000    | 3,876,000     | 12,506,000 |



That of 1880 gave the following :—

| States       | Agriculture | Manufactures | Commerce, &c. | Total      |
|--------------|-------------|--------------|---------------|------------|
| New England  | 301,000     | 709,000      | 562,000       | 1,572,000  |
| Middle . . . | 847,000     | 1,425,000    | 1,912,000     | 4,184,000  |
| South . . .  | 3,626,000   | 392,000      | 1,236,000     | 5,254,000  |
| West . . .   | 2,897,000   | 1,311,000    | 2,174,000     | 6,382,000  |
| Total .      | 7,671,000   | 3,837,000    | 5,884,000     | 17,392,000 |

| States       | Males      | Females   | Total      | Ratio |         |       |
|--------------|------------|-----------|------------|-------|---------|-------|
|              |            |           |            | Males | Females | Total |
| New England  | 1,239,000  | 333,000   | 1,572,000  | 72    | 19      | 91    |
| Middle . . . | 3,453,000  | 731,000   | 4,184,000  | 108   | 42      | 240   |
| South . . .  | 4,253,000  | 1,001,000 | 5,254,000  | 245   | 57      | 302   |
| West . . .   | 5,800,000  | 582,000   | 6,382,000  | 333   | 34      | 367   |
| Total .      | 14,745,000 | 2,647,000 | 17,392,000 | 848   | 152     | 1,000 |

Some of the principal States showed as follows :—

|                     | Agriculture | Manufactures | Commerce, &c. | Total      | Ratio of Workers |
|---------------------|-------------|--------------|---------------|------------|------------------|
| New York . . .      | 377,000     | 630,000      | 878,000       | 1,885,000  | 10.9             |
| Pennsylvania . . .  | 301,000     | 528,000      | 627,000       | 1,456,000  | 8.4              |
| Illinois . . .      | 436,000     | 206,000      | 357,000       | 999,000    | 5.8              |
| Ohio . . .          | 397,000     | 242,000      | 355,000       | 994,000    | 5.8              |
| Massachusetts . . . | 65,000      | 370,000      | 286,000       | 721,000    | 4.1              |
| Missouri . . .      | 355,000     | 110,000      | 228,000       | 693,000    | 4.0              |
| Indiana . . .       | 331,000     | 110,000      | 194,000       | 635,000    | 3.6              |
| Georgia . . .       | 432,000     | 36,000       | 130,000       | 598,000    | 3.5              |
| Michigan . . .      | 220,000     | 131,000      | 198,000       | 549,000    | 3.3              |
| Iowa . . .          | 304,000     | 70,000       | 154,000       | 528,000    | 3.0              |
| Texas . . .         | 359,000     | 30,000       | 133,000       | 522,000    | 3.0              |
| Kentucky . . .      | 321,000     | 61,000       | 138,000       | 520,000    | 3.0              |
| Various . . .       | 3,753,000   | 1,313,000    | 2,206,000     | 7,272,000  | 41.6             |
| Total .             | 7,671,000   | 3,837,000    | 5,884,000     | 17,392,000 | 100.0            |

The classification of nationality (counting sons of foreigners as Americans) was in 1880 as follows :—

|                 |            | Ratio |
|-----------------|------------|-------|
| Americans . . . | 13,897,000 | 802   |
| Germans . . .   | 1,033,000  | 59    |
| Irish . . .     | 979,000    | 56    |
| British . . .   | 467,000    | 26    |
| Various . . .   | 1,016,000  | 57    |
| Total . . .     | 17,392,000 | 1,000 |

Age and sex are classified in the following manner :—

|                | Males    |            |         |            |
|----------------|----------|------------|---------|------------|
|                | Under 16 | 16 to 60   | Over 60 | Total      |
| Agriculture .  | 585,000  | 5,888,000  | 603,000 | 7,076,000  |
| Manufactures . | 87,000   | 2,978,000  | 140,000 | 3,205,000  |
| Commerce .     | 26,000   | 1,672,000  | 53,000  | 1,751,000  |
| Various . . .  | 128,000  | 2,447,000  | 138,000 | 2,713,000  |
| Total .        | 826,000  | 12,985,000 | 934,000 | 14,745,000 |

|                | Females |           |        |           |
|----------------|---------|-----------|--------|-----------|
| Agriculture .  | 136,000 | 436,000   | 23,000 | 595,000   |
| Manufactures . | 47,000  | 577,000   | 8,000  | 632,000   |
| Commerce .     | 3,000   | 54,000    | 2,000  | 59,000    |
| Various . .    | 108,000 | 1,215,000 | 38,000 | 1,361,000 |
| Total .        | 294,000 | 2,282,000 | 71,000 | 2,647,000 |

|                | Total     |            |           |            |
|----------------|-----------|------------|-----------|------------|
| Agriculture .  | 721,000   | 6,320,000  | 626,000   | 7,671,000  |
| Manufactures . | 134,000   | 3,555,000  | 148,000   | 3,837,000  |
| Commerce .     | 29,000    | 1,726,000  | 55,000    | 1,810,000  |
| Various . .    | 236,000   | 3,666,000  | 176,000   | 4,078,000  |
| Total .        | 1,120,000 | 15,267,000 | 1,005,000 | 17,392,000 |

Of the total number of workers 80 per cent. were men, 13 per cent. women, 5 per cent. boys, 2 per cent. girls.

The Census of 1881 showed as follows :—

#### AUSTRALIA

|                         | Agriculture | Commerce | Mining | Various | Children and Servants | Total     |
|-------------------------|-------------|----------|--------|---------|-----------------------|-----------|
| New South Wales . . .   | 113,000     | 28,000   | 18,000 | 165,000 | 427,000               | 751,000   |
| Victoria . . .          | 124,000     | 21,000   | 36,000 | 177,000 | 504,000               | 862,000   |
| Queensland . . .        | 33,000      | 6,000    | 11,000 | 42,000  | 122,000               | 214,000   |
| South Australia . . .   | 35,000      | 8,000    | 2,000  | 60,000  | 175,000               | 280,000   |
| New Zealand . . .       | 55,000      | 14,000   | 14,000 | 90,000  | 317,000               | 490,000   |
| Tasmania . . .          | 19,000      | 3,000    | 3,000  | 22,000  | 69,000                | 116,000   |
| Western Australia . . . | 5,000       | 1,000    | ...    | 6,000   | 18,000                | 30,000    |
| Total . . .             | 384,000     | 81,000   | 84,000 | 562,000 | 1,632,000             | 2,743,000 |

Under agriculture are included both tillage and pastoral pursuits. It is probable that the real number employed in such occupations in 1881 was larger than appears, say 50 per cent. more, as the numbers under "Servants" and "Various" are large. The ratios show :—

|                | N. S. Wales | Victoria | Queensland | South Australia | New Zealand | Tasmania | Western Australia |
|----------------|-------------|----------|------------|-----------------|-------------|----------|-------------------|
| Agriculture    | 15.0        | 14.4     | 15.6       | 12.4            | 11.1        | 16.8     | 16.0              |
| Mining . . .   | 2.4         | 4.2      | 5.4        | 0.8             | 2.9         | 2.7      | 0.3               |
| Servants . . . | 82.6        | 81.4     | 79.0       | 86.8            | 86.0        | 80.5     | 83.7              |
| Total .        | 100.0       | 100.0    | 100.0      | 100.0           | 100.0       | 100.0    | 100.0             |

#### OIL

There are three principal kinds of oil—vegetable, marine, and mineral. The annual product, in gallons, is approximately as follows: vegetable, 140 millions; marine, 6 millions; mineral, 1800 millions.

The yield of oil from vegetable products is as follows :—

*Pounds of Oil from 100 Lbs. of*

|                        |    |                       |    |
|------------------------|----|-----------------------|----|
| Horse-chestnuts . . .  | 6  | Rape . . .            | 33 |
| Beech-mast . . .       | 16 | Colza . . .           | 40 |
| Hempseed . . .         | 18 | Almonds . . .         | 48 |
| European linseed . . . | 25 | Poppy . . .           | 58 |
| Indian linseed . . .   | 29 | Walnuts . . .         | 60 |
| Olives . . .           | 33 | Castor-oil seed . . . | 62 |

The ordinary product of olive-oil is approximately as follows:—

|              | Tons Olives | Gallons Oil | Value, £   |
|--------------|-------------|-------------|------------|
| France . . . | 170,000     | 12,000,000  | 3,300,000  |
| Italy . . .  | 720,000     | 50,000,000  | 13,400,000 |
| Spain . . .  | 300,000     | 21,000,000  | 5,800,000  |
| Portugal . . | 90,000      | 6,000,000   | 1,700,000  |
| Greece . . . | 50,000      | 3,500,000   | 1,000,000  |

The production of colza in 1884 was as follows:—

|               | Acres   | Bushels   | Oil, Gallons |
|---------------|---------|-----------|--------------|
| France . . .  | 284,000 | 5,800,000 | 14,000,000   |
| Belgium . . . | 17,000  | 380,000   | 1,000,000    |
| Denmark . . . | 2,500   | 70,000    | 200,000      |

The imports into Great Britain of palm-oil and cocoa-nut-oil have been as follows:—

| Year       | Tons   |           |        |
|------------|--------|-----------|--------|
|            | Palm   | Cocoa-nut | Total  |
| 1840 . . . | 15,800 | 2,100     | 17,900 |
| 1850 . . . | 22,400 | 4,900     | 27,300 |
| 1860 . . . | 40,200 | 9,700     | 49,900 |
| 1870 . . . | 43,400 | 9,900     | 53,300 |
| 1880 . . . | 51,600 | 15,900    | 67,500 |
| 1889 . . . | 54,600 | 10,700    | 65,300 |

These figures are by Mr. Simmonds, author of *Science and Commerce*.

The annual production of marine oil is approximately as follows:—

|              | Annual Slaughter | Gallons Oil | Gallons per Carcass |
|--------------|------------------|-------------|---------------------|
| Whales . . . | 1,500            | 3,300,000   | 2,200               |
| Seals . . .  | 550,000          | 2,600,000   | 5                   |
| Penguins . . | 1,300,000        | 130,000     | 1-10th              |

About 300 gallons of oil will suffice in twenty minutes to smooth the roughest sea (Admiralty experiments, Aberdeen, December 3, 1882).

The production of mineral oil is shown as follows:—

#### UNITED STATES

Two men boring for salt, 25 miles from Pittsburg, in 1845, struck an oil spring, which gave 40 gallons in 24 hours. The first oil company was formed at New York in 1854. A well sunk at Oil Creek, Pennsylvania, in 1859, gave 1000 gallons daily, and in a week others were sunk 600 feet, which gave 3000 gallons each in 24 hours. An oil fever ensued, and in 1860 there were 2000 wells at Oil Creek, 74 of which gave collectively 50,000 gallons daily. Down to 1889 more than 53,000 wells had been dug, the depth varying from 400 to 1200 feet, each bore costing about £800. One well in five strikes oil, and the number now working is about 6000. The total product since their discovery in 1859 has been approximately:—

| Period   | Millions of Gallons |           |          | Price, Cents per Gallon |          | Value at Pit's Mouth, £ |
|----------|---------------------|-----------|----------|-------------------------|----------|-------------------------|
|          | Raised              | Ex-ported | Home Use | Pit's Mouth             | Re-fined |                         |
| 1859-63  | 240                 | 24        | 168      | 10                      | 44       | 5,000,000               |
| 1864-73  | 2,250               | 900       | 900      | 5                       | 22       | 23,500,000              |
| 1874-80  | 4,760               | 2,400     | 1,400    | 2½                      | 10       | 24,000,000              |
| 1881-88  | 8,630               | 3,740     | 3,160    | 2½                      | 9        | 27,300,000              |
| 30 years | 15,880              | 7,064     | 5,628    | ...                     | ...      | 89,800,000              |

The cost of boring wells, good and bad, was 42 millions sterling, or about 46 per cent. of the value of crude oil extracted. The market value of the refined petroleum exported or consumed in the United States was 330 millions sterling. The ordinary yield of refined oil is 80 gallons to 100 of crude petroleum.

#### RUSSIA

The Baku oil springs began to yield in 1863, and 363 wells have been sunk, of which 207 are working. The average depth is 550 feet, but some are only 190, others 1000 feet deep. At first the yield averaged 35 gallons of refined to 100 of crude oil, but it has since fallen to 28 gallons.

The production has been approximately as follows:—

|                | Millions of Gallons |         | Value at Pit, £ |
|----------------|---------------------|---------|-----------------|
|                | Crude               | Refined |                 |
| 1863-73 . . .  | 120                 | 42      | 2,500,000       |
| 1874-80 . . .  | 550                 | 165     | 5,500,000       |
| 1881-89 . . .  | 4,510               | 1,300   | 18,000,000      |
| 27 years . . . | 5,180               | 1,507   | 26,000,000      |

#### AUSTRIA

Ozokerit is a mineral oil from layers of wax found at Borislav, Galitzia. The mines are about 250 feet deep.

| Year       | Mines | Miners | Tons Raised | Value, £ |
|------------|-------|--------|-------------|----------|
| 1883 . . . | 1,292 | 3,800  | 4,500       | 210,000  |
| 1887 . . . | 560   | 4,800  | 5,000       | 210,000  |

#### GERMANY

The consumption of petroleum has increased very notably, viz. :—

| Year          | Tons per Annum | Year          | Tons per Annum |
|---------------|----------------|---------------|----------------|
| 1861-70 . . . | 70,000         | 1881-85 . . . | 300,000        |
| 1871-80 . . . | 195,000        | 1887 . . .    | 510,000        |

#### ORDERS

The principal religious Orders are the following:—

|                    | Founded |                          | Founded |
|--------------------|---------|--------------------------|---------|
|                    | A.D.    |                          | A.D.    |
| Benedictines . . . | 543     | Dominicans . . .         | 1215    |
| Carthusians . . .  | 1084    | Augustinians . . .       | 1256    |
| Carmelites . . .   | 1156    | Jesuits . . .            | 1534    |
| Franciscans . . .  | 1209    | Sisters of Charity . . . | 1734    |

*Chambers's Encyclopædia* (1891) has the following regarding the Jesuits: "In 1634 the Order comprised 13,112 members, distributed all over the world in 32 'provinces.' In 1773 it counted 22,589 members, who had 930 colleges and 610 residences or missionary stations."

The Jesuit Missions of Paraguay, in the territory now called Misiones, counted in 1732 an Indian population of 30,362 families, or 141,242 souls, possessing 788,000 cows, 225,000 sheep, and 111,400 horses. The annual tribute to the King of Spain was £3000 sterling. The value of exports, such as yerba-maté, hides and timber, averaged £25,000 yearly. For military service against the Portuguese, the Indians, whenever required, had to furnish the Viceroy with a force of 3000 men, 4000 horses, and 5000 draught oxen.

The Jesuit Order counted in 1882 the following members:—

|                                       |       |
|---------------------------------------|-------|
| Great Britain and United States . . . | 1,894 |
| Spain and South America . . .         | 1,933 |
| China, India, Africa, &c. . .         | 7,222 |

Total . . . 11,049

Respecting the other Orders the *Catholic Times* says: "During the last 600 years the Order of St. Francis has given to the Church 247 saints, 1500 martyrs, 10 popes, and 4000 archbishops and bishops; the Order of St. Dominic, 4 popes, 80 cardinals, and 2000 bishops; the Order of St. Benedict, 43 popes, 200 cardinals, 256 patriarchs, 600 archbishops, and 40,000 bishops, besides 25 emperors, kings, and queens who left their thrones for the cloisters of the celebrated Order."

## ENGLAND

At the Dissolution Henry VIII. confiscated 608 abbeys, with an aggregate income of £141,000, equal to the rent of 720,000 acres. The number of religious houses in the United Kingdom in 1873 was:—

|                     |     |
|---------------------|-----|
| For men . . . . .   | 86  |
| For women . . . . . | 286 |
| Total . . . . .     | 372 |

Of this total there were 256 in Ireland and 116 in Great Britain, mostly devoted to teaching the poor or caring the sick.

## FRANCE

The numbers of religious of both sexes were as follows:—

|                |        |                |         |
|----------------|--------|----------------|---------|
| 1815 . . . . . | 12,200 | 1861 . . . . . | 108,120 |
| 1842 . . . . . | 25,000 | 1871 . . . . . | 97,400  |

The composition of the houses in 1861 was:—

|                         | Men    | Women  | Total   |
|-------------------------|--------|--------|---------|
| Hospitals . . . . .     | 389    | 20,292 | 20,681  |
| Schools . . . . .       | 12,845 | 58,883 | 71,728  |
| Contemplative . . . . . | 4,542  | 11,169 | 15,711  |
| Total . . . . .         | 17,776 | 90,344 | 108,120 |

|                  | Houses | Endowed Capital, £ | Approximate Income, £ |
|------------------|--------|--------------------|-----------------------|
| Friars . . . . . | 2,026  | 100,000            | 5,000                 |
| Nuns . . . . .   | 12,004 | 4,100,000          | 205,000               |
| Total . . . . .  | 14,030 | 4,200,000          | 210,000               |

The estates of religious houses consist of £3,200,000 in house property and £1,000,000 in lands. The total number of religious in 1871 was 13,000 men and 84,300 women.

## RUSSIA

The religious houses of the Greek Church are:—

|                 | Houses | Religious | Aspirants |
|-----------------|--------|-----------|-----------|
| Men . . . . .   | 484    | 6,800     | 3,470     |
| Women . . . . . | 198    | 6,037     | 16,018    |
| Total . . . . . | 682    | 12,837    | 19,488    |

## AUSTRIA

In 1880 the Orders stood thus:—

|                 | Austria |           | Hungary |           |
|-----------------|---------|-----------|---------|-----------|
|                 | Houses  | Religious | Houses  | Religious |
| Men . . . . .   | 475     | 7,127     | 186     | 2,243     |
| Women . . . . . | 429     | 8,727     | 64      | 915       |
| Total . . . . . | 904     | 15,854    | 250     | 3,158     |

The above communities possessed houses and lands valued at £4,680,000. The abbeys and convents suppressed in 1790 by Joseph II. were 359 in number.

## ITALY

In 1867 the Government suppressed 4254 religious houses, containing 31,000 men and 28,250 women, whose endowed estates gave an annual income of £970,000, equal to £16 per religious. The estates were sold for £17,510,000, averaging £13 per acre. In ten years ending 1876, the Government paid to friars and nuns pensions which made up an aggregate of £6,840,000 sterling. In 1840 Rome counted 1560 priests, 2140 friars, and 1500 nuns, besides 440 ecclesiastical students. In 1830 the kingdom of Naples had 8500 friars and 8200 nuns.

## SPAIN

There are four military Orders:—

| Name                | Commanderies | Income, £ |
|---------------------|--------------|-----------|
| Calatrava . . . . . | 56           | 64,000    |
| Santiago . . . . .  | 87           | 73,000    |
| Alcantara . . . . . | 37           | 37,000    |
| Montesa . . . . .   | 193          | 196,000   |
| Total . . . . .     | 373          | 370,000   |

In 1803 there were 2923 religious houses, but in 1884, after numerous suppressions, the number had fallen to 1188, including 161 of friars, and 1027 of nuns. The numbers of religious at various dates compared thus:—

|                  | 1788   | 1803    | 1884   |
|------------------|--------|---------|--------|
| Friars . . . . . | 49,270 | 69,700  | 1,684  |
| Nuns . . . . .   | 22,230 | 38,400  | 14,592 |
| Total . . . . .  | 71,500 | 108,100 | 16,276 |

In 1820 the Government confiscated monastic properties to the value of £3,200,000.

## BELGIUM

In 1789 there were 631 houses with 12,000 religious. The numbers in later times have been:—

|                 | 1846   |           | 1866   |           |
|-----------------|--------|-----------|--------|-----------|
|                 | Houses | Religious | Houses | Religious |
| Men . . . . .   | 137    | 2,051     | 178    | 2,991     |
| Women . . . . . | 642    | 9,917     | 1,144  | 15,205    |
| Total . . . . . | 779    | 11,968    | 1,322  | 18,196    |

The houses in 1866 were composed thus:—

| Occupation          | Men   | Women  | Total  |
|---------------------|-------|--------|--------|
| Teaching . . . . .  | 975   | 7,249  | 8,224  |
| Hospitals . . . . . | 797   | 5,527  | 6,324  |
| Various . . . . .   | 1,219 | 2,429  | 3,648  |
| Total . . . . .     | 2,991 | 15,205 | 18,196 |

Houses and lands held by the above communities represented a total value of £940,000, including £640,000 of charitable bequests by 2615 benefactors since 1838.

According to the Census of 1880 there were:—

|                  | Houses | Religious |
|------------------|--------|-----------|
| Friars . . . . . | 213    | 4,027     |
| Nuns . . . . .   | 1,346  | 20,645    |
| Total . . . . .  | 1,559  | 24,672    |

## GERMANY

The Orders in 1873 stood thus:—

|                        | Houses | Religious |
|------------------------|--------|-----------|
| Prussia . . . . .      | 958    | 9,048     |
| Bavaria . . . . .      | 620    | 6,148     |
| Other states . . . . . | 450    | 4,238     |
| Total . . . . .        | 2,028  | 19,434    |

|                 | Prussia | Bavaria | Other States |
|-----------------|---------|---------|--------------|
| Men . . . . .   | 1,037   | 1,094   | 457          |
| Women . . . . . | 8,011   | 5,054   | 3,781        |
| Total . . . . . | 9,048   | 6,148   | 4,238        |

## HOLLAND

In 1862 the Orders stood thus:—

|                  | Houses | Religious |
|------------------|--------|-----------|
| Friars . . . . . | 38     | 820       |
| Nuns . . . . .   | 137    | 2,187     |
| Total . . . . .  | 175    | 3,007     |

## PORTUGAL

In 1834 the Government suppressed 750 religious houses, and seized the revenues.

## SWITZERLAND

In 1871 there were:—

|                 | Houses | Religious |
|-----------------|--------|-----------|
| Men . . . . .   | 33     | 546       |
| Women . . . . . | 55     | 2,020     |
| Total . . . . . | 88     | 2,566     |

These houses held real estate valued at £480,000, producing an income of about £10 a year for each religious. The Capuchins numbered 235, other friars 311. The most numerous Order of nuns was Theodosians, who were 417, the Sisters of St. Francis coming next.

## GREECE

There are 161 religious houses of the Greek Church, containing 2620 monks and 485 nuns.

## UNITED STATES

According to a Catholic paper there are in the United States 7000 nuns in charge of schools and orphans, 3000 Sisters of Charity tending the sick, and 3000 clergy of monastic Orders doing missionary work or in colleges.

## PALMS

The number of cocoa-nut palms given by Simmonds is:—

|                          |            |
|--------------------------|------------|
| New Caledonia . . . . .  | 45,000,000 |
| Ceylon . . . . .         | 30,000,000 |
| Madras . . . . .         | 11,000,000 |
| Feejee Islands . . . . . | 500,000    |

Brazil has probably 100 millions. The betel-nut palm is also cultivated in India; the area under this tree in Ceylon is 50,000 acres. As for the date-palm, Tunis has 2,500,000, Egypt 4,500,000, and India 13,000,000. Even in the oases of Sahara there are 16,000. See *Fruit*.

## ORGANS

|                                        | Benches of Keys | Stops | Pipes |
|----------------------------------------|-----------------|-------|-------|
| Hamburg . . . . .                      | 4               | 70    | ...   |
| Lübeck . . . . .                       | 4               | 82    | ...   |
| Cologne . . . . .                      | 4               | 104   | ...   |
| Ulm . . . . .                          | 4               | 100   | 6,594 |
| Meresburg . . . . .                    | 4               | 81    | 5,866 |
| Frankfort . . . . .                    | 3               | 75    | ...   |
| Prague . . . . .                       | 4               | 71    | ...   |
| Stuttgart . . . . .                    | 4               | 70    | ...   |
| Seville . . . . .                      | ...             | 110   | 5,300 |
| Rotterdam . . . . .                    | 4               | 75    | 5,700 |
| Haarlem . . . . .                      | ...             | 60    | 4,088 |
| San Sulpice, Paris . . . . .           | 5               | 100   | 6,700 |
| Albert Hall, London . . . . .          | 4               | 111   | ...   |
| Alexandra Palace . . . . .             | 4               | 88    | ...   |
| Town-Hall, Leeds . . . . .             | ...             | 100   | 6,500 |
| St. George's Hall, Liverpool . . . . . | 4               | 100   | ...   |
| Doncaster . . . . .                    | ...             | 94    | ...   |
| Glasgow . . . . .                      | 4               | 64    | ...   |
| Boston Music-Hall . . . . .            | 4               | 89    | ...   |
| Riga . . . . .                         | ...             | ...   | 7,000 |

That of Haarlem, built in 1735, cost £12,000; that of Liverpool, £10,000. The proposed new organ for St. Peter's at Rome is to have 124 stops, some 32 ft. long.

## OSTRICHES

The production of ostrich feathers averages as follows:—

|                        | Lbs. Feathers | Value, £  |
|------------------------|---------------|-----------|
| Cape Colony . . . . .  | 260,000       | 1,040,000 |
| Tripoli . . . . .      | 20,000        | 200,000   |
| Egypt . . . . .        | 4,000         | 40,000    |
| Morocco . . . . .      | 2,000         | 20,000    |
| Buenos Ayres . . . . . | 160,000       | 32,000    |

About 35,000 birds are plucked annually at the Cape, averaging 3 lbs. per bird. In Buenos Ayres they are slaughtered, and the race is dying out.

According to Simmonds, the Buenos Ayres "rears" is not really an ostrich at all, and the feathers are sold as "vulture feathers." He gives the exports of Cape feathers and the imports of ostrich feathers from all quarters into Great Britain thus:—

| Year           | Cape Export, Lbs. | Year           | Great Britain Import, Lbs. | Value, £  |
|----------------|-------------------|----------------|----------------------------|-----------|
| 1875 . . . . . | 50,000            | 1860 . . . . . | 25,000                     | 80,000    |
| 1880 . . . . . | 160,000           | 1870 . . . . . | 65,000                     | 175,000   |
| 1885 . . . . . | 250,000           | 1880 . . . . . | 190,000                    | 1,010,000 |
| 1889 . . . . . | 230,000           | 1889 . . . . . | 150,000                    | 400,000   |

## P.

## PAPER

The consumption in 1882 was estimated as follows:—

|                               | Tons      |
|-------------------------------|-----------|
| Printing . . . . .            | 455,000   |
| Schools and offices . . . . . | 160,000   |
| Account-books . . . . .       | 55,000    |
| Letter-paper . . . . .        | 100,000   |
| Wall-paper . . . . .          | 200,000   |
| Sundry manufactures . . . . . | 80,000    |
| Total . . . . .               | 1,050,000 |

In 1881 there were 3960 paper-mills, employing 90,000 men and 180,000 women: there were 2780 mills worked

by steam-power. The capital employed in the industry exceeded 62 millions sterling. The paper industry of the world sums up thus :—

|                                    |             |
|------------------------------------|-------------|
| Rag, jute, &c. . . . .             | £14,000,000 |
| Chemicals . . . . .                | 8,500,000   |
| Wages . . . . .                    | 9,000,000   |
| Coal . . . . .                     | 3,400,000   |
| Profit, interest on capital, &c. . | 3,600,000   |

Value of paper . . . . . £38,500,000

In 1882 the production and consumption in the several countries was stated as follows (the consumption in 1890 being probably one-fourth more) :—

|                           | Millions Lbs. |             | Consumption, Lbs. per Inhab. |
|---------------------------|---------------|-------------|------------------------------|
|                           | Production    | Consumption |                              |
| United Kingdom            | 470           | 430         | 12.1                         |
| France*                   | 380           | 330         | 8.4                          |
| Germany . . . . .         | 450           | 410         | 9.1                          |
| Russia . . . . .          | 80            | 90          | 1.2                          |
| Austria . . . . .         | 160           | 120         | 3.3                          |
| Italy . . . . .           | 105           | 110         | 3.9                          |
| Spain . . . . .           | 20            | 32          | 2.0                          |
| Portugal . . . . .        | 10            | 10          | 2.2                          |
| Belgium . . . . .         | 70            | 40          | 7.2                          |
| Holland . . . . .         | 16            | 16          | 4.0                          |
| Scandinavia . . . . .     | 38            | 30          | 3.5                          |
| Switzerland . . . . .     | 20            | 18          | 6.8                          |
| Turkey and Greece         | ...           | 12          | 1.2                          |
| Europe . . . . .          | 1,819         | 1,648       | 5.1                          |
| United States . . . . .   | 530           | 540         | 10.2                         |
| Canada . . . . .          | 14            | 18          | 4.1                          |
| Spanish America . . . . . | 2             | 44          | 1.3                          |
| Australia . . . . .       | ...           | 17          | 6.1                          |
| Other countries . . . . . | ...           | 98          | ...                          |
| Total . . . . .           | 2,365         | 2,365       | ...                          |

The above total was equivalent to 1,050,000 tons, which were supposed to be produced from the following materials :—

| Material                   | Tons Used | Tons, Paper | Ratio of Paper to Material, per Cent. |
|----------------------------|-----------|-------------|---------------------------------------|
| Woolen rags . . . . .      | 670,000   | 390,000     | 59                                    |
| Cotton rag . . . . .       | 450,000   | 280,000     | 62                                    |
| Linen, &c., rags . . . . . | 100,000   | 50,000      | 50                                    |
| Jute and sparta . . . . .  | 300,000   | 50,000      | 17                                    |
| Wood and straw . . . . .   | 400,000   | 40,000      | 10                                    |
| Sundries . . . . .         | 2,400,000 | 240,000     | 10                                    |
| Total . . . . .            | 4,320,000 | 1,050,000   | 25                                    |

In 1813 Stevenson estimated the value of paper made yearly in Great Britain at one million sterling; in 1835, McCulloch at £1,300,000. The consumption has risen twelvefold since 1840, viz. :—

| Year           | Tons   |          |         |
|----------------|--------|----------|---------|
|                | Press  | Sundries | Total   |
| 1840 . . . . . | 3,000  | 13,000   | 16,000  |
| 1864 . . . . . | 31,000 | 52,000   | 83,000  |
| 1885 . . . . . | 95,000 | 100,000  | 195,000 |

\* The quantity of paper which paid excise in France in 1885 was only 217,000 tons.

In 1880-85 the paper-mills in various countries were :—

|                         | Number | Hands  | Steam, Horse-Power | Water, Horse-Power | Product, Tons |
|-------------------------|--------|--------|--------------------|--------------------|---------------|
| Great Britain . . . . . | 354    | 28,000 | 27,000             | 8,000              | 200,000       |
| France . . . . .        | 512    | 31,000 | 7,000              | 13,000             | 170,000       |
| Germany . . . . .       | 446    | 54,000 | 24,000             | 30,000             | 200,000       |

The consumption of paper for books is relatively small, only 6 per cent. of the total; the annual issue being supposed to reach 85 million volumes, which take 65,000 tons of paper, an average of 14 oz. per volume.

The first paper-mill in America was at Germantown, Pennsylvania, in 1693. There were 63 in 1787, which turned out 250 tons yearly. In 1870 one factory in Massachusetts produced 25,000 tons of writing-paper yearly, and another 100 miles a day of wall-paper.

## PARIS

In 1887 this city had 82,500 houses and 2,261,000 population, including 180,000 foreigners. The streets had a length of exactly 600 miles. Total area, 18,700 acres, of which 14,500 are covered by houses, the rest being streets and squares. In the parish of the Temple there are 290 persons per acre, in that of Passy only 42; general average 116. There are 440 miles of sewers, the construction of which cost 4 millions sterling; they vary from 5 ft. to 18 ft. diameter. Water-supply averages 90 million gallons daily, there being 66,000 subscribers who pay water-rate. Gas-supply in 1888 reached 8800 million cubic feet, of which 900 millions were used for streets and public buildings. Vital statistics showed 57,000 deaths and 60,000 births, 28 per cent. of the latter being illegitimate. The hospitals admitted 131,000 patients, of whom 13,900 died, say 10½ per cent. There are 6000 police, 500 steamboats, 8000 cabs, and 1200 busses or tramcars. Food consumption was 350,000 tons of bread, 175,000 tons of meat, 24,000 tons of poultry, 5500 tons of cheese, 400 million eggs, and 104 million gallons of wine and liquors.

## PARKS

The area of park to the principal cities of the United Kingdom is shown in the following table :—

| Cities                  | Area, Acres | Park, Acres | Inhabitants to an Acre |           |
|-------------------------|-------------|-------------|------------------------|-----------|
|                         |             |             | Municipal Area         | Park Area |
| Birmingham . . . . .    | 8,400       | 211         | 46                     | 1,736     |
| Bradford . . . . .      | 7,200       | 215         | 26                     | 889       |
| Brighton . . . . .      | 2,400       | 106         | 45                     | 996       |
| Bristol . . . . .       | 4,500       | 442         | 47                     | 475       |
| Dublin . . . . .        | 10,100      | 1,753       | 31                     | 175       |
| Edinburgh . . . . .     | 4,200       | 407         | 54                     | 410       |
| Glasgow . . . . .       | 6,100       | 447         | 96                     | 1,293     |
| Hull . . . . .          | 3,600       | 26          | 40                     | 4,721     |
| Leeds . . . . .         | 21,600      | 350         | 14                     | 681       |
| Leicester . . . . .     | 3,200       | 65          | 39                     | 1,256     |
| Liverpool . . . . .     | 5,200       | 525         | 103                    | 1,025     |
| London . . . . .        | 75,400      | 1,790       | 48                     | 1,114     |
| Manchester . . . . .    | 9,500       | 191         | 77                     | 2,846     |
| Newcastle . . . . .     | 5,400       | 91          | 27                     | 4,199     |
| Norwich . . . . .       | 7,500       | 7           | 11                     | 12,175    |
| Nottingham . . . . .    | 9,900       | 150         | 17                     | 1,129     |
| Oldham . . . . .        | 4,700       | 60          | 24                     | 1,855     |
| Plymouth . . . . .      | 1,400       | 22          | 53                     | 3,377     |
| Portsmouth . . . . .    | 4,500       | 31          | 29                     | 8,239     |
| Sheffield . . . . .     | 19,700      | 49          | 15                     | 3,761     |
| Sunderland . . . . .    | 2,800       | 24          | 41                     | 4,774     |
| Wolverhampton . . . . . | 3,400       | 50          | 22                     | 1,510     |

The most remarkable are :—

| Name                       | Place               | Acres |
|----------------------------|---------------------|-------|
| Regent's . . . . .         | London . . . . .    | 450   |
| Hyde . . . . .             | London . . . . .    | 400   |
| Bois de Boulogne . . . . . | Paris . . . . .     | 2,100 |
| Phoenix . . . . .          | Dublin . . . . .    | 1,760 |
| Prater . . . . .           | Vienna . . . . .    | 2,300 |
| Royal . . . . .            | Munich . . . . .    | 1,300 |
| Queen's . . . . .          | Edinburgh . . . . . | 407   |

### PARLIAMENT

That of the United Kingdom made 27,010 laws in eighty-two years, as follows :—

| Period             | Acts of Parliament |         |        |
|--------------------|--------------------|---------|--------|
|                    | Public             | Private | Total  |
| 1801-10 . . . . .  | 1,322              | 2,514   | 3,836  |
| 1811-20 . . . . .  | 1,487              | 2,233   | 3,720  |
| 1821-30 . . . . .  | 986                | 1,979   | 2,965  |
| 1831-40 . . . . .  | 1,038              | 1,706   | 2,744  |
| 1841-50 . . . . .  | 1,129              | 2,140   | 3,269  |
| 1851-60 . . . . .  | 1,158              | 2,057   | 3,215  |
| 1861-68 . . . . .  | 1,010              | 2,140   | 3,150  |
| 1869-82 . . . . .  | 1,283              | 2,828   | 4,111  |
| 82 years . . . . . | 9,413              | 17,597  | 27,010 |

The following Ministers have held power since 1801 :—

| Period            | Premier              | Months |
|-------------------|----------------------|--------|
| 1801-4 . . . . .  | Addington . . . . .  | 38     |
| 1804-6 . . . . .  | Pitt . . . . .       | 20     |
| 1806-7 . . . . .  | Grenville . . . . .  | 14     |
| 1807-10 . . . . . | Portland . . . . .   | 39     |
| 1810-12 . . . . . | Perceval . . . . .   | 24     |
| 1812-27 . . . . . | Liverpool . . . . .  | 178    |
| 1827 . . . . .    | Canning . . . . .    | 4      |
| 1827-28 . . . . . | Goderich . . . . .   | 5      |
| 1828-30 . . . . . | Wellington . . . . . | 34     |
| 1830-34 . . . . . | Grey . . . . .       | 44     |
| 1834 . . . . .    | Melbourne . . . . .  | 5      |
| 1834-35 . . . . . | Peel . . . . .       | 4      |
| 1835-41 . . . . . | Melbourne . . . . .  | 77     |
| 1841-46 . . . . . | Peel . . . . .       | 58     |
| 1846-52 . . . . . | Russell . . . . .    | 68     |
| 1852 . . . . .    | Derby . . . . .      | 10     |
| 1852-55 . . . . . | Aberdeen . . . . .   | 25     |
| 1855-58 . . . . . | Palmerston . . . . . | 37     |
| 1858-59 . . . . . | Derby . . . . .      | 16     |
| 1859-65 . . . . . | Palmerston . . . . . | 76     |
| 1865-66 . . . . . | Russell . . . . .    | 8      |
| 1866-68 . . . . . | Derby . . . . .      | 20     |
| 1868 . . . . .    | Disraeli . . . . .   | 9      |
| 1868-74 . . . . . | Gladstone . . . . .  | 62     |
| 1874-80 . . . . . | Disraeli . . . . .   | 74     |
| 1880-85 . . . . . | Gladstone . . . . .  | 62     |
| 1885-86 . . . . . | Salisbury . . . . .  | 7      |
| 1886 . . . . .    | Gladstone . . . . .  | 6      |
| 1886 . . . . .    | Salisbury . . . . .  | ...    |

Parliament consists of 515 Lords and 670 Commons. The composition of the latter House was greatly changed in 1885 under the new Reform Act, viz. :—

|                    | County |      | Borough |      | University |      | Total |      |
|--------------------|--------|------|---------|------|------------|------|-------|------|
|                    | 1884   | 1885 | 1884    | 1885 | 1884       | 1885 | 1884  | 1885 |
| England . . . . .  | 172    | 234  | 282     | 226  | 5          | 5    | 459   | 465  |
| Wales . . . . .    | 15     | 19   | 15      | 11   | ...        | ...  | 30    | 30   |
| Scotland . . . . . | 32     | 39   | 26      | 31   | 2          | 2    | 60    | 72   |
| Ireland . . . . .  | 64     | 85   | 37      | 16   | 2          | 2    | 103   | 103  |
| United Kingdom     | 283    | 377  | 360     | 284  | 9          | 9    | 652   | 670  |

The French Chamber contained 97 noblemen, 116 lawyers, 57 manufacturers, 92 farmers, 48 doctors, 40 journalists, 14 engineers, 23 soldiers, 12 bankers, and 123 of various occupations in 1888.

### PASSENGERS

In 1885 it was computed that 80,000 vehicles and 400,000 foot-passengers crossed the bridges of London daily.

The number of persons who crossed Waterloo Bridge in a year was as follows :—

|                |           |                |           |
|----------------|-----------|----------------|-----------|
| 1820 . . . . . | 1,821,000 | 1850 . . . . . | 4,295,000 |
| 1830 . . . . . | 2,423,000 | 1860 . . . . . | 4,873,000 |
| 1840 . . . . . | 2,486,000 | 1863 . . . . . | 5,145,000 |

At present the number will probably reach 8,000,000. In 1875 there were 7,300,000 vehicles and 38,500,000 persons that crossed London Bridge. In 1882 the ferryboats between Liverpool and Birkenhead carried 22,000,000 passengers. London has 12,000 cabs, Paris 8000; the former carry 90,000, the latter 60,000 passengers daily, the average fare earned being 15d. per passenger in Paris, 18d. in London. The daily earnings of a cab in London are 19s. in the season, 9s. the rest, and 12s. all the year round.

The London Omnibus Company carried as follows :—

|                       | 1888       | 1889       |
|-----------------------|------------|------------|
| Passengers . . . . .  | 61,200,000 | 69,300,000 |
| Receipts, £ . . . . . | 400,000    | 430,000    |
| Expenses . . . . .    | 375,000    | 395,000    |

The local passenger traffic of London has grown as follows :—

|                       | Millions of Passengers Yearly |      |      |
|-----------------------|-------------------------------|------|------|
|                       | 1864                          | 1874 | 1884 |
| Underground . . . . . | 42                            | 65   | 115  |
| Omnibus . . . . .     | 11                            | 48   | 75   |
| Tramway . . . . .     | ...                           | 42   | 119  |
| Total . . . . .       | 53                            | 155  | 309  |

The Underground Railway now carries 150 million persons yearly.

As regards Paris, the traffic shows thus :—

| Year           | Passengers  | Year           | Passengers  |
|----------------|-------------|----------------|-------------|
| 1860 . . . . . | 72,000,000  | 1880 . . . . . | 234,000,000 |
| 1870 . . . . . | 108,000,000 | 1888 . . . . . | 279,000,000 |

The traffic of 1880 and of 1888 was computed thus :—

|                               | 1880        | 1888        |
|-------------------------------|-------------|-------------|
| Tramcars and busses . . . . . | 209,000,000 | 241,000,000 |
| Steamboats, &c. . . . .       | 25,000,000  | 38,000,000  |
| Total . . . . .               | 234,000,000 | 279,000,000 |

The above does not include about 22,000,000 persons carried in cabs in 1888. The average fare paid in 1880 was about three halfpence (1.6). The passenger traffic between the various ports of the United Kingdom is not ascertained, but it is found that between domestic and foreign traffic 10,000 persons leave the ports of the United Kingdom daily. The number of pilgrims yearly to Mecca is not known, but 35,000 pass through Suez.

### PATENTS

The number applied for, and that of those granted, in the United Kingdom were as follows :—

| Period             | Applications | Granted |
|--------------------|--------------|---------|
| 1860-69 . . . . .  | 34,870       | 21,910  |
| 1870-79 . . . . .  | 44,950       | 30,360  |
| 1880-87 . . . . .  | 91,940       | 53,040  |
| 28 years . . . . . | 171,760      | 105,310 |

## FRANCE

The number granted in various years was as follows :—

| Year           | Patents | Year           | Patents |
|----------------|---------|----------------|---------|
| 1844 . . . . . | 625     | 1870 . . . . . | 3,029   |
| 1850 . . . . . | 1,687   | 1880 . . . . . | 6,057   |
| 1860 . . . . . | 4,606   | 1885 . . . . . | 7,060   |

## AUSTRIA

The total number granted in the Empire was :—

| Period            | Patents |
|-------------------|---------|
| 1852-69 . . . . . | 10,480  |
| 1870-84 . . . . . | 24,090  |

33 years . . . . . 34,570

## BELGIUM

The returns for forty-eight years showed as follows :—

| Period             | Inventions | Improvements | Total  |
|--------------------|------------|--------------|--------|
| 1841-60 . . . . .  | 5,879      | 10,651       | 16,530 |
| 1861-70 . . . . .  | 7,572      | 10,355       | 17,927 |
| 1871-88 . . . . .  | 30,600     | 25,680       | 56,280 |
| 48 years . . . . . | 44,051     | 46,686       | 90,737 |

## UNITED STATES

The records show as follows :—

| Year           | Applications | Granted | Fees, £ |
|----------------|--------------|---------|---------|
| 1840 . . . . . | 735          | 473     | 8,000   |
| 1850 . . . . . | 2,193        | 993     | 18,000  |
| 1860 . . . . . | 7,653        | 4,778   | 53,000  |
| 1870 . . . . . | 19,171       | 13,333  | 120,000 |
| 1880 . . . . . | 23,021       | 13,917  | 156,000 |
| 1889 . . . . . | 40,575       | 24,158  | 266,000 |

## UNITED KINGDOM

Official returns show as follows :—

| Year           | England   | Scotland | Ireland | U. Kingdom | Ratio to Population |          |         |            |
|----------------|-----------|----------|---------|------------|---------------------|----------|---------|------------|
|                |           |          |         |            | England             | Scotland | Ireland | U. Kingdom |
| 1850 . . . . . | 921,000   | 79,000   | 308,000 | 1,308,000  | 5.11                | 2.72     | 4.61    | 4.75       |
| 1860 . . . . . | 851,000   | 77,000   | 45,000  | 973,000    | 4.26                | 2.50     | 0.77    | 3.35       |
| 1870 . . . . . | 1,079,000 | 126,000  | 74,000  | 1,279,000  | 4.69                | 3.78     | 1.38    | 4.06       |
| 1880 . . . . . | 803,000   | 99,000   | 115,000 | 1,016,000  | 3.09                | 2.66     | 2.21    | 2.90       |
| 1889 . . . . . | 810,000   | 96,000   | 109,000 | 1,015,000  | 2.80                | 2.40     | 2.30    | 2.65       |

| Expenditure :—           | 1860      | 1870      | 1880       | 1888       |
|--------------------------|-----------|-----------|------------|------------|
|                          | £         | £         | £          | £          |
| England . . . . .        | 5,400,000 | 7,650,000 | 8,020,000  | 8,440,000  |
| Scotland . . . . .       | 580,000   | 910,000   | 850,000    | 890,000    |
| Ireland . . . . .        | 1,830,000 | 810,000   | 1,190,000  | 1,390,000  |
| United Kingdom . . . . . | 7,810,000 | 9,370,000 | 10,060,000 | 10,720,000 |

The average outlay yearly on each pauper, and the cost per inhabitant, as regards the three kingdoms, are shown as follows :—

| Year           | Outlay per Pauper, £ |          |         | Cost per Inhabitant, Pence |          |         |
|----------------|----------------------|----------|---------|----------------------------|----------|---------|
|                | England              | Scotland | Ireland | England                    | Scotland | Ireland |
| 1850 . . . . . | 5.9                  | 7.3      | 6.0     | 72                         | 48       | 65      |
| 1860 . . . . . | 6.4                  | 8.6      | 11.6    | 66                         | 52       | 22      |
| 1870 . . . . . | 7.1                  | 7.4      | 11.0    | 50                         | 66       | 36      |
| 1880 . . . . . | 10.0                 | 8.5      | 10.4    | 74                         | 55       | 54      |
| 1889 . . . . . | 10.4                 | 9.3      | 12.7    | 72                         | 54       | 70      |

## PAUPERS

It is difficult to compare the numbers in different countries. England, for example, counts the number receiving relief on 1st January; France the total of persons succoured during the year, the latter being a repetition of persons who needed relief. The following may be taken as an estimate of pauperism in 1888 :—

|                    | Paupers | Per 100 Population | Annual Outlay, £ |
|--------------------|---------|--------------------|------------------|
| England . . . . .  | 810,000 | 2.8                | 8,400,000        |
| Scotland . . . . . | 96,000  | 2.4                | 900,000          |
| Ireland . . . . .  | 109,000 | 2.3                | 1,400,000        |
| France . . . . .   | 290,000 | 0.8                | 1,500,000        |
| Germany . . . . .  | 320,000 | 0.7                | 4,600,000        |
| Russia . . . . .   | 350,000 | 0.4                | ...              |
| Austria . . . . .  | 290,000 | 0.7                | 400,000          |
| Italy . . . . .    | 270,000 | 0.9                | 1,900,000        |
| Holland . . . . .  | 88,000  | 2.0                | 510,000          |

In 1884 the number of paupers relieved at various capitals was as follows :—

|                          | Paupers | Outlay, £ | Per Head, £ |
|--------------------------|---------|-----------|-------------|
| Paris . . . . .          | 490,000 | 800,000   | 1.6         |
| St. Petersburg . . . . . | 215,000 | 140,000   | 0.7         |
| Berlin . . . . .         | 310,000 | 370,000   | 1.2         |
| Vienna . . . . .         | 286,600 | 530,000   | 1.8         |

For some years back the average number of paupers receiving relief in London has been 102,000, at an outlay of more than a million sterling per annum.

The amount spent annually on poor-relief in England and Wales has been at various dates as follows :—

| Period            | Annual Expenditure, £ | Per Inhabitant, Pence | National Income, Millions £ | Percentage of Burden |
|-------------------|-----------------------|-----------------------|-----------------------------|----------------------|
| 1702-14 . . . . . | 910,000               | 41                    | 65                          | 1.40                 |
| 1760-75 . . . . . | 1,520,000             | 58                    | 122                         | 1.24                 |
| 1783-93 . . . . . | 2,050,000             | 66                    | 145                         | 1.41                 |
| 1801-5 . . . . .  | 5,100,000             | 78                    | 180                         | 2.80                 |
| 1815-20 . . . . . | 7,106,000             | 152                   | 220                         | 3.23                 |
| 1830-35 . . . . . | 6,742,000             | 114                   | 385                         | 1.75                 |
| 1841-50 . . . . . | 5,250,000             | 74                    | 490                         | 1.07                 |
| 1851-60 . . . . . | 5,510,000             | 69                    | 580                         | 0.95                 |
| 1861-70 . . . . . | 6,740,000             | 77                    | 720                         | 0.94                 |
| 1871-80 . . . . . | 7,710,000             | 75                    | 935                         | 0.82                 |
| 1884-88 . . . . . | 8,400,000             | 73                    | 1,084                       | 0.78                 |

In the period just after Waterloo the burden was five times as great as it has been in the past five years.

In 1886 the condition of the poor in the east part of London was found by school-agents to be thus :—

| Class            | Number  | Weekly Wages,<br>Shillings |
|------------------|---------|----------------------------|
| Indigent . . .   | 314,000 | 10 to 21                   |
| Struggling . . . | 498,000 | 22 to 50                   |
| Well to do. . .  | 80,000  | ...                        |
| Total . . .      | 892,000 |                            |

The above is the estimated population of the poorer parishes of London.

## FRANCE

In 1886 the number of persons who received relief during the year was 1,440,000, but as the same persons probably were relieved at least five times, the actual number of such paupers would not exceed 290,000. There was much distress in 1847, when 6,000,000 were relieved—that is to say, about 1,200,000 in reality; the sum so expended reaching 8 millions sterling, of which £4,600,000 passed through public officials and £3,400,000 was given by St. Vincent de Paul societies and other charitable associations. In 1884 the sum officially expended was as follows :—

| In                | £         | In             | £         |
|-------------------|-----------|----------------|-----------|
| Paris . . .       | 800,000   | Food . . .     | 520,000   |
| Departments . . . | 660,000   | Money, &c. . . | 940,000   |
| Total . . .       | 1,460,000 | Total . . .    | 1,460,000 |

There are 15,000 offices all over France for poor-relief, the funds being mainly derived from a tax of 10 per cent. on tickets for theatres, and averaging £2,100,000 per annum.

## GERMANY

In 1885 the sum of £4,560,000 was expended in poor-relief, viz. :—

|                  | Paupers   | Outlay, £ | Per Head, £ |
|------------------|-----------|-----------|-------------|
| Prussia . . .    | 953,000   | 2,670,000 | 2.8         |
| Bavaria . . .    | 152,000   | 550,000   | 3.5         |
| Saxony . . .     | 89,000    | 270,000   | 3.1         |
| Alsace . . .     | 73,000    | 220,000   | 3.0         |
| Baden . . .      | 68,000    | 170,000   | 2.5         |
| Wurtemberg . . . | 63,000    | 180,000   | 2.8         |
| Various . . .    | 194,000   | 500,000   | 2.6         |
| Total . . .      | 1,592,000 | 4,560,000 | 2.9         |

The number of paupers relieved in cities per 1000 of the population was as follows :—

|                  |     |                 |    |
|------------------|-----|-----------------|----|
| Strasburg . . .  | 102 | Berlin . . .    | 61 |
| Königsberg . . . | 84  | Leipzig . . .   | 59 |
| Bremen . . .     | 76  | Dresden . . .   | 56 |
| Frankfort . . .  | 70  | Stuttgart . . . | 51 |

## RUSSIA

In 1884 the number of registered mendicants was 350,000; that of persons relieved in St. Petersburg 215,000, at an average of 14s. each.

## AUSTRIA

The system of poor-relief resembles that in France, for which purpose there are 10,650 offices. In 1886 were relieved 290,000 paupers at a cost of £400,000, say 27s. each.

## ITALY

According to the *Statesman's Year-Book*, there are 21,800 offices for poor-relief, endowed with funds representing a capital value of 80 millions sterling, with an annual income of £3,500,000; expenses of management, &c., £1,600,000; balance for the poor, £1,900,000. In

1881 there were 1,365,000 persons relieved; the same remark applies as in France, and the actual number of paupers may be set down at about 270,000.

## BELGIUM

The number of paupers receiving indoor relief is small, viz. :—

| Year       | Paupers | Outlay, £ | Per Head, £ |
|------------|---------|-----------|-------------|
| 1835 . . . | 2,260   | 11,000    | 4.9         |
| 1850 . . . | 3,478   | 21,000    | 6.0         |
| 1870 . . . | 1,925   | 20,000    | 10.4        |
| 1880 . . . | 4,399   | 48,000    | 10.8        |

The above is the mean number in each year, the number of paupers passing through the dépôts being four times as great.

## HOLLAND

The number of persons relieved in the year 1881 was :—

|                         |         |
|-------------------------|---------|
| Permanent paupers . . . | 88,300  |
| Temporary " . . .       | 128,300 |

Total . . . 216,600

The total expenditure was £510,000, or about £2.8 per pauper, religious communities provided £270,000, and the civil authorities £240,000.

## SWEDEN

The number of paupers compared with population thus :—

| Year       | Paupers | Per 100 Pop. |
|------------|---------|--------------|
| 1860 . . . | 133,000 | 3.5          |
| 1870 . . . | 204,000 | 4.8          |
| 1880 . . . | 220,000 | 5.0          |
| 1887 . . . | 230,000 | 4.8          |

There are 2300 workhouses, capable of admitting 40,000 persons.

## PAWN-OFFICES

The number of these offices increases in Great Britain faster than population, viz. :—

| Year       | No.   | Per Million Inhab. | Year       | No.   | Per Million Inhab. |
|------------|-------|--------------------|------------|-------|--------------------|
| 1851 . . . | 1,873 | 89                 | 1871 . . . | 3,450 | 132                |
| 1861 . . . | 2,578 | 111                | 1881 . . . | 4,372 | 146                |

The number of pledges is said to reach 190 millions per annum.

In 1882 the loans of similar institutions, called *Monts de Piété*, were :—

|               | Borrowers | Amount     |
|---------------|-----------|------------|
| France . . .  | 2,970,000 | £2,300,000 |
| Spain . . .   | 235,000   | 985,000    |
| Holland . . . | 602,000   | 260,000    |

The French returns for 1885 showed thus :—

|                 |           |
|-----------------|-----------|
| Under 8s. . .   | 2,187,000 |
| 8s. to 40s. . . | 715,000   |
| £2 to £4 . . .  | 136,000   |
| Over £4 . . .   | 71,000    |

Total . . . 3,109,000

## PEPPER

The annual production averages :—

|                  | Tons   |
|------------------|--------|
| Sumatra . . .    | 13,000 |
| Siam . . .       | 3,500  |
| Malacca, &c. . . | 6,500  |

Total . . . 23,000



## PICTURES

Raphael's "Holy Family," from the Blenheim Gallery, was sold to the National Gallery for £70,000. Millet's "Angelus" was sold at Paris for £24,000 in 1889, Millet having painted it for £72 sterling.

## PINS

In 1888 the production was as follows:—

|                               | Millions Weekly |
|-------------------------------|-----------------|
| England . . . . .             | 280             |
| France . . . . .              | 120             |
| Holland and Germany . . . . . | 120             |
| Total . . . . .               | 520             |

Birmingham stands for 180 millions of those made in England. In 1850 the annual output in England was 1250 tons, valued at £1,100,000.

## PLACARDS

The largest use on record was prior to the Paris election of 27th January 1889. General Boulanger had 15,000 billstickers, who put up 45,000 daily, in all 900,000, at a cost of £8000 sterling. Jacques had 10,000 men, who put up 25,000 daily, in all 500,000, at a cost of £5000. In some places, when they were torn down after the election, there were found sixty layers alternating of the rival placards.

## POLICE

In 1881 the maintenance of police in various cities cost as follows:—

| £                    | Per Inhab. Pence | £                    | Per Inhab. Pence |
|----------------------|------------------|----------------------|------------------|
| London . . 1,060,000 | 68               | Genoa . . 15,000     | 21               |
| Paris . . 1,160,000  | 122              | Florence . . 14,000  | 20               |
| Vienna . . 390,000   | 99               | Turin . . 13,000     | 18               |
| Berlin . . 70,000    | 16               | Antwerp . . 13,000   | 19               |
| S. Francisco 48,000  | 52               | Trieste . . 12,000   | 27               |
| Buda-Pesth 38,000    | 27               | Christiania . 11,000 | 36               |
| Rome . . 30,000      | 24               | Frankfort . 7,000    | 14               |
| Leipsic . 24,000     | 49               | Liege . . 6,000      | 12               |
| Bucharest . 22,000   | 26               | Venice . . 6,000     | 12               |
| Stockholm . 21,000   | 33               | Palermo . . 6,000    | 6                |
| Copenhagen 20,000    | 24               | Stuttgart . 14,000   | 28               |

The following comparison between the police of London and Paris was published in 1881:—

|                     | London | Paris   | Per 10,000 Inhab. |       |
|---------------------|--------|---------|-------------------|-------|
|                     |        |         | London            | Paris |
| Number of men . . . | 10,940 | 8,250   | 29                | 39    |
| Arrests made . . .  | 79,490 | 231,140 | 210               | 1,065 |

The growth of the great European Powers in the last 400 years is shown as follows:—

|                   | 1480       | 1580       | 1680       | 1780        | 1880        |
|-------------------|------------|------------|------------|-------------|-------------|
| England . . . . . | 3,700,000  | 4,600,000  | 5,532,000  | 9,561,000   | 35,004,000  |
| France . . . . .  | 12,600,000 | 14,300,000 | 18,800,000 | 25,100,000  | 37,400,000  |
| Prussia . . . . . | 800,000    | 1,000,000  | 1,400,000  | 5,460,000   | 45,260,000  |
| Russia . . . . .  | 2,100,000  | 4,300,000  | 12,600,000 | 26,800,000  | 84,440,000  |
| Austria . . . . . | 9,500,000  | 16,500,000 | 14,000,000 | 20,200,000  | 37,830,000  |
| Italy . . . . .   | 9,200,000  | 10,400,000 | 11,500,000 | 12,800,000  | 28,910,000  |
| Spain . . . . .   | 8,800,000  | 8,150,000  | 9,200,000  | 9,960,000   | 16,290,000  |
| Total . . . . .   | 46,700,000 | 59,250,000 | 73,032,000 | 109,881,000 | 285,134,000 |

In the above, England at present stands for the United Kingdom, and Prussia for the German Empire.

The population of the world has been estimated as follows:—

| Date | Author     | Millions | Date | Author      | Millions |
|------|------------|----------|------|-------------|----------|
| 1804 | Malte-Brun | 640      | 1874 | Behm-Wagner | 1,391    |
| 1828 | Balbi      | 847      | 1878 | Levasseur   | 1,439    |
| 1845 | Michelot   | 1,009    | 1883 | Behm-Wagner | 1,433    |

The London police cost £97 a year, the Paris £140, per man. The London man arrests seven persons; the Paris, twenty-nine persons, per annum. For each offender (including drunkenness and misdemeanours), the police expenditure is £13 in London, and £5 in Paris. The number of London police in 1888 was 13,900.

In the United Kingdom the number of police was as follows:—

|                          | Number |        | Per 10,000 Pop. |      |
|--------------------------|--------|--------|-----------------|------|
|                          | 1878   | 1888   | 1878            | 1888 |
| England . . . . .        | 30,700 | 37,300 | 12              | 13   |
| Scotland . . . . .       | 3,400  | 4,000  | 10              | 10   |
| Ireland . . . . .        | 12,300 | 13,900 | 24              | 29   |
| United Kingdom . . . . . | 46,400 | 55,200 | 14              | 15   |

The expenditure in 1887 was as follows:—

|                          | Amount, £ | Per Policeman, £ | Pence per Inhabitant |
|--------------------------|-----------|------------------|----------------------|
| England . . . . .        | 3,700,000 | 98               | 31                   |
| Scotland . . . . .       | 380,000   | 92               | 23                   |
| Ireland . . . . .        | 1,570,000 | 115              | 80                   |
| United Kingdom . . . . . | 5,650,000 | 102              | 36                   |

In India the police number 144,000 men, of whom 46,000 carry swords, and 55,000 firearms.

## POPULATION

The population of the Roman Empire at the death of Augustus, 14 B.C., was little more than that of the present German Empire, being estimated by Bodio thus:—

|                           |            |
|---------------------------|------------|
| Italy . . . . .           | 6,000,000  |
| Spain . . . . .           | 6,000,000  |
| Greece . . . . .          | 3,000,000  |
| Gaul . . . . .            | 3,400,000  |
| Other countries . . . . . | 4,600,000  |
| Europe . . . . .          | 23,000,000 |
| Asia . . . . .            | 19,500,000 |
| Africa . . . . .          | 11,500,000 |
| Total . . . . .           | 54,000,000 |

The population of Europe hardly exceeded 50 millions before the 15th century.

The population of Europe, according to the best authorities, has been as follows:—

| Date | Author    | Population  | Date | Author    | Population  |
|------|-----------|-------------|------|-----------|-------------|
| 1762 | Expilly   | 130,000,000 | 1850 | Confronti | 255,000,000 |
| 1778 | Moheau    | 150,000,000 | 1861 | Hausner   | 283,900,000 |
| 1800 | Levasseur | 175,000,000 | 1871 | Berg-Loua | 293,000,000 |
| 1828 | Balbi     | 214,000,000 | 1882 | B.-Wagner | 327,800,000 |
| 1841 | Berg-Loua | 233,700,000 | 1886 | Levasseur | 345,700,000 |

The distribution of the population of the world was as follows :—

|             | Millions |       |          |             |           |
|-------------|----------|-------|----------|-------------|-----------|
|             | 1810     | 1828  | 1845     | 1874        | 1886      |
|             | Gotha    | Balbi | Michelot | Behm-Wagner | Levasseur |
| Europe . .  | 180      | 214   | 245      | 301         | 347       |
| America . . | 21       | 40    | 50       | 85          | 112       |
| Asia . .    | 380      | 481   | 600      | 798         | 822       |
| Africa . .  | 99       | 109   | 90       | 203         | 197       |
| Australia . | 2        | 3     | 4        | 4           | 5         |
| Total . .   | 682      | 847   | 1,009    | 1,391       | 1,483     |

Michelot's and Levasseur's estimates divide Asia and Australia differently from what is usual, including all the Malay Archipelago as Australian. Thus Levasseur would make Australia in 1886 have a population of 38,000,000; but if we follow the ordinary distribution, it will be as above.

The population per square mile in 1820 and 1880 stood thus :—

|              | 1820 | 1880 |               | 1820 | 1880 |
|--------------|------|------|---------------|------|------|
| U. Kingdom   | 172  | 290  | Sweden . .    | 15   | 27   |
| France . .   | 148  | 180  | Norway . .    | 8    | 15   |
| Germany . .  | 124  | 217  | Denmark . .   | 71   | 127  |
| Russia . .   | 20   | 40   | Holland . .   | 195  | 312  |
| Austria . .  | 99   | 158  | Belgium . .   | 287  | 480  |
| Italy . .    | 138  | 247  | Switzerland . | 127  | 175  |
| Spain . .    | 58   | 82   | Greece . .    | 40   | 84   |
| Portugal . . | 92   | 124  | Europe . .    | 54   | 85   |

Levasseur's tables and the various estimates for 1890 show the population of Europe as follows :—

|                      | 1800        | 1830        | 1860        | 1880        | 1890        |
|----------------------|-------------|-------------|-------------|-------------|-------------|
| United Kingdom . . . | 16,200,000  | 24,400,000  | 29,100,000  | 35,300,000  | 38,200,000  |
| France . . .         | 27,350,000  | 32,500,000  | 36,700,000  | 37,600,000  | 38,800,000  |
| Germany . . .        | 23,180,000  | 29,700,000  | 38,100,000  | 45,200,000  | 48,600,000  |
| Russia . . .         | 35,000,000  | 45,500,000  | 68,700,000  | 84,900,000  | 92,000,000  |
| Austria . . .        | 25,000,000  | 29,900,000  | 34,700,000  | 37,600,000  | 40,100,000  |
| Italy . . .          | 17,240,000  | 21,210,000  | 25,000,000  | 28,500,000  | 30,300,000  |
| Spain . . .          | 10,540,000  | 11,200,000  | 15,600,000  | 16,700,000  | 17,600,000  |
| Portugal . . .       | 2,930,000   | 3,100,000   | 3,600,000   | 4,200,000   | 4,700,000   |
| Sweden . . .         | 2,350,000   | 2,800,000   | 3,800,000   | 4,600,000   | 4,800,000   |
| Norway . . .         | 880,000     | 1,100,000   | 1,600,000   | 1,900,000   | 2,000,000   |
| Denmark . . .        | 930,000     | 1,200,000   | 1,600,000   | 2,000,000   | 2,100,000   |
| Holland . . .        | 2,100,000   | 2,600,000   | 3,300,000   | 4,000,000   | 4,600,000   |
| Belgium . . .        | ...         | 3,800,000   | 4,700,000   | 5,500,000   | 6,100,000   |
| Switzerland . . .    | 1,800,000   | 2,000,000   | 2,500,000   | 2,800,000   | 3,000,000   |
| Turkey . . .         | 9,500,000   | 9,500,000   | 15,500,000  | 8,600,000   | 4,500,000   |
| Greece . . .         | ...         | 600,000     | 1,100,000   | 1,600,000   | 2,200,000   |
| Roumania . . .       | ...         | 1,300,000   | 4,000,000   | 5,300,000   | 5,500,000   |
| Servia . . .         | ...         | 400,000     | 1,000,000   | 1,700,000   | 2,000,000   |
| Bulgaria and E. R. . | ...         | ...         | ...         | 2,000,000   | 3,100,000   |
| Total . . .          | 175,000,000 | 222,810,000 | 290,600,000 | 339,000,000 | 359,200,000 |

In the eighty years that have elapsed since 1810 the ratio of increase in each decade, including estimates for 1890, in the various countries is shown as follows :—

|                    | Increase per 1000 Inhabitants in Decade ending |      |      |      |      |      |      |      |  |  |
|--------------------|------------------------------------------------|------|------|------|------|------|------|------|--|--|
|                    | 1820                                           | 1830 | 1840 | 1850 | 1860 | 1870 | 1880 | 1890 |  |  |
| United Kingdom . . | 171                                            | 150  | 113  | 25   | 56   | 88   | 108  | 109  |  |  |
| France . . .       | 47                                             | 69   | 51   | 45   | 27   | 7    | 11   | 37   |  |  |
| Germany . . .      | 148                                            | 112  | 111  | 80   | 64   | 78   | 137  | 74   |  |  |
| Russia . . .       | ...                                            | 70   | 72   | 50   | 40   | 105  | 130  | 140  |  |  |
| Austria . . .      | ...                                            | ...  | 15   | 10   | 75   | 85   | 52   | 50   |  |  |
| Italy . . .        | 50                                             | 95   | 72   | 74   | 44   | 72   | 60   | 60   |  |  |
| Spain . . .        | 45                                             | ...  | 65   | ...  | 100  | 77   | 35   | 54   |  |  |
| Sweden . . .       | 80                                             | 120  | 86   | 108  | 109  | 80   | 96   | 55   |  |  |
| Norway . . .       | 90                                             | 155  | 118  | 112  | 130  | 100  | 88   | 70   |  |  |
| Denmark . . .      | ...                                            | 90   | 80   | 93   | 140  | 111  | 101  | 65   |  |  |
| Holland . . .      | ...                                            | ...  | 96   | 68   | 81   | 80   | 118  | 135  |  |  |
| Belgium . . .      | ...                                            | ...  | 60   | 88   | 68   | 75   | 84   | 115  |  |  |
| Switzerland . . .  | ...                                            | ...  | 95   | 90   | 46   | 64   | 67   | 60   |  |  |

The increase would have been much greater but for the tide of emigration, which took 23,400,000 persons out of Europe between the years 1816 and 1888, viz. :—

|                           |            |
|---------------------------|------------|
| To United States . . .    | 14,963,000 |
| To British Colonies . . . | 3,767,000  |
| To South America . . .    | 2,620,000  |
| To other parts . . .      | 2,050,000  |
| Total . . .               | 23,400,000 |

The above emigration may be divided into two periods, thus :—

| Period        | Emigrants  | Average Yearly |
|---------------|------------|----------------|
| 1816-50 . . . | 4,309,000  | 123,000        |
| 1851-88 . . . | 19,091,000 | 503,000        |

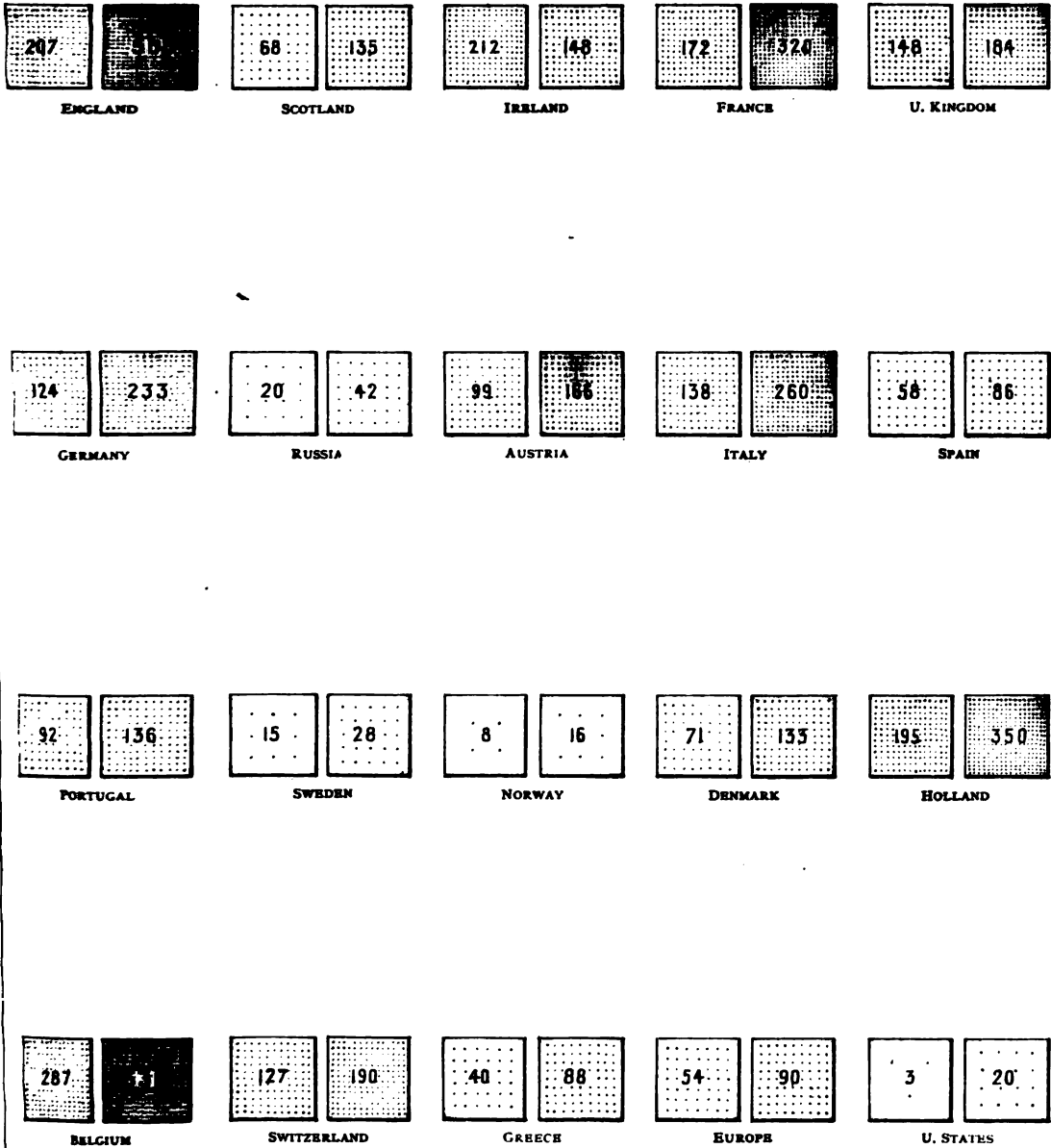
The above does not include about 4,800,000 persons who, without leaving Europe, migrated from their own to another country, as appears from the fact that in 1880-81 there were, according to Census returns, 3,429,000 foreigners then living in the various countries.

The relative loss or gain by emigration or immigration in recent years, as compared with the number of inhabitants, is shown as follows :—

|                     | Increase Yearly per 10,000 Pop. |        |                     | Period  |
|---------------------|---------------------------------|--------|---------------------|---------|
|                     | Natural                         | Actual | Gain by Immigration |         |
| France . . .        | 21                              | 32     | 11                  | 1882-86 |
| Russia . . .        | 133                             | 146    | 13                  | 1871-80 |
| Finland . . .       | 149                             | 155    | 6                   | 1871-80 |
| Greece . . .        | 83                              | 159    | 76                  | 1870-79 |
| Roumania . . .      | 68                              | 73     | 5                   | 1860-64 |
| Servia . . .        | 184                             | 222    | 38                  | 1879-84 |
| United States . . . | 206                             | 274    | 68                  | 1871-80 |
| Australia . . .     | 207                             | 430    | 223                 | 1876-88 |
| Canada . . .        | 120                             | 180    | 60                  | 1871-80 |
| Argentina . . .     | 130                             | 450    | 320                 | 1880-88 |

POPULATION.

*Inhabitants per square mile in 1820 and 1890—Red for 1820, Green for 1890.*





*Countries that Lost*

|                 | Increase per<br>10,000 Population |        | Loss by<br>Emigration<br>Yearly | Period  |
|-----------------|-----------------------------------|--------|---------------------------------|---------|
|                 | Natural                           | Actual |                                 |         |
| England . . .   | 140                               | 132    | 8                               | 1871-80 |
| Scotland . . .  | 134                               | 98     | 36                              | 1871-80 |
| Ireland . . .   | 81                                | ...    | 128                             | 1871-80 |
| U. Kingdom . .  | 131                               | 108    | 23                              | 1871-80 |
| Germany . . .   | 115                               | 74     | 41                              | 1881-85 |
| Austria . . .   | 87                                | 70     | 17                              | 1870-80 |
| Hungary . . .   | 29                                | 16     | 13                              | 1870-80 |
| Italy . . .     | 72                                | 54     | 18                              | 1871-81 |
| Spain . . .     | 75                                | 34     | 41                              | 1860-77 |
| Portugal . . .  | 73                                | 60     | 13                              | 1864-77 |
| Sweden . . .    | 119                               | 87     | 32                              | 1871-80 |
| Norway . . .    | 122                               | 80     | 42                              | 1865-75 |
| Denmark . . .   | 119                               | 92     | 27                              | 1871-80 |
| Holland . . .   | 119                               | 106    | 13                              | 1871-80 |
| Belgium . . .   | 96                                | 77     | 19                              | 1871-80 |
| Switzerland . . | 73                                | 61     | 12                              | 1871-80 |

The number of men capable of bearing arms, say from 15-55, and that of women of child-bearing age, say 15-45 years of age, are shown for the various countries approximately as follows :—

|                 | Men Capable of Bear-<br>ing Arms |            | Women of Child-<br>bearing Age |            |
|-----------------|----------------------------------|------------|--------------------------------|------------|
|                 | 1860                             | 1890       | 1860                           | 1890       |
| U. Kingdom      | 7,530,000                        | 9,730,000  | 6,960,000                      | 8,766,000  |
| France . . .    | 10,890,000                       | 10,844,000 | 8,700,000                      | 8,586,000  |
| Germany . . .   | 10,555,000                       | 12,460,000 | 9,140,000                      | 10,930,000 |
| Russia . . .    | 17,700,000                       | 25,200,000 | 16,500,000                     | 23,200,000 |
| Austria . . .   | 9,135,000                        | 10,440,000 | 8,490,000                      | 9,680,000  |
| Italy . . .     | 7,020,000                        | 8,480,000  | 5,670,000                      | 6,850,000  |
| Spain . . .     | 4,060,000                        | 4,510,000  | 3,740,000                      | 4,130,000  |
| Portugal . . .  | 860,000                          | 1,120,000  | 830,000                        | 1,080,000  |
| Sweden . . .    | 1,050,000                        | 1,315,000  | 930,000                        | 1,170,000  |
| Norway . . .    | 420,000                          | 505,000    | 370,000                        | 465,000    |
| Denmark . . .   | 420,000                          | 530,000    | 370,000                        | 490,000    |
| Holland . . .   | 880,000                          | 1,220,000  | 770,000                        | 1,070,000  |
| Belgium . . .   | 1,230,000                        | 1,585,000  | 1,030,000                      | 1,340,000  |
| Switzerland . . | 670,000                          | 805,000    | 580,000                        | 690,000    |
| Greece . . .    | 390,000                          | 590,000    | 250,000                        | 490,000    |
| Romania . . .   | 1,040,000                        | 1,430,000  | 920,000                        | 1,260,000  |
| Servia . . .    | 260,000                          | 510,000    | 230,000                        | 450,000    |
| Europe . . .    | 74,020,000                       | 91,274,000 | 65,480,000                     | 80,647,000 |

It is worthy of notice that France is the only country which has fewer men and women than thirty years ago of the able-bodied ages. The following table shows the ratios of men and women of the above ages to population in the several countries :—

*Per 1000 Population*

|                | Men,  |       |                 | Women, |       |
|----------------|-------|-------|-----------------|--------|-------|
|                | 15-55 | 15-45 |                 | 15-55  | 15-45 |
| England . . .  | 256   | 230   | Spain . . .     | 260    | 240   |
| Scotland . . . | 250   | 230   | Portugal . . .  | 240    | 230   |
| Ireland . . .  | 247   | 224   | Sweden . . .    | 274    | 245   |
| U. Kingdom . . | 254   | 228   | Norway . . .    | 252    | 233   |
| France . . .   | 281   | 223   | Denmark . . .   | 260    | 232   |
| Germany . . .  | 256   | 225   | Holland . . .   | 267    | 233   |
| Russia . . .   | 259   | 240   | Belgium . . .   | 260    | 220   |
| Austria . . .  | 261   | 242   | Switzerland . . | 268    | 230   |
| Italy . . .    | 280   | 227   | Greece . . .    | 270    | 225   |

Ireland and Portugal are lowest as regards the ratio of able-bodied men.

The *Almanach de Gotha* gives the ratio of sexes in 1884 in the various countries thus :—

*Females to 1000 Males*

|                |       |                 |       |                |       |
|----------------|-------|-----------------|-------|----------------|-------|
| U. Kingdom . . | 1,047 | Holland . . .   | 1,022 | Canada . . .   | 976   |
| France . . .   | 1,004 | Belgium . . .   | 1,001 | Brazil . . .   | 938   |
| Germany . . .  | 1,039 | Switzerland . . | 1,040 | Argentina . .  | 942   |
| Russia . . .   | 1,027 | Servia . . .    | 957   | Chili . . .    | 1,004 |
| Austria . . .  | 1,034 | Bulgaria . . .  | 952   | Peru . . .     | 986   |
| Italy . . .    | 995   | Roumania . . .  | 937   | Venezuela . .  | 1,063 |
| Spain . . .    | 1,045 | Greece . . .    | 906   | Uruguay . . .  | 934   |
| Portugal . . . | 1,084 | Egypt . . .     | 1,025 | Colombia . . . | 1,058 |
| Sweden . . .   | 1,064 | Cape . . .      | 972   | Greenland . .  | 1,134 |
| Norway . . .   | 1,049 | India . . .     | 944   | Europe . . .   | 1,019 |
| Denmark . . .  | 1,035 | Japan . . .     | 973   | America . . .  | 970   |
| Finland . . .  | 1,042 | U. States . . . | 965   | Australia . .  | 843   |

The latest Census returns show the ratio of foreigners in various countries thus :—

*Per 1000 of Population*

|                |    |               |    |                 |     |
|----------------|----|---------------|----|-----------------|-----|
| U. Kingdom . . | 4  | Spain . . .   | 3  | Belgium . . .   | 26  |
| France . . .   | 29 | Sweden . . .  | 4  | Switzerland . . | 74  |
| Germany . . .  | 6  | Norway . . .  | 20 | Servia . . .    | 21  |
| Austria . . .  | 16 | Denmark . . . | 32 | Greece . . .    | 19  |
| Hungary . . .  | 15 | Holland . . . | 17 | United States   | 133 |
| Italy . . .    | 2  |               |    |                 |     |

The ratio of foreigners to population is 21 per thousand in London, 90 in Paris, 13 in Berlin, 14 in Buda-Pesth, 210 in Monte Video, and 360 in Buenos Ayres.

The population of the great cities of the world is shown as follows :—

|                    | 1881      | 1888      |
|--------------------|-----------|-----------|
| Amsterdam . . .    | 201,000   | 372,000   |
| Antwerp . . .      | 65,000    | 205,000   |
| Belfast . . .      | 53,000    | 230,000   |
| Berlin . . .       | 220,000   | 1,438,000 |
| Birmingham . .     | 142,000   | 448,000   |
| Bombay . . .       | 229,000   | 773,000   |
| Bordeaux . . .     | 94,000    | 241,000   |
| Boston . . .       | 61,000    | 363,000   |
| Brussels . . .     | 102,000   | 462,000   |
| Buda-Pesth . . .   | 67,000    | 443,000   |
| Buenos Ayres . .   | 81,000    | 455,000   |
| Cairo . . .        | 333,000   | 375,000   |
| Calcutta . . .     | 280,000   | 433,000   |
| Constantinople . . | 590,000   | 874,000   |
| Copenhagen . . .   | 109,000   | 300,000   |
| Christiania . . .  | 21,000    | 136,000   |
| Dresden . . .      | 70,000    | 259,000   |
| Dublin . . .       | 227,000   | 353,000   |
| Edinburgh . . .    | 130,000   | 263,000   |
| Florence . . .     | 82,000    | 168,000   |
| Genoa . . .        | 83,000    | 179,000   |
| Glasgow . . .      | 164,000   | 526,000   |
| Hamburg . . .      | 112,000   | 306,000   |
| Havana . . .       | 111,000   | 230,000   |
| Leipsic . . .      | 42,000    | 170,000   |
| Lisbon . . .       | 202,000   | 243,000   |
| Liverpool . . .    | 165,000   | 600,000   |
| London . . .       | 1,655,000 | 4,283,000 |
| Lyons . . .        | 146,000   | 402,000   |
| Madrid . . .       | 205,000   | 387,000   |
| Manchester . . .   | 238,000   | 604,000   |
| Manilla . . .      | 134,000   | 270,000   |
| Marseilles . . .   | 116,000   | 376,000   |
| Milan . . .        | 125,000   | 321,000   |
| Moscow . . .       | 308,000   | 753,000   |
| Munich . . .       | 65,000    | 275,000   |
| Naples . . .       | 354,000   | 491,000   |
| New Orleans . . .  | 46,000    | 216,000   |
| New York . . .     | 203,000   | 1,493,000 |
| Palermo . . .      | 168,000   | 245,000   |
| Philadelphia . . . | 167,000   | 1,017,000 |
| Prague . . .       | 85,000    | 296,000   |
| Rio Janeiro . . .  | 145,000   | 356,000   |

|                          | 1831    | 1888    |
|--------------------------|---------|---------|
| Rome . . . . .           | 128,000 | 388,000 |
| Rotterdam . . . . .      | 66,000  | 194,000 |
| St. Petersburg . . . . . | 324,000 | 843,000 |
| Smyrna . . . . .         | 115,000 | 187,000 |
| Stockholm . . . . .      | 79,000  | 222,000 |
| Stuttgart . . . . .      | 32,000  | 126,000 |
| Turin . . . . .          | 114,000 | 241,000 |
| Tunis . . . . .          | 108,000 | 210,000 |
| Venice . . . . .         | 110,000 | 151,000 |
| Vienna . . . . .         | 280,000 | 801,000 |
| Warsaw . . . . .         | 151,000 | 432,000 |

Dr. Beloch gives the population of ancient cities thus:—

| City                 | Date      | Population | Area, Acres | Population per Acre |
|----------------------|-----------|------------|-------------|---------------------|
| Rome . . . . .       | A. D. 14  | 900,000    | 2,950       | 306                 |
| Thebes . . . . .     | B. C. 335 | 50,000     | 500         | 100                 |
| Tyre . . . . .       | " 332     | 40,000     | 185         | 210                 |
| Palermo . . . . .    | " 254     | 27,000     | 115         | 230                 |
| Athens . . . . .     | " 350     | 150,000    | 145         | 103                 |
| Alexandria . . . . . | " 60      | 500,000    | 230         | 218                 |

The density of population in modern cities is shown thus, according to figures for 1881:—

|                  | Population | Acres  | Population per Acre |
|------------------|------------|--------|---------------------|
| London . . . . . | 3,893,000  | 75,000 | 52                  |
| Paris . . . . .  | 2,240,000  | 14,500 | 154                 |
| Berlin . . . . . | 1,192,000  | 4,500  | 264                 |
| Vienna . . . . . | 724,000    | 2,800  | 258                 |
| Rome . . . . .   | 273,000    | 800    | 341                 |

The city of greatest density in the United Kingdom is Liverpool, with 106 inhabitants to the acre.

The ratios of urban and rural population are not ascertained in all countries, nor determined alike in many. Some include in the former villages and small towns. If we consider only towns of 20,000 or more inhabitants, we find as follows (1881):—

|                          | Number of Towns | Aggregate Population | Percentage of Total Population |       |
|--------------------------|-----------------|----------------------|--------------------------------|-------|
|                          |                 |                      | Urban                          | Rural |
| England . . . . .        | 101             | 11,420,000           | 44                             | 56    |
| Scotland . . . . .       | 10              | 1,310,000            | 35                             | 65    |
| Ireland . . . . .        | 9               | 820,000              | 16                             | 84    |
| United Kingdom . . . . . | 120             | 13,550,000           | 39                             | 61    |
| France . . . . .         | 91              | 6,810,000            | 18                             | 82    |
| Germany . . . . .        | 114             | 7,420,000            | 16                             | 84    |
| Russia . . . . .         | 128             | 8,220,000            | 10                             | 90    |
| Austria . . . . .        | 37              | 2,550,000            | 7                              | 93    |
| Italy . . . . .          | 76              | 4,570,000            | 16                             | 84    |
| Spain . . . . .          | 28              | 1,940,000            | 12                             | 88    |
| Portugal . . . . .       | 3               | 420,000              | 10                             | 90    |
| Belgium . . . . .        | 24              | 1,510,000            | 27                             | 73    |
| Holland . . . . .        | 19              | 1,140,000            | 28                             | 72    |
| Denmark . . . . .        | 2               | 260,000              | 13                             | 87    |
| Sweden . . . . .         | 6               | 350,000              | 8                              | 92    |
| Norway . . . . .         | 5               | 210,000              | 11                             | 89    |
| Switzerland . . . . .    | 6               | 230,000              | 8                              | 92    |
| Greece . . . . .         | 4               | 100,000              | 6                              | 94    |
| Roumania . . . . .       | 12              | 620,000              | 11                             | 89    |
| Servia . . . . .         | 1               | 270,000              | 6                              | 94    |
| Turkey . . . . .         | 4               | 960,000              | 12                             | 88    |
| Europe . . . . .         | 680             | 51,130,000           | 15                             | 85    |
| United States . . . . .  | 102             | 9,160,000            | 18                             | 82    |
| Canada . . . . .         | 9               | 370,000              | 9                              | 91    |
| Australia . . . . .      | 16              | 710,000              | 25                             | 75    |
| Total . . . . .          | 807             | 61,370,000           | 15                             | 85    |

#### UNITED KINGDOM

The kingdoms now composing the United Kingdom, according to the most reliable estimates and official returns at various periods, had the following population:—

| Year           | England    | Scotland  | Ireland   | Total      | Inhabitants per Square Mile |          |         |
|----------------|------------|-----------|-----------|------------|-----------------------------|----------|---------|
|                |            |           |           |            | England                     | Scotland | Ireland |
| 1066 . . . . . | 2,150,000  | 350,000   | 1,000,000 | 3,500,000  | 37                          | 11       | 32      |
| 1381 . . . . . | 2,360,000  | 400,000   | 1,100,000 | 3,860,000  | 41                          | 13       | 35      |
| 1528 . . . . . | 4,356,000  | 550,000   | 770,000   | 5,676,000  | 75                          | 17       | 24      |
| 1672 . . . . . | 5,500,000  | 900,000   | 1,320,000 | 7,720,000  | 96                          | 29       | 41      |
| 1712 . . . . . | 6,280,000  | 1,050,000 | 2,099,000 | 9,429,000  | 110                         | 34       | 66      |
| 1754 . . . . . | 7,020,000  | 1,265,000 | 2,373,000 | 10,658,000 | 120                         | 40       | 74      |
| 1780 . . . . . | 8,080,000  | 1,430,000 | 3,050,000 | 12,560,000 | 140                         | 47       | 96      |
| 1801 . . . . . | 8,893,000  | 1,608,000 | 5,216,000 | 15,717,000 | 155                         | 53       | 165     |
| 1811 . . . . . | 10,164,000 | 1,806,000 | 5,957,000 | 17,927,000 | 175                         | 60       | 189     |
| 1821 . . . . . | 12,090,000 | 2,092,000 | 6,802,000 | 20,984,000 | 207                         | 68       | 212     |
| 1831 . . . . . | 14,001,000 | 2,364,000 | 7,768,000 | 24,133,000 | 241                         | 77       | 243     |
| 1841 . . . . . | 16,038,000 | 2,620,000 | 8,197,000 | 26,855,000 | 275                         | 86       | 256     |
| 1851 . . . . . | 18,071,000 | 2,889,000 | 6,574,000 | 27,534,000 | 310                         | 94       | 205     |
| 1861 . . . . . | 20,209,000 | 3,062,000 | 5,799,000 | 29,070,000 | 347                         | 100      | 181     |
| 1871 . . . . . | 22,857,000 | 3,360,000 | 5,412,000 | 31,629,000 | 391                         | 110      | 169     |
| 1881 . . . . . | 26,109,000 | 3,734,000 | 5,160,000 | 35,003,000 | 443                         | 122      | 161     |
| 1889 . . . . . | 29,016,000 | 4,077,000 | 4,716,000 | 37,809,000 | 500                         | 133      | 159     |

Meantime it must be observed that the estimates for Ireland in 1754 and 1780 were much too low, since it is impossible to suppose an increase of 70 per cent. between 1780 and 1801. It is clear that the above table should be amended thus:—

| Year           | England   | Scotland  | Ireland   | Total      |
|----------------|-----------|-----------|-----------|------------|
| 1754 . . . . . | 7,020,000 | 1,265,000 | 3,200,000 | 11,485,000 |
| 1780 . . . . . | 8,080,000 | 1,430,000 | 4,200,000 | 13,710,000 |

The ratio of sexes at each Census stood for the United Kingdom thus:—

|                   | 1821  | 1831  | 1841  | 1851  | 1861  | 1871  | 1881  |
|-------------------|-------|-------|-------|-------|-------|-------|-------|
| Males . . . . .   | 487   | 486   | 488   | 489   | 485   | 486   | 485   |
| Females . . . . . | 513   | 514   | 512   | 511   | 515   | 514   | 515   |
| Total . . . . .   | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

This shows an increasing preponderance of females.

The population according to sexes since 1821 has been as follows :—

| Year | Males      |           |           |            |
|------|------------|-----------|-----------|------------|
|      | England    | Scotland  | Ireland   | U.Kingdom  |
| 1821 | 5,850,000  | 980,000   | 3,340,000 | 10,170,000 |
| 1831 | 6,770,000  | 1,110,000 | 3,790,000 | 11,672,000 |
| 1841 | 7,770,000  | 1,240,000 | 4,010,000 | 13,020,000 |
| 1851 | 8,780,000  | 1,370,000 | 3,190,000 | 13,340,000 |
| 1861 | 9,801,000  | 1,453,000 | 2,832,000 | 14,086,000 |
| 1871 | 11,059,000 | 1,603,000 | 2,640,000 | 15,302,000 |
| 1881 | 12,625,000 | 1,798,000 | 2,523,000 | 16,946,000 |

| Year | Females    |           |           |            |
|------|------------|-----------|-----------|------------|
|      | England    | Scotland  | Ireland   | U.Kingdom  |
| 1821 | 6,140,000  | 1,100,000 | 3,450,000 | 10,690,000 |
| 1831 | 7,120,000  | 1,240,000 | 3,970,000 | 12,330,000 |
| 1841 | 8,130,000  | 1,370,000 | 4,150,000 | 13,650,000 |
| 1851 | 9,140,000  | 1,510,000 | 3,360,000 | 14,010,000 |
| 1861 | 10,318,000 | 1,613,000 | 2,957,000 | 14,891,000 |
| 1871 | 11,653,000 | 1,757,000 | 2,773,000 | 16,183,000 |
| 1881 | 13,343,000 | 1,937,000 | 2,637,000 | 17,917,000 |

The ratios of males of working age, 15 to 55, were as follows :—

|                | Per 1000 Inhabitants |      |
|----------------|----------------------|------|
|                | 1841                 | 1881 |
| England . . .  | 262                  | 256  |
| Scotland . . . | 255                  | 250  |
| Ireland . . .  | 255                  | 247  |

Women of child-bearing age, 15 to 45, were as follows :—

|                | Per 1000 Inhabitants |      |
|----------------|----------------------|------|
|                | 1841                 | 1881 |
| England . . .  | 240                  | 230  |
| Scotland . . . | 247                  | 230  |
| Ireland . . .  | 236                  | 224  |

Ireland stands lowest in men and women of the most useful and productive ages, which is the result of emigration.

The principal towns of England in the 14th century (1377) were supposed to have the following population :—

|                   |                    |                     |
|-------------------|--------------------|---------------------|
| London . 35,200   | Norwich . 6,300    | Newcastle . 4,300   |
| York . . 11,400   | Lincoln . . 5,500  | Oxford . . 3,800    |
| Bristol . . 9,200 | Lynn . . . 5,200   | Gloucester . 3,400  |
| Plymouth . 7,300  | Canterbury 4,700   | Leicester . . 3,200 |
| Coventry . 7,100  | Colchester . 4,500 | Shrewsbury 3,000    |

The twelve great towns of England have grown in this manner :—

|               | 1801      | 1831      | 1841      | 1861      | 1887      |
|---------------|-----------|-----------|-----------|-----------|-----------|
| London .      | 959,000   | 1,379,000 | 1,948,000 | 2,804,000 | 4,215,000 |
| Liverpool .   | 82,000    | 138,000   | 286,000   | 444,000   | 593,000   |
| Manchester .  | 77,000    | 129,000   | 243,000   | 358,000   | 378,000   |
| Birmingham .  | 71,000    | 102,000   | 183,000   | 296,000   | 441,000   |
| Leeds . .     | 53,000    | 84,000    | 152,000   | 207,000   | 345,000   |
| Sheffield . . | 46,000    | 65,000    | 111,000   | 185,000   | 316,000   |
| Bristol . .   | 61,000    | 85,000    | 125,000   | 154,000   | 224,000   |
| Nottingham .  | 29,000    | 40,000    | 52,000    | 75,000    | 224,000   |
| Bradford . .  | 13,000    | 26,000    | 67,000    | 106,000   | 224,000   |
| Hull . . .    | 30,000    | 45,000    | 67,000    | 97,000    | 199,000   |
| Newcastle .   | 33,000    | 42,000    | 70,000    | 109,000   | 157,000   |
| Brighton .    | 7,000     | 25,000    | 49,000    | 87,000    | 118,000   |
| Total .       | 1,461,000 | 2,160,000 | 3,353,000 | 4,922,000 | 7,434,000 |

The urban and rural population have been as follows :—

|            | Rural      | Urban      | Total      | Rural, Ratio per Cent. |
|------------|------------|------------|------------|------------------------|
| 1851 . . . | 8,772,000  | 9,156,000  | 17,928,000 | 49.0                   |
| 1861 . . . | 9,133,000  | 10,933,000 | 20,066,000 | 45.5                   |
| 1871 . . . | 9,802,000  | 12,911,000 | 22,713,000 | 43.2                   |
| 1881 . . . | 10,523,000 | 15,445,000 | 25,968,000 | 40.4                   |

According to the Census of 1881 the population showed :—

| England and Wales  | Ireland           | Scotland          |
|--------------------|-------------------|-------------------|
| Natives 24,856,000 | Natives 5,064,000 | Natives 3,398,000 |
| Irish . 562,000    | English . 69,000  | English . 92,000  |
| Scotch . 254,000   | Scotch . 22,000   | Irish . 219,000   |
| Foreign . 303,000  | Foreign . 20,000  | Foreign . 27,000  |
| Total 25,975,000   | Total 5,175,000   | Total 3,736,000   |

The density of towns in England (that is, the population per acre) is shown thus :—

|                  |                  |                   |
|------------------|------------------|-------------------|
| Norwich . . 12   | Bradford . . 28  | Bristol . . . 49  |
| Leeds . . . 15   | Portsmouth . 31  | London . . . 49   |
| Sheffield . . 16 | Leicester . . 42 | Plymouth . . 54   |
| Nottingham . 18  | Hull . . . . 42  | Manchester . 85   |
| Oldham . . . 26  | Birmingham . 48  | Liverpool . . 106 |

#### FRANCE

According to respectable authorities and Census returns, the population was at various dates as follows :—

| Year   | Population | Year   | Population | Year   | Population |
|--------|------------|--------|------------|--------|------------|
| 1328 . | 10,000,000 | 1791 . | 26,303,000 | 1851 . | 35,783,000 |
| 1515 . | 14,000,000 | 1801 . | 27,350,000 | 1861 . | 36,746,000 |
| 1599 . | 16,000,000 | 1811 . | 29,090,000 | 1866 . | 38,067,000 |
| 1698 . | 19,670,000 | 1821 . | 30,462,000 | 1872 . | 37,013,000 |
| 1762 . | 21,770,000 | 1831 . | 32,569,000 | 1881 . | 37,406,000 |
| 1778 . | 23,665,000 | 1841 . | 34,230,000 | 1886 . | 38,219,000 |

The area varied often from the 14th century downwards; but comparing it with population, we find at different dates the inhabitants per square mile were as follows :—

| Year       | Per Sq. Mile | Year       | Per Sq. Mile | Year       | Per Sq. Mile |
|------------|--------------|------------|--------------|------------|--------------|
| 1515 . . . | 80           | 1754 . . . | 96           | 1800 . . . | 135          |
| 1600 . . . | 88           | 1778 . . . | 112          | 1881 . . . | 180          |

The ratio of sexes to population showed as follows :—

| Males to 1000 Females |       |            |       |
|-----------------------|-------|------------|-------|
| Year                  | Males | Year       | Males |
| 1801 . . .            | 950   | 1841 . . . | 976   |
| 1821 . . .            | 945   | 1851 . . . | 982   |
|                       |       | 1876 . . . | 993   |

Urban and rural population stood in these ratios :—

|             | 1846  | 1851  | 1861  | 1872  |
|-------------|-------|-------|-------|-------|
| Urban . . . | 244   | 255   | 289   | 311   |
| Rural . . . | 756   | 745   | 711   | 689   |
| Total . . . | 1,000 | 1,000 | 1,000 | 1,000 |

The nine principal cities of France had the following population :—

|              | 1801      | 1835      | 1881      | 1886      |
|--------------|-----------|-----------|-----------|-----------|
| Paris . . .  | 553,000   | 881,000   | 2,226,000 | 2,345,000 |
| Lyons . . .  | 110,000   | 162,000   | 377,000   | 402,000   |
| Marseilles . | 111,000   | 125,000   | 360,000   | 376,000   |
| Bordeaux . . | 91,000    | 110,000   | 212,000   | 241,000   |
| Lille . . .  | 55,000    | 77,000    | 178,000   | 188,000   |
| Toulouse . . | 50,000    | 62,000    | 140,000   | 148,000   |
| Nantes . . . | 42,000    | 78,000    | 124,000   | 127,000   |
| Rouen . . .  | 48,000    | 91,000    | 106,000   | 107,000   |
| Havre . . .  | 16,000    | 24,000    | 106,000   | 112,000   |
| Total . . .  | 1,076,000 | 1,610,000 | 3,829,000 | 4,046,000 |

The population of Paris has been as follows :—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1675 . . | 540,000    | 1800 . . | 547,000    | 1851 . . | 1,053,000  |
| 1700 . . | 720,000    | 1811 . . | 623,000    | 1861 . . | 1,697,000  |
| 1762 . . | 600,000    | 1831 . . | 786,000    | 1872 . . | 1,852,000  |
| 1789 . . | 525,000    | 1841 . . | 935,000    | 1886 . . | 2,345,000  |

## GERMANY

Levasseur gives the following :—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1816 . . | 24,830,000 | 1840 . . | 32,786,000 | 1871 . . | 41,060,000 |
| 1822 . . | 27,040,000 | 1852 . . | 35,960,000 | 1880 . . | 45,234,000 |
| 1831 . . | 29,768,000 | 1861 . . | 38,140,000 | 1885 . . | 46,856,000 |

The German Confederation at various dates, down to its dissolution at the battle of Königgratz in 1866, showed as follows :—

| States       | Area, Sq. Miles |         | Population |            |            |
|--------------|-----------------|---------|------------|------------|------------|
|              | 1786            | 1866    | 1786       | 1816       | 1866       |
| Austria . .  | 84,500          | 76,400  | 10,930,000 | 9,180,000  | 13,250,000 |
| Prussia . .  | 46,500          | 72,000  | 4,110,000  | 7,920,000  | 14,720,000 |
| Bavaria . .  | 22,600          | 29,600  | 2,100,000  | 3,560,000  | 4,810,000  |
| Saxony . .   | 15,600          | 5,800   | 1,870,000  | 1,200,000  | 2,340,000  |
| Brunswick .  | 2,000           | 1,400   | 185,000    | 210,000    | 290,000    |
| Wurtemberg . | 4,300           | 7,500   | 585,000    | 1,400,000  | 1,750,000  |
| Hanover . .  | ...             | 14,900  | ...        | 1,310,000  | 1,920,000  |
| Baden . .    | ...             | 5,900   | ...        | 1,000,000  | 1,430,000  |
| Various . .  | 92,200          | 30,100  | 6,485,000  | 4,380,000  | 5,900,000  |
| Total . .    | 267,700         | 243,600 | 26,265,000 | 30,160,000 | 46,410,000 |

Kolb gives the population according to sexes since 1855 as follows :—

|             | 1855       | 1864       | 1871       | 1885       |
|-------------|------------|------------|------------|------------|
| Males . .   | 16,185,000 | 17,785,000 | 20,250,000 | 22,934,000 |
| Females . . | 16,535,000 | 18,095,000 | 21,005,000 | 23,922,000 |
| Total . .   | 32,700,000 | 35,880,000 | 41,255,000 | 46,856,000 |
| Ratio       |            |            |            |            |
| Males . .   | 495        | 495        | 491        | 489        |
| Females . . | 505        | 505        | 509        | 511        |
| Total . .   | 1,000      | 1,000      | 1,000      | 1,000      |

The Census of 1885 may be condensed thus :—

|                   | Males      | Females    | Total      | No. per Sq. Mile |
|-------------------|------------|------------|------------|------------------|
| Prussia . .       | 13,894,000 | 14,425,000 | 28,319,000 | 216              |
| Bavaria . .       | 2,639,000  | 2,781,000  | 5,420,000  | 192              |
| Saxony . .        | 1,542,000  | 1,640,000  | 3,182,000  | 560              |
| Wurtemberg .      | 961,000    | 1,034,000  | 1,995,000  | 272              |
| Baden . .         | 782,000    | 819,000    | 1,601,000  | 280              |
| Alsace-Lorraine } | 771,000    | 793,000    | 1,564,000  | 288              |
| Small Duchies }   | 2,345,000  | 2,430,000  | 4,775,000  | ...              |
| Total . .         | 22,934,000 | 23,922,000 | 46,856,000 | 230              |

Official records of Prussia give the population thus :—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1801 . . | 8,020,000  | 1840 . . | 14,929,000 | 1875 . . | 25,742,000 |
| 1816 . . | 10,349,000 | 1850 . . | 16,608,000 | 1880 . . | 27,251,000 |
| 1831 . . | 13,039,000 | 1861 . . | 18,497,000 | 1885 . . | 28,319,000 |

The Census of 1843 for Prussia showed as follows :—

|               |            |             |            |
|---------------|------------|-------------|------------|
| Married . . . | 5,133,000  | Urban . . . | 4,263,000  |
| Unmarried . . | 10,388,000 | Rural . . . | 11,208,000 |
| Total . . .   | 15,471,000 | Total . . . | 15,471,000 |

The ratio of sexes in Prussia has been as follows :—

|               | 1810  | 1820  | 1840  | 1880  |
|---------------|-------|-------|-------|-------|
| Males . . .   | 495   | 495   | 499   | 492   |
| Females . . . | 505   | 505   | 501   | 508   |
| Total . . .   | 1,000 | 1,000 | 1,000 | 1,000 |

The effects of the Franco-German war are visible in the increased preponderance of women in 1880. The composition of the population of Prussia as to sex and age in 1880 compared with 1843 thus :—

| Age         | Per 1000 Inhabitants |         |       |       |         |       |
|-------------|----------------------|---------|-------|-------|---------|-------|
|             | 1843                 |         |       | 1880  |         |       |
|             | Males                | Females | Total | Males | Females | Total |
| Under 5 . . | 76                   | 74      | 150   | 70    | 69      | 139   |
| 5-15 . .    | 99                   | 97      | 196   | 110   | 109     | 219   |
| 15-45 . .   | 242                  | 242     | 484   | 216   | 225     | 441   |
| 45-60 . .   | 54                   | 58      | 112   | 60    | 65      | 125   |
| Over 60 . . | 28                   | 30      | 58    | 36    | 40      | 76    |
| Total . .   | 499                  | 501     | 1,000 | 492   | 508     | 1,000 |

The records of Bavaria, Saxony, and Hanover show thus :—

| Bavaria |            | Saxony |            | Hanover |            |
|---------|------------|--------|------------|---------|------------|
| Year    | Population | Year   | Population | Year    | Population |
| 1818    | 3,708,000  | 1815   | 1,179,000  | 1822    | 1,464,000  |
| 1843    | 4,440,000  | 1841   | 1,687,000  | 1836    | 1,688,000  |
| 1861    | 4,690,000  | 1861   | 2,225,000  | 1852    | 1,819,000  |
| 1875    | 5,022,000  | 1875   | 2,761,000  | 1862    | 1,958,000  |
| 1885    | 5,420,000  | 1885   | 3,182,000  | 1880    | 2,118,000  |

Since 1866 Hanover has formed a province of Prussia. The ratio of sexes in Saxony has been as follows :—

In 1815 there were 1080 females to 1000 males  
 In 1832 " 1058 " 1000 "  
 In 1875 " 1041 " 1000 "

The Census of 1885 showed the chief cities of Germany thus :—

|               |           |                |         |
|---------------|-----------|----------------|---------|
| Berlin . .    | 1,315,000 | Königsberg . . | 151,000 |
| Hamburg . .   | 306,000   | Magdeburg . .  | 143,000 |
| Breslau . .   | 300,000   | Hanover . .    | 140,000 |
| Munich . .    | 262,000   | Stuttgart . .  | 126,000 |
| Dresden . .   | 246,000   | Bremen . .     | 118,000 |
| Leipzig . .   | 170,000   | Nuremberg . .  | 115,000 |
| Cologne . .   | 161,000   | Dantzig . .    | 115,000 |
| Frankfort . . | 155,000   | Strasbourg . . | 112,000 |

The records of Berlin give the population as follows :—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1602 . . | 8,000      | 1819 . . | 185,000    | 1861 . . | 548,000    |
| 1700 . . | 55,000     | 1831 . . | 249,000    | 1871 . . | 826,000    |
| 1787 . . | 147,000    | 1852 . . | 433,000    | 1885 . . | 1,315,000  |

In 1875 the population of Berlin was made up thus :—

|             |         |                    |         |
|-------------|---------|--------------------|---------|
| Males . .   | 481,500 | Born in Berlin . . | 399,100 |
| Females . . | 477,700 | " elsewhere . .    | 560,100 |
| Total . .   | 959,200 | Total . .          | 959,200 |

There were 213,900 families, of whom 43,600 kept servants, the rest none.



The number of foreign residents in Germany was as follows :—

| In                     | 1871    | 1885    |
|------------------------|---------|---------|
| Prussia . . . . .      | 87,000  | 157,000 |
| Saxony . . . . .       | 39,000  | 62,000  |
| Saxony . . . . .       | 24,000  | 53,000  |
| Other States . . . . . | 57,000  | 101,000 |
| Total . . . . .        | 207,000 | 373,000 |

#### RUSSIA

M'Gregor's tables for the 17th and 18th centuries, along with later estimates for Russia and Poland, show population thus :—

| Year           | Population | Year           | Population | Year           | Population |
|----------------|------------|----------------|------------|----------------|------------|
| 1689 . . . . . | 15,000,000 | 1820 . . . . . | 51,500,000 | 1871 . . . . . | 72,233,000 |
| 1762 . . . . . | 25,000,000 | 1840 . . . . . | 59,134,000 | 1885 . . . . . | 89,680,000 |
| 1801 . . . . . | 40,170,000 | 1858 . . . . . | 64,096,000 |                |            |

Kolb, however, gives the following table :—

| Year           | Sq. Miles | Population | Year           | Sq. Miles | Population |
|----------------|-----------|------------|----------------|-----------|------------|
| 1722 . . . . . | 5,953,000 | 14,000,000 | 1811 . . . . . | 7,123,000 | 42,000,000 |
| 1742 . . . . . | 6,889,000 | 16,000,000 | 1829 . . . . . | "         | 50,500,000 |
| 1762 . . . . . | "         | 19,000,000 | 1838 . . . . . | "         | 59,000,000 |
| 1782 . . . . . | 7,123,000 | 27,500,000 | 1851 . . . . . | "         | 65,000,000 |
| 1803 . . . . . | "         | 36,000,000 | 1870 . . . . . | 7,867,000 | 78,000,000 |

The preponderance of females is not so great as it was forty years ago, the official returns showing :—

| Year           | Males      | Females    | Females to Males |
|----------------|------------|------------|------------------|
| 1840 . . . . . | 28,806,000 | 30,238,000 | 1,045 to 1,000   |
| 1882 . . . . . | 42,289,000 | 43,007,000 | 1,016 to 1,000   |

In 1867, on the other hand, the males preponderated in all the large cities except Warsaw, viz. :—

#### Females to 100 Males

|                          |    |                   |    |                  |     |
|--------------------------|----|-------------------|----|------------------|-----|
| Moscow . . . . .         | 56 | Saratov . . . . . | 87 | Kazan . . . . .  | 92  |
| St. Petersburg . . . . . | 72 | Riga . . . . .    | 88 | Warsaw . . . . . | 112 |
| Kiev . . . . .           | 76 | Odessa . . . . .  | 91 |                  |     |

The principal cities in 1882 showed the following population :—

|                          |         |                    |         |
|--------------------------|---------|--------------------|---------|
| St. Petersburg . . . . . | 843,000 | Kazan . . . . .    | 141,000 |
| Moscow . . . . .         | 753,000 | Kichinev . . . . . | 130,000 |
| Warsaw . . . . .         | 432,000 | Kiev . . . . .     | 127,000 |
| Odessa . . . . .         | 240,000 | Lodz . . . . .     | 113,000 |
| Riga . . . . .           | 169,000 | Saratov . . . . .  | 112,000 |
| Kharkoff . . . . .       | 167,000 | Tiflis . . . . .   | 104,000 |

In 1882 the total urban population amounted to 13,800,000 :—

|                                |           |
|--------------------------------|-----------|
| 4 first-class cities . . . . . | 2,354,000 |
| 9 second-class . . . . .       | 1,163,000 |
| 23 third-class . . . . .       | 1,610,000 |
| 93 fourth-class . . . . .      | 3,100,000 |
| 164 fifth-class . . . . .      | 2,190,000 |
| 690 villages . . . . .         | 3,383,000 |

Total . . . . . 13,800,000

The population in 1888 was made up thus :—

|                         |            |
|-------------------------|------------|
| Russia proper . . . . . | 81,700,000 |
| Poland . . . . .        | 7,980,000  |

Total . . . . . 89,680,000

This gave for Poland an average of 170 per square mile against 125 in 1865, in which year there were 107 females to 100 males, and the urban population was 20 per cent. of the total.

Asiatic Russia in 1801 had 3,600,000 inhabitants, and in 1883 the number was 16,400,000.

Finland is not strictly a part of the Russian Empire: its population in 1885 was 2,200,000.

The ratio of sexes and of urban population in Finland was as follows :—

| Males to 1000 Females |       | Percentage of Urban Population |       |
|-----------------------|-------|--------------------------------|-------|
| Year                  | Males | Year                           | Urban |
| 1751 . . . . .        | 917   | 1815 . . . . .                 | 47    |
| 1800 . . . . .        | 949   | 1840 . . . . .                 | 59    |
| 1820 . . . . .        | 929   | 1850 . . . . .                 | 64    |
| 1840 . . . . .        | 940   | 1860 . . . . .                 | 63    |
| 1860 . . . . .        | 947   | 1870 . . . . .                 | 77    |

The advance of population in the Russian Empire since 1858 is shown as follows :—

|                    | 1858       | 1870       | 1885        |
|--------------------|------------|------------|-------------|
| Russia . . . . .   | 59,331,000 | 65,705,000 | 81,725,000  |
| Poland . . . . .   | 4,765,000  | 6,026,000  | 7,960,000   |
| Finland . . . . .  | 1,636,000  | 1,774,000  | 2,176,000   |
| Caucasus . . . . . | 4,309,000  | 4,763,000  | 7,285,000   |
| Siberia . . . . .  | 2,936,000  | 3,405,000  | 4,314,000   |
| Tartary . . . . .  | 1,295,000  | 3,357,000  | 5,327,000   |
| Total . . . . .    | 74,272,000 | 85,030,000 | 108,787,000 |

The distribution of sexes was in 1880 as follows :—

|                             | Males      | Females    | Total       | Females to 100 Males |
|-----------------------------|------------|------------|-------------|----------------------|
| Russia and Poland . . . . . | 40,925,000 | 42,051,000 | 82,976,000  | 103                  |
| Finland . . . . .           | 1,019,000  | 1,063,000  | 2,082,000   | 104                  |
| Caucasus . . . . .          | 3,352,000  | 2,939,000  | 6,291,000   | 88                   |
| Siberia . . . . .           | 2,044,000  | 1,904,000  | 3,948,000   | 93                   |
| Tartary . . . . .           | 2,631,000  | 2,445,000  | 5,076,000   | 93                   |
| Total . . . . .             | 49,971,000 | 50,402,000 | 100,373,000 | 101                  |

#### AUSTRIA

The population of the Empire, exclusive of the Italian provinces, was as follows :—

| Year           | Population | Year           | Population |
|----------------|------------|----------------|------------|
| 1789 . . . . . | 18,000,000 | 1857 . . . . . | 31,994,000 |
| 1810 . . . . . | 22,420,000 | 1869 . . . . . | 35,811,000 |
| 1840 . . . . . | 32,835,000 | 1880 . . . . . | 37,882,000 |

| Year           | Austria    | Hungary    | Total      |
|----------------|------------|------------|------------|
| 1840 . . . . . | 17,455,000 | 15,380,000 | 32,835,000 |
| 1857 . . . . . | 18,225,000 | 13,769,000 | 31,994,000 |
| 1869 . . . . . | 20,395,000 | 15,416,000 | 35,811,000 |
| 1880 . . . . . | 22,144,000 | 15,738,000 | 37,882,000 |

As regards sex, the Census of 1880 compares with that of 1840 as follows :—

|         | 1840       |            |            |         |         |       |
|---------|------------|------------|------------|---------|---------|-------|
|         | Population |            |            | Ratio   |         |       |
|         | Austria    | Hungary    | Total      | Austria | Hungary | Total |
| Males . | 8,850,000  | 7,560,000  | 16,410,000 | 507     | 491     | 500   |
| Females | 8,605,000  | 7,820,000  | 16,425,000 | 493     | 509     | 500   |
| Total   | 17,455,000 | 15,380,000 | 32,835,000 | 1,000   | 1,000   | 1,000 |

|         | 1880       |            |            |       |       |       |
|---------|------------|------------|------------|-------|-------|-------|
|         |            |            |            |       |       |       |
|         |            |            |            |       |       |       |
| Males . | 10,820,000 | 7,703,000  | 18,523,000 | 489   | 491   | 490   |
| Females | 11,324,000 | 8,035,000  | 19,359,000 | 511   | 509   | 510   |
| Total   | 22,144,000 | 15,738,000 | 37,882,000 | 1,000 | 1,000 | 1,000 |

In 1880 the various nationalities that made up the Empire were:—

| <i>Austria</i>   |           | <i>Hungary</i>  |           |
|------------------|-----------|-----------------|-----------|
| Germans . . .    | 8,009,000 | Magyars . . .   | 6,165,000 |
| Bohemians . . .  | 5,181,000 | Germans . . .   | 1,798,000 |
| Poles . . .      | 3,239,000 | Slovacs . . .   | 1,790,000 |
| Ruthenians . . . | 2,793,000 | Wallacks . . .  | 2,324,000 |
| Various . . .    | 2,922,000 | Croats, &c. . . | 3,661,000 |
| Total . . .      |           | 22,144,000      |           |

The principal cities in 1888 showed as follows:—

|                  |         |               |         |
|------------------|---------|---------------|---------|
| Vienna . . .     | 801,000 | Prague . . .  | 296,000 |
| Buda-Pesth . . . | 443,000 | Lemberg . . . | 110,000 |

The population of Vienna, including the suburbs, has been:—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1754 . . | 175,000    | 1830 . . | 333,000    | 1860 . . | 608,000    |
| 1800 . . | 231,000    | 1840 . . | 357,000    | 1880 . . | 1,104,000  |

## ITALY

Estimates before 1860, and Census returns since then, gave:—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1800 . . | 13,380,000 | 1840 . . | 18,610,000 | 1871 . . | 26,801,000 |
| 1820 . . | 15,790,000 | 1858 . . | 24,860,000 | 1888 . . | 30,565,000 |

The principal cities in 1881 were as follows:—

|            |         |             |         |              |         |
|------------|---------|-------------|---------|--------------|---------|
| Naples . . | 463,000 | Turin . .   | 230,000 | Florence . . | 135,000 |
| Milan . .  | 320,000 | Palermo . . | 206,000 | Venice . .   | 129,000 |
| Rome . .   | 273,000 | Genoa . .   | 138,000 | Bologna . .  | 104,000 |

The population and sexes of Rome were as follows:—

| Period   | Males   | Females | Total   | Males to 100 Females |
|----------|---------|---------|---------|----------------------|
| 1716 . . | 79,900  | 58,100  | 138,000 | 138                  |
| 1777 . . | 89,800  | 73,300  | 163,200 | 123                  |
| 1872 . . | 105,200 | 139,200 | 244,400 | 76                   |

The population of Italy, according to sexes, was as follows:—

|             | Number     |            | Ratio |       |
|-------------|------------|------------|-------|-------|
|             | 1871       | 1881       | 1871  | 1881  |
| Males . .   | 13,472,000 | 14,265,000 | 502   | 501   |
| Females . . | 13,329,000 | 14,195,000 | 498   | 499   |
| Total . .   | 26,801,000 | 28,460,000 | 1,000 | 1,000 |

The population of Milan has grown as follows:—

|          |         |          |         |
|----------|---------|----------|---------|
| 1780 . . | 133,000 | 1871 . . | 261,000 |
| 1848 . . | 195,000 | 1884 . . | 349,000 |

Its great development has been since the expulsion of the Austrians in 1867.

## SPAIN

Official reports gave the population as follows:—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1681 . . | 7,500,000  | 1797 . . | 10,514,000 | 1860 . . | 15,664,000 |
| 1723 . . | 7,625,000  | 1803 . . | 10,351,000 | 1870 . . | 16,799,000 |
| 1769 . . | 9,302,000  | 1821 . . | 11,248,000 | 1877 . . | 16,754,000 |
| 1788 . . | 10,140,000 | 1837 . . | 12,195,000 | 1887 . . | 17,550,000 |

The Census of 1788 showed as follows:—

|               | Male      | Female    | Total      |
|---------------|-----------|-----------|------------|
| Unmarried . . | 2,926,000 | 2,754,000 | 5,680,000  |
| Married . . . | 1,947,000 | 1,943,000 | 3,890,000  |
| Widowed . . . | 282,000   | 470,000   | 752,000    |
| Total . . .   | 5,155,000 | 5,167,000 | 10,322,000 |

The Census of 1877 showed the sexes thus:—

|               |            | Ratio |
|---------------|------------|-------|
| Males . . .   | 8,253,000  | 492   |
| Females . . . | 8,501,000  | 508   |
| Total . . .   | 16,754,000 | 1,000 |

The principal cities were in 1885 as follows:—

|               |         |              |         |
|---------------|---------|--------------|---------|
| Madrid . .    | 387,000 | Valencia . . | 140,000 |
| Barcelona . . | 243,000 | Seville . .  | 131,000 |

## PORTUGAL

Official returns are as follows:—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1732 . . | 1,770,000  | 1850 . . | 3,471,000  | 1878 . . | 4,551,000  |
| 1805 . . | 3,630,000  | 1860 . . | 3,608,000  |          |            |

The population of Lisbon in 1878 was 243,000, and of Oporto 106,000.

The sexes stood thus:—

|               |           | Ratio |
|---------------|-----------|-------|
| Males . . .   | 2,176,000 | 478   |
| Females . . . | 2,375,000 | 522   |
| Total . . .   | 4,551,000 | 1,000 |

## SWEDEN

The Census reports show as follows:—

| Year     | Males     | Females   | Total     | Males to 1000 Females |
|----------|-----------|-----------|-----------|-----------------------|
| 1751 . . | 841,000   | 945,000   | 1,786,000 | 889                   |
| 1772 . . | 968,000   | 1,057,000 | 2,025,000 | 915                   |
| 1790 . . | 1,033,000 | 1,126,000 | 2,159,000 | 918                   |
| 1810 . . | 1,134,000 | 1,244,000 | 2,378,000 | 913                   |
| 1830 . . | 1,391,000 | 1,407,000 | 2,888,000 | 928                   |
| 1850 . . | 1,687,000 | 1,795,000 | 3,482,000 | 940                   |
| 1860 . . | 1,874,000 | 1,985,000 | 3,859,000 | 944                   |
| 1870 . . | 2,047,000 | 2,152,000 | 4,169,000 | 936                   |
| 1888 . . | 2,301,000 | 2,447,000 | 4,748,000 | 941                   |

The ratios of urban and rural population were:—

|           | 1810  | 1830  | 1850  | 1875  | 1886  |
|-----------|-------|-------|-------|-------|-------|
| Urban . . | 94    | 97    | 101   | 140   | 181   |
| Rural . . | 906   | 903   | 899   | 860   | 819   |
| Total . . | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

The principal cities in 1888 showed thus:—

|                 |         |                  |         |
|-----------------|---------|------------------|---------|
| Stockholm . . . | 235,000 | Gothenburg . . . | 100,000 |
|-----------------|---------|------------------|---------|

## NORWAY

Official returns give the following population:—

| Year     | Population | Year     | Population | Year     | Population |
|----------|------------|----------|------------|----------|------------|
| 1665 . . | 460,000    | 1825 . . | 1,051,000  | 1865 . . | 1,702,000  |
| 1769 . . | 746,000    | 1845 . . | 1,328,000  | 1875 . . | 1,807,000  |
| 1801 . . | 884,000    | 1855 . . | 1,490,000  | 1885 . . | 1,947,000  |

The ratio of sexes was at various dates as follows:—

|             | 1801  | 1825  | 1845  | 1875  |
|-------------|-------|-------|-------|-------|
| Males . .   | 482   | 485   | 491   | 488   |
| Females . . | 518   | 515   | 509   | 512   |
| Total . .   | 1,000 | 1,000 | 1,000 | 1,000 |

Urban and rural population had the following ratios:—

|             | 1665  | 1801  | 1825  | 1845  | 1865  | 1875  |
|-------------|-------|-------|-------|-------|-------|-------|
| Urban . . . | 80    | 90    | 113   | 123   | 156   | 181   |
| Rural . . . | 920   | 910   | 887   | 877   | 844   | 819   |
| Total . .   | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

# POPULATION

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# POPULATION

The foreign population comprises 37,000, of whom 29,000 are Swedes. Christiania has 130,000 inhabitants.

## DENMARK

The population of Denmark proper was as follows:—

| Year | Population | Year | Population | Year | Population |
|------|------------|------|------------|------|------------|
| 1769 | 786,000    | 1834 | 1,226,000  | 1870 | 1,785,000  |
| 1787 | 840,000    | 1850 | 1,408,000  | 1880 | 1,969,000  |
| 1801 | 926,000    | 1860 | 1,608,000  | 1886 | 2,097,000  |

Previous to 1806 Norway was a province of the Danish monarchy, with 950,000 inhabitants.

In 1866 Denmark was stripped of Sleswig-Holstein, with 900,000 inhabitants. Iceland remains with 60,000 souls, but will soon be depopulated, the inhabitants going to Canada. The distribution of sexes in Denmark in 1880 was as follows:—

|         |           | Ratio |
|---------|-----------|-------|
| Males   | 967,000   | 492   |
| Females | 1,002,000 | 508   |
|         | 1,969,000 | 1,000 |

## BELGIUM

Since the Independence the Census returns show:—

| Year | Population | Year | Population |
|------|------------|------|------------|
| 1830 | 3,780,000  | 1870 | 5,088,000  |
| 1860 | 4,732,000  | 1886 | 5,910,000  |

In 1830 the population was distinguished thus:—

|       |           | Ratio |
|-------|-----------|-------|
| Urban | 998,000   | 245   |
| Rural | 3,006,000 | 755   |
|       | 4,064,000 | 1,000 |

In 1886 the languages spoken were:—

|                    | Inhabitants |
|--------------------|-------------|
| Only Flemish       | 2,485,000   |
| French             | 2,230,000   |
| French and Flemish | 424,000     |
| German and French  | 38,000      |
| Walloon, &c.       | 733,000     |
| Total              | 5,910,000   |

The principal cities in 1886 were as follows:—

|          |         |       |         |
|----------|---------|-------|---------|
| Brussels | 430,000 | Ghent | 145,000 |
| Antwerp  | 205,000 | Liege | 138,000 |

The population of Brussels has more than trebled since 1830, official returns showing:—

|      |         |      |         |
|------|---------|------|---------|
| 1830 | 121,000 | 1863 | 301,000 |
| 1850 | 222,000 | 1884 | 421,000 |

The sexes in Belgium compared as follows:—

|         | 1846      | 1866      | 1887      | Ratio |       |       |
|---------|-----------|-----------|-----------|-------|-------|-------|
|         |           |           |           | 1846  | 1866  | 1887  |
| Males   | 2,164,000 | 2,420,000 | 2,983,000 | 499   | 501   | 499   |
| Females | 2,173,000 | 2,408,000 | 2,992,000 | 501   | 499   | 501   |
| Total   | 4,337,000 | 4,828,000 | 5,975,000 | 1,000 | 1,000 | 1,000 |

The composition of the population of Belgium in 1880 was as follows:—

| Age     | Per 1000 Inhabitants |         |       |
|---------|----------------------|---------|-------|
|         | Males                | Females | Total |
| Under 5 | 61                   | 60      | 121   |
| 5-15    | 105                  | 104     | 209   |
| 15-30   | 122                  | 121     | 243   |
| 30-40   | 62                   | 62      | 124   |
| 40-50   | 53                   | 53      | 106   |
| 50-60   | 43                   | 43      | 86    |
| Over 60 | 53                   | 58      | 111   |
| Total   | 499                  | 501     | 1,000 |

## HOLLAND

Official returns show population as follows (the figure for 1785 apparently including Belgium):—

| Year | Population | Year | Population |
|------|------------|------|------------|
| 1785 | 2,760,000  | 1859 | 3,309,000  |
| 1829 | 2,613,000  | 1869 | 3,580,000  |
| 1839 | 2,861,000  | 1879 | 4,013,000  |
| 1849 | 3,057,000  | 1886 | 4,391,000  |

Sexes compared as follows in 1879 and 1886:—

|         | 1879      | 1886      | Ratio |       |
|---------|-----------|-----------|-------|-------|
|         |           |           | 1879  | 1886  |
| Males   | 1,983,000 | 2,174,000 | 495   | 495   |
| Females | 2,030,000 | 2,217,000 | 505   | 505   |
| Total   | 4,013,000 | 4,391,000 | 1,000 | 1,000 |

In 1886 Amsterdam had 372,000 inhabitants, Rotterdam 174,000, and Hague 139,000.

## SWITZERLAND

Census returns show as follows:—

|      |           |      |           |
|------|-----------|------|-----------|
| 1850 | 2,393,000 | 1880 | 2,846,000 |
| 1870 | 2,669,000 | 1888 | 2,934,000 |

In 1860 and 1880 the ratios of sexes were as follows:—

|         | Number    |           | Ratio |       |
|---------|-----------|-----------|-------|-------|
|         | 1860      | 1880      | 1860  | 1880  |
| Males   | 1,255,000 | 1,395,000 | 495   | 490   |
| Females | 1,280,000 | 1,451,000 | 505   | 510   |
| Total   | 2,535,000 | 2,846,000 | 1,000 | 1,000 |

The languages spoken in 1880 were as follows:—

|         |           | Ratio |
|---------|-----------|-------|
| German  | 2,031,000 | 71.4  |
| French  | 608,000   | 21.3  |
| Italian | 207,000   | 7.3   |
| Total   | 2,846,000 | 100.0 |

## GREECE

According to Beloch, the population of Greece in the year 432 B.C. was as follows:—

|              | Free      | Slaves    | Total     |
|--------------|-----------|-----------|-----------|
| Attica       | 235,000   | 100,000   | 335,000   |
| Sparta       | 230,000   | 175,000   | 405,000   |
| Thessaly     | 460,000   | 250,000   | 710,000   |
| Macedon      | 400,000   | 25,000    | 425,000   |
| Other States | 721,000   | 455,000   | 1,176,000 |
| Total        | 2,046,000 | 1,005,000 | 3,051,000 |

Since the Independence the population of modern Greece shows:—

| Year | Population | Year | Population |
|------|------------|------|------------|
| 1835 | 690,000    | 1870 | 1,458,000  |
| 1853 | 1,042,000  | 1879 | 1,980,000  |
| 1861 | 1,097,000  | 1889 | 2,187,000  |

The sexes in 1879 and 1889 stood thus:—

|         | 1879      | 1889      | Ratio |       |
|---------|-----------|-----------|-------|-------|
|         |           |           | 1879  | 1889  |
| Males   | 881,000   | 1,133,000 | 525   | 515   |
| Females | 799,000   | 1,054,000 | 475   | 485   |
| Total   | 1,680,000 | 2,187,000 | 1,000 | 1,000 |

## TURKEY

In 1840 the population and area of the component States were :—

|                        | Square Miles | Population | Inhabitants per Square Mile |
|------------------------|--------------|------------|-----------------------------|
| Turkey Proper          | 130,000      | 7,100,000  | 55                          |
| Moldavia and Wallachia | 44,000       | 1,420,000  | 32                          |
| Servia                 | 12,000       | 380,000    | 32                          |
| European Turkey        | 186,000      | 8,900,000  | 48                          |
| Asia Minor             | 710,000      | 16,100,000 | 23                          |
| Tripoli                | 360,000      | 1,000,000  | 3                           |
| Egypt                  | 480,000      | 3,100,000  | 6                           |
| Total                  | 1,736,000    | 29,100,000 | ...                         |

Since 1840 Turkey has lost Moldavia, Wallachia, Egypt, Servia, Bulgaria, Bosnia, Herzegovina, Roumelia, &c., and is at present reduced to :—

|                  | Square Miles | Population |
|------------------|--------------|------------|
| Turkey in Europe | 61,000       | 4,490,000  |
| Asia Minor       | 710,000      | 16,133,000 |
| Total            | 771,000      | 20,623,000 |

In 1880 the principal cities were the following :—

|                |         |          |         |
|----------------|---------|----------|---------|
| Constantinople | 874,000 | Damascus | 150,000 |
| Smyrna         | 187,000 | Bagdad   | 100,000 |

In 1888 European Turkey was supposed to have only 4,500,000 inhabitants.

## EGYPT

Without including the outlying dominions, the population of Egypt proper has been officially stated thus :—

|      |           |
|------|-----------|
| 1840 | 3,100,000 |
| 1872 | 5,210,000 |
| 1882 | 6,818,000 |

The last Census showed 499 males to 501 females, viz. :—

|            | Number    |           |           | Per 1000 |         |
|------------|-----------|-----------|-----------|----------|---------|
|            | Males     | Females   | Total     | Males    | Females |
| Egyptians  | 3,222,000 | 3,258,000 | 6,480,000 | 497      | 503     |
| Bedouins   | 131,000   | 116,000   | 247,000   | 530      | 470     |
| Foreigners | 49,000    | 42,000    | 91,000    | 538      | 462     |
| Total      | 3,402,000 | 3,416,000 | 6,818,000 | 499      | 501     |

The population of Cairo and of Alexandria was in 1882 as follows :—

|            | Cairo   | Alexandria |
|------------|---------|------------|
| Natives    | 353,000 | 178,000    |
| Foreigners | 22,000  | 49,000     |
| Total      | 375,000 | 227,000    |

## UNITED STATES

The population of the country now known as the United States was estimated at various periods before Independence, and has been regularly taken in decennial Census since 1790.

| Year | Population | Year | Population | Year | Population |
|------|------------|------|------------|------|------------|
| 1793 | 160,000    | 1800 | 5,308,000  | 1850 | 23,192,000 |
| 1701 | 297,000    | 1810 | 7,240,000  | 1860 | 31,443,000 |
| 1750 | 1,161,000  | 1820 | 9,655,000  | 1870 | 38,558,000 |
| 1775 | 2,803,000  | 1830 | 12,866,000 | 1880 | 50,156,000 |
| 1790 | 3,930,000  | 1840 | 17,063,000 | 1890 | 62,481,000 |

The earliest detailed records of population are as follows :—

|                           | 1701    | 1749      | 1776      | 1790      |
|---------------------------|---------|-----------|-----------|-----------|
| Massachusetts             | 70,000  | 220,000   | 352,000   | 475,000   |
| Connecticut               | 30,000  | 100,000   | 262,000   | 238,000   |
| Rhode Island              | 10,000  | 35,000    | 58,000    | 69,000    |
| New Hampshire             | 10,000  | 30,000    | 102,000   | 228,000   |
| New England               | 120,000 | 385,000   | 774,000   | 1,010,000 |
| New York                  | 30,000  | 100,000   | 260,000   | 340,000   |
| New Jersey                | 15,000  | 60,000    | 150,000   | 184,000   |
| Pennsylvania and Delaware | 20,000  | 250,000   | 401,000   | 494,000   |
| Maryland                  | 25,000  | 85,000    | 255,000   | 320,000   |
| Virginia                  | 75,000  | 200,000   | 516,000   | 748,000   |
| Carolinas, &c.            | 12,000  | 81,000    | 447,000   | 834,000   |
| Middle and South          | 177,000 | 776,000   | 2,029,000 | 2,920,000 |
| Total                     | 297,000 | 1,161,000 | 2,803,000 | 3,930,000 |

Dr. Currie's tables published in 1798 are complete as regards the 18th century, and besides the above he gives figures for the New England States in the preceding century, showing a population of 24,100 souls in 1654, and of 68,400 in 1673. It is to be observed that in the above table the column for 1775 includes 500,000 slaves, and in 1795 likewise 698,000.

The population, according to Tucker and the Census returns, was composed as follows :—

| Year | White, Native | Coloured  | Foreigners | Total      |
|------|---------------|-----------|------------|------------|
| 1800 | 4,262,000     | 1,002,000 | 44,000     | 5,308,000  |
| 1810 | 5,770,000     | 1,377,000 | 93,000     | 7,240,000  |
| 1820 | 7,684,000     | 1,772,000 | 177,000    | 9,633,000  |
| 1830 | 10,178,000    | 2,328,000 | 360,000    | 12,866,000 |
| 1840 | 13,336,000    | 2,874,000 | 859,000    | 17,069,000 |
| 1850 | 17,308,000    | 3,630,000 | 2,245,000  | 23,192,000 |
| 1860 | 22,801,000    | 4,486,000 | 4,139,000  | 31,426,000 |
| 1870 | 28,085,000    | 4,906,000 | 5,567,000  | 38,558,000 |
| 1880 | 36,829,000    | 6,647,000 | 6,680,000  | 50,156,000 |

The increase of population chiefly arose from the surplus of births over deaths, but was materially swelled by the number of European settlers. Tucker's tables down to 1820, and the Census returns since that year, show as follows :—

| Period   | Natural Increase | Immigration Increase | Total      | Ratio of Increase per 1000 Pop. |
|----------|------------------|----------------------|------------|---------------------------------|
| 1801-10  | 1,883,000        | 49,000               | 1,932,000  | 365                             |
| 1811-20  | 2,309,000        | 84,000               | 2,393,000  | 330                             |
| 1821-30  | 3,050,000        | 183,000              | 3,233,000  | 335                             |
| 1831-40  | 3,602,000        | 595,000              | 4,197,000  | 327                             |
| 1841-50  | 4,473,000        | 1,656,000            | 6,129,000  | 359                             |
| 1851-60  | 5,624,000        | 2,627,000            | 8,251,000  | 355                             |
| 1861-70  | 4,820,000        | 2,295,000            | 7,115,000  | 226                             |
| 1871-80  | 8,783,000        | 2,815,000            | 11,598,000 | 301                             |
| 1881-90  | 7,078,000        | 5,247,000            | 12,325,000 | 246                             |
| 90 years | 41,622,000       | 15,551,000           | 57,173,000 | ...                             |

The Census Commissioner believes that the Census returns for 1870 were defective, especially in the Southern States, and that the real returns since 1860 should be read thus :—

| Period  | Natural Increase | Immigration | Total      | Per 1000 |
|---------|------------------|-------------|------------|----------|
| 1861-70 | 6,262,000        | 2,295,000   | 8,557,000  | 272      |
| 1871-80 | 7,341,000        | 2,815,000   | 10,156,000 | 254      |
| 1881-90 | 7,078,000        | 5,247,000   | 12,325,000 | 246      |

Allowing this amendment, as recommended by Commissioner Porter, the ratio of increase in each decade per 1000 inhabitants was as follows :—

|                 | 1801-10 | 1811-20 | 1821-30 | 1831-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-90 |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Natural . . . . | 356     | 318     | 316     | 280     | 262     | 242     | 200     | 181     | 141     |
| Immigration . . | 9       | 12      | 19      | 47      | 97      | 114     | 72      | 73      | 105     |
| Total . . . .   | 365     | 330     | 335     | 327     | 359     | 356     | 272     | 254     | 246     |

The various nationalities that composed nearly 15 millions of settlers from 1820 to 1888 stood thus :—

|                  | 1831-50   | 1851-60   | 1861-70   | 1871-80   | 1881-88   | Total      |
|------------------|-----------|-----------|-----------|-----------|-----------|------------|
| Germans . . . .  | 682,000   | 951,000   | 820,000   | 759,000   | 1,104,000 | 4,316,000  |
| Irish . . . . .  | 1,352,000 | 1,013,000 | 723,000   | 450,000   | 536,000   | 4,074,000  |
| British . . . .  | 49,000    | 325,000   | 385,000   | 542,000   | 658,000   | 1,959,000  |
| Scandinavians .  | 5,000     | 25,000    | 136,000   | 261,000   | 412,000   | 839,000    |
| Italians . . . . | ...       | 9,000     | 13,000    | 61,000    | 201,000   | 284,000    |
| French . . . . . | 125,000   | 76,000    | 38,000    | 75,000    | 36,000    | 350,000    |
| Dutch . . . . .  | 5,000     | 11,000    | 10,000    | 18,000    | 151,000   | 195,000    |
| Swiss . . . . .  | 4,000     | 25,000    | 24,000    | 31,000    | 68,000    | 152,000    |
| Various . . . .  | 354,000   | 163,000   | 318,000   | 748,000   | 1,154,000 | 2,737,000  |
| Total . . . .    | 2,576,000 | 2,598,000 | 2,467,000 | 2,945,000 | 4,320,000 | 14,906,000 |

There is a very marked decline of natural increase, which is now only two-thirds of the ratio that prevailed early in the century. The total immigration may be summed up thus :—

| Period            | Number     | Per Annum |
|-------------------|------------|-----------|
| 1654-1701. . . .  | 134,000    | 2,800     |
| 1702-1800. . . .  | 492,000    | 4,950     |
| 1801-20 . . . .   | 178,000    | 8,900     |
| 1821-50 . . . .   | 2,576,000  | 86,000    |
| 1851-80 . . . .   | 8,010,000  | 267,000   |
| 1881-90 . . . .   | 5,247,000  | 540,000   |
| 237 years . . . . | 16,637,000 | ...       |

The number of foreign residents at each Census, and the number of those who died or left the country, are shown in the following table :—

| Census Year | Number Enrolled | Immigrants of Decade | Total     | Number at End of Decade | Missing   |
|-------------|-----------------|----------------------|-----------|-------------------------|-----------|
| 1850        | 2,245,000       | 2,598,000            | 4,843,000 | 4,139,000               | 704,000   |
| 1860        | 4,139,000       | 2,467,000            | 6,606,000 | 5,567,000               | 1,039,000 |
| 1870        | 5,567,000       | 2,945,000            | 8,512,000 | 6,680,000               | 1,832,000 |
| 1880        | 6,680,000       | ...                  | ...       | ...                     | ...       |
| ...         | ...             | ...                  | ...       | ...                     | 3,575,000 |

The number missing at the end of each decade ranged from 15 to 21 per cent.

The loss by death or leaving the country in thirty years ending 1880 is shown as follows :—

|                          | Germans   | Irish     | British   | Various   | Total      |
|--------------------------|-----------|-----------|-----------|-----------|------------|
| Number in 1850 . . . .   | 584,000   | 962,000   | 380,000   | 319,000   | 2,245,000  |
| Arrived, 1851-80 . . . . | 2,530,000 | 2,186,000 | 1,252,000 | 2,042,000 | 8,010,000  |
| Total . . . . .          | 3,114,000 | 3,148,000 | 1,632,000 | 2,361,000 | 10,255,000 |
| Number in 1880 . . . .   | 1,967,000 | 1,855,000 | 916,000   | 1,942,000 | 6,680,000  |
| Loss . . . . .           | 1,147,000 | 1,293,000 | 716,000   | 419,000   | 3,575,000  |

In thirty years 35 per cent. of the total either died or left the country.

The foreign residents found living in the United States at each Census since 1850 were as follows :—

|                  | 1850      | 1860      | 1870      | 1880      |
|------------------|-----------|-----------|-----------|-----------|
| Germans . . . .  | 584,000   | 1,276,000 | 1,691,000 | 1,967,000 |
| Irish . . . . .  | 962,000   | 1,611,000 | 1,856,000 | 1,855,000 |
| British . . . .  | 380,000   | 588,000   | 766,000   | 916,000   |
| Scandinavians .  | 18,000    | 73,000    | 242,000   | 440,000   |
| Italians . . . . | 4,000     | 11,000    | 17,000    | 44,000    |
| French . . . . . | 54,000    | 110,000   | 116,000   | 107,000   |
| Dutch . . . . .  | 10,000    | 28,000    | 47,000    | 58,000    |
| Swiss . . . . .  | 13,000    | 53,000    | 75,000    | 89,000    |
| Various . . . .  | 220,000   | 389,000   | 757,000   | 1,204,000 |
| Total . . . .    | 2,245,000 | 4,139,000 | 5,567,000 | 6,680,000 |

The losses among Germans in the several decades were :—

| Census | Resident  | Immigration | Total     | Number at End of Decade | Missing   |
|--------|-----------|-------------|-----------|-------------------------|-----------|
| 1850   | 584,000   | 951,000     | 1,535,000 | 1,276,000               | 259,000   |
| 1860   | 1,276,000 | 820,000     | 2,096,000 | 1,691,000               | 405,000   |
| 1870   | 1,691,000 | 759,000     | 2,450,000 | 1,967,000               | 483,000   |
| 1880   | 1,967,000 | ...         | ...       | ...                     | ...       |
| ...    | ...       | ...         | ...       | ...                     | 1,147,000 |

The percentage of loss was less than among Irish, as appears from the subjoined table of all nationalities.

The loss in the first decade ending 1860 was 17 per cent., and in the subsequent decades almost 20 per cent.

The tables as regard Irish settlers show as follows:—

| Census | Resident  | Immigration | Total     | Number at End of Decade | Missing   |
|--------|-----------|-------------|-----------|-------------------------|-----------|
| 1850   | 962,000   | 1,013,000   | 1,975,000 | 1,611,000               | 364,000   |
| 1860   | 1,611,000 | 723,000     | 2,334,000 | 1,856,000               | 478,000   |
| 1870   | 1,856,000 | 450,000     | 2,306,000 | 1,855,000               | 451,000   |
| 1880   | 1,855,000 | ...         | ...       | ...                     | ...       |
|        | ...       | ...         | ...       | ...                     | 1,293,000 |

The loss among Irish settlers in the first decade was 18 per cent., in the second 20, and in the third 19 per cent. The war of 1861-65 apparently cost the Union 53,000 German, and 48,000 Irish settlers. According to the Census of 1880, it appeared that for every 100 foreign settlers, of whatever age, there were 124 children born in the country of foreign parents, whereas in 1870 there were only 96. It appears, moreover, that foreign settlers comprise a larger ratio of people of working age than they do of the general population, viz.:—

|                | Population of all Ages |       |       |       |       |       |
|----------------|------------------------|-------|-------|-------|-------|-------|
|                | 1830                   | 1840  | 1850  | 1860  | 1870  | 1880  |
| Americans . .  | 972                    | 950   | 903   | 868   | 856   | 867   |
| Foreigners . . | 28                     | 50    | 97    | 132   | 144   | 133   |
| Total . .      | 1,000                  | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

|                | Population between 15 and 60 |       |       |       |       |       |
|----------------|------------------------------|-------|-------|-------|-------|-------|
|                | 1830                         | 1840  | 1850  | 1860  | 1870  | 1880  |
| Americans . .  | 960                          | 928   | 866   | 821   | 807   | 817   |
| Foreigners . . | 40                           | 72    | 134   | 179   | 193   | 183   |
| Total . .      | 1,000                        | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

When the American native population would have 100 persons of working age, foreigners have 145.

The percentages of persons of working age in Ameri-

can and in foreign population are shown at each decade thus:—

| Year       | Persons between 15 and 60 Years of Age |                  |                      |
|------------|----------------------------------------|------------------|----------------------|
|            | Of 1000 Americans                      | Of 1000 Settlers | Of 1000 Genera. Pop. |
| 1830 . . . | 504                                    | 750              | 511                  |
| 1840 . . . | 509                                    | 751              | 521                  |
| 1850 . . . | 520                                    | 748              | 543                  |
| 1860 . . . | 520                                    | 748              | 551                  |
| 1870 . . . | 527                                    | 752              | 559                  |
| 1880 . . . | 513                                    | 750              | 544                  |

There was a steady rise until 1870, notwithstanding the war of 1861-65, but the last decade showed a fall, which is explained by the greater number of persons over sixty years of age, who were 56 per 1000 in 1880, against 50 in 1870. It is, nevertheless, surprising to find that the able-bodied ratio among foreign settlers is precisely the same as it was fifty years ago, and has not sensibly varied in the whole period. It has improved remarkably among the American population. If we compare the growth of the three great elements of population between 1850 and 1880, counting the children born of foreign parents as foreigners, and assuming their ratio in 1850 to have been as in 1870—that is, 96 per 100 settlers—we find as follows:—

|                         | 1850       | 1880       | Ratio of Increase, per Cent. |
|-------------------------|------------|------------|------------------------------|
| American whites . .     | 15,152,000 | 28,553,000 | 88                           |
| Coloured population . . | 3,639,000  | 6,647,000  | 83                           |
| Foreign . . . . .       | 4,401,000  | 14,956,000 | 240                          |
| Total . .               | 23,192,000 | 50,156,000 | 116                          |

The aliquot parts of the population, always counting children of foreign parents as foreign, show as follows:—

|                         | 1800  | 1830  | 1840  | 1860  | 1880  |
|-------------------------|-------|-------|-------|-------|-------|
| Americans . . . . .     | 794   | 781   | 733   | 602   | 570   |
| Coloured population . . | 190   | 184   | 169   | 141   | 132   |
| Foreign . . . . .       | 16    | 35    | 98    | 257   | 298   |
| Total . .               | 1,000 | 1,000 | 1,000 | 1,000 | 1,000 |

The growth of the white American and of the coloured population, in intervals of twenty years, is shown thus:—

| Year           | Number     |           | Increase  |           | Rate of Increase    |                     |
|----------------|------------|-----------|-----------|-----------|---------------------|---------------------|
|                | American   | Coloured  | American  | Coloured  | American, per Cent. | Coloured, per Cent. |
| 1800 . . . . . | 4,220,000  | 1,002,000 | ...       | ...       | ...                 | ...                 |
| 1820 . . . . . | 7,514,000  | 1,772,000 | 3,294,000 | 770,000   | 78                  | 77                  |
| 1840 . . . . . | 12,511,000 | 2,874,000 | 4,997,000 | 1,102,000 | 67                  | 62                  |
| 1860 . . . . . | 18,827,000 | 4,486,000 | 6,316,000 | 1,612,000 | 51                  | 56                  |
| 1880 . . . . . | 28,553,000 | 6,647,000 | 9,726,000 | 2,161,000 | 52                  | 48                  |

The white American race increased faster than the coloured, except during the interval of 1841-60.

The total increase during eighty years was:—

|                               |               |
|-------------------------------|---------------|
| American whites . . . . .     | 576 per cent. |
| Coloured population . . . . . | 564 per cent. |

The difference is small, but the figures show conclusively that the white American race has no tendency to die out, as often stated.

The rate of increase has, however, declined very notably since 1820, both among whites and blacks, especially the latter, that among whites having been nearly stationary since 1840.

In considering the ratios of the sexes, we find the preponderance of males was very great in 1860, the year before the war, and the lowest in 1870. If the ratio in the latter year were the same as in 1860, there would have been 19,900,000 males, instead of 19,550,000. This shows a loss of 350,000 males, which may be set down as the blood-cost of the war.

It will be seen from the preceding tables that the white American population in 1880 was 28,553,000, or 57 per cent. of the total. This, however, supposes the grandchildren of European settlers to be of American race, which is not strictly true.

[illegible]

The following table shows the population of each State at three distinct periods :—

|                    | 1800      | 1840       | 1880       | 1890       |
|--------------------|-----------|------------|------------|------------|
| New York . . .     | 589,000   | 2,429,000  | 5,083,000  | 5,982,000  |
| Pennsylvania . .   | 602,000   | 1,724,000  | 4,283,000  | 5,249,000  |
| Ohio . . .         | 45,000    | 1,519,000  | 3,198,000  | 3,667,000  |
| Illinois . . .     | ...       | 476,000    | 3,078,000  | 3,819,000  |
| Missouri . . .     | ...       | 384,000    | 2,168,000  | 2,677,000  |
| Indiana . . .      | 6,000     | 686,000    | 1,978,000  | 2,189,000  |
| Massachusetts . .  | 423,000   | 738,000    | 1,783,000  | 2,233,000  |
| Kentucky . . .     | 221,000   | 780,000    | 1,649,000  | 1,855,000  |
| Michigan . . .     | ...       | 212,000    | 1,637,000  | 2,090,000  |
| Iowa . . .         | ...       | 43,000     | 1,625,000  | 1,907,000  |
| Texas . . .        | ...       | ...        | 1,592,000  | 2,232,000  |
| Tennessee . . .    | 106,000   | 829,000    | 1,542,000  | 1,764,000  |
| Georgia . . .      | 163,000   | 691,000    | 1,542,000  | 1,834,000  |
| Virginia . . .     | 880,000   | 1,240,000  | 1,513,000  | 1,649,000  |
| North Carolina . . | 478,000   | 753,000    | 1,399,000  | 1,617,000  |
| Wisconsin . . .    | ...       | 31,000     | 1,315,000  | 1,684,000  |
| Alabama . . .      | ...       | 591,000    | 1,263,000  | 1,508,000  |
| Mississippi . . .  | 9,000     | 376,000    | 1,132,000  | 1,285,000  |
| New Jersey . . .   | 211,000   | 373,000    | 1,131,000  | 1,441,000  |
| Kansas . . .       | ...       | ...        | 996,000    | 1,423,000  |
| South Carolina . . | 346,000   | 594,000    | 996,000    | 1,147,000  |
| Louisiana . . .    | ...       | 352,000    | 940,000    | 1,117,000  |
| Maryland . . .     | 342,000   | 470,000    | 935,000    | 1,040,000  |
| California . . .   | ...       | ...        | 865,000    | 1,204,000  |
| Arkansas . . .     | ...       | 98,000     | 803,000    | 1,125,000  |
| Minnesota . . .    | ...       | ...        | 781,000    | 1,300,000  |
| Maine . . .        | 152,000   | 502,000    | 649,000    | 660,000    |
| Connecticut . . .  | 251,000   | 310,000    | 623,000    | 746,000    |
| West Virginia . .  | ...       | ...        | 618,000    | 760,000    |
| Nebraska . . .     | ...       | ...        | 452,000    | 1,057,000  |
| New Hampshire . .  | 184,000   | 285,000    | 347,000    | 376,000    |
| Vermont . . .      | 154,000   | 292,000    | 332,000    | 332,000    |
| Rhode Island . . . | 69,000    | 109,000    | 277,000    | 345,000    |
| Delaware . . .     | 64,000    | 78,000     | 147,000    | 168,000    |
| Florida . . .      | ...       | 54,000     | 269,000    | 390,000    |
| Colorado . . .     | ...       | ...        | 194,000    | 411,000    |
| Oregon . . .       | ...       | ...        | 175,000    | 312,000    |
| Utah . . .         | ...       | ...        | 144,000    | 206,000    |
| Dakota . . .       | ...       | ...        | 135,000    | 510,000    |
| Territories . . .  | 13,000    | 50,000     | 564,000    | 1,169,000  |
| The Union . . .    | 5,308,000 | 17,069,000 | 50,153,000 | 62,480,000 |

The principal cities showed at various dates thus :—

| Year       | New York  | Philadelphia | Boston  | Baltimore | New Orleans | Cincinnati | Chicago |
|------------|-----------|--------------|---------|-----------|-------------|------------|---------|
| 1730 . . . | 8,600     | 12,000       | 11,500  | ...       | ...         | ...        | ...     |
| 1750 . . . | 10,000    | 18,000       | 14,000  | ...       | ...         | ...        | ...     |
| 1790 . . . | 33,000    | 44,000       | 18,000  | 13,800    | ...         | ...        | ...     |
| 1800 . . . | 60,000    | 69,000       | 25,000  | 26,000    | ...         | ...        | ...     |
| 1810 . . . | 96,000    | 95,000       | 33,000  | 36,000    | 17,000      | 3,000      | ...     |
| 1820 . . . | 124,000   | 113,000      | 43,000  | 63,000    | 27,000      | 10,000     | ...     |
| 1830 . . . | 203,000   | 161,000      | 61,000  | 81,000    | 46,000      | 25,000     | ...     |
| 1840 . . . | 313,000   | 220,000      | 93,000  | 102,000   | 102,000     | 46,000     | 4,300   |
| 1850 . . . | 516,000   | 340,000      | 137,000 | 169,000   | 116,000     | 115,000    | 30,000  |
| 1860 . . . | 814,000   | 568,000      | 178,000 | 214,000   | 171,000     | 160,000    | 109,000 |
| 1870 . . . | 942,000   | 674,000      | 251,000 | 267,000   | 191,000     | 216,000    | 299,000 |
| 1880 . . . | 1,207,000 | 847,000      | 363,000 | 332,000   | 216,000     | 256,000    | 503,000 |
| 1888 . . . | 1,493,000 | 1,017,000    | ...     | ...       | ...         | ...        | ...     |

## AUSTRALIA

The population was at various dates as follows :—

|            |         |            |           |
|------------|---------|------------|-----------|
| 1800 . . . | 6,500   | 1860 . . . | 1,224,000 |
| 1820 . . . | 35,600  | 1870 . . . | 1,900,000 |
| 1840 . . . | 257,000 | 1880 . . . | 2,725,000 |
| 1850 . . . | 510,000 | 1888 . . . | 3,672,000 |

The ratio of increase was :—

|               |               |
|---------------|---------------|
| 1851-60 . . . | 140 per cent. |
| 1861-70 . . . | 55 "          |
| 1871-80 . . . | 43 "          |
| 1881-88 . . . | 33 "          |

Dividing the Union into four great sections, the population stood thus at each Census :—

| Year | New England | Middle States | South      | West       | Total      |
|------|-------------|---------------|------------|------------|------------|
| 1790 | 1,010,000   | 1,342,000     | 1,580,000  | ...        | 3,932,000  |
| 1800 | 1,233,000   | 1,807,000     | 2,214,000  | 54,000     | 5,308,000  |
| 1810 | 1,472,000   | 2,479,000     | 2,997,000  | 292,000    | 7,240,000  |
| 1820 | 1,659,000   | 3,194,000     | 3,932,000  | 849,000    | 9,634,000  |
| 1830 | 1,954,000   | 4,138,000     | 5,164,000  | 1,610,000  | 12,866,000 |
| 1840 | 2,236,000   | 5,088,000     | 6,367,000  | 3,378,000  | 17,069,000 |
| 1850 | 2,724,000   | 6,593,000     | 8,288,000  | 5,587,000  | 23,192,000 |
| 1860 | 3,145,000   | 8,294,000     | 10,297,000 | 9,707,000  | 31,443,000 |
| 1870 | 3,506,000   | 9,770,000     | 11,330,000 | 13,952,000 | 38,558,000 |
| 1880 | 4,010,000   | 11,757,000    | 15,254,000 | 19,135,000 | 50,156,000 |
| 1890 | 4,691,000   | 14,110,000    | 18,283,000 | 25,396,000 | 62,480,000 |

At the beginning of the century there were only four towns that had more than 20,000 inhabitants : in 1880 there were 102, viz :—

| Population          | 1800 | 1830 | 1840 | 1860 | 1880 |
|---------------------|------|------|------|------|------|
| Over 100,000 . . .  | 0    | 2    | 1    | 9    | 20   |
| 50 to 100,000 . . . | 2    | 1    | 4    | 9    | 16   |
| 20 to 50,000 . . .  | 2    | 2    | 16   | 25   | 66   |
| Total . . .         | 4    | 5    | 21   | 43   | 102  |

The aggregate of urban compared with total population in the United States was as follows :—

|            | Urban     | Total      | Ratio of Urban |
|------------|-----------|------------|----------------|
| 1800 . . . | 340,000   | 5,310,000  | 6.4            |
| 1820 . . . | 460,000   | 9,640,000  | 4.8            |
| 1840 . . . | 1,550,000 | 17,070,000 | 9.1            |
| 1860 . . . | 4,240,000 | 31,440,000 | 13.5           |
| 1880 . . . | 9,160,000 | 50,310,000 | 18.2           |

The urban class comprises only towns over 20,000 population.

The several Colonies since 1850 stood thus :—

|              | 1850    | 1860      | 1870      | 1880      | 1888      |
|--------------|---------|-----------|-----------|-----------|-----------|
| N. S. Wales  | 189,000 | 349,000   | 499,000   | 742,000   | 1,086,000 |
| Victoria . . | 76,000  | 538,000   | 727,000   | 860,000   | 1,091,000 |
| S. Australia | 99,000  | 124,000   | 184,000   | 268,000   | 313,000   |
| Tasmania . . | 70,000  | 88,000    | 101,000   | 115,000   | 146,000   |
| New Zealand  | 63,000  | 79,000    | 248,000   | 485,000   | 607,000   |
| Queensland   | ...     | 28,000    | 116,000   | 226,000   | 387,000   |
| W. Australia | 13,000  | 16,000    | 25,000    | 29,000    | 42,000    |
| Total . . .  | 510,000 | 1,222,000 | 1,900,000 | 2,725,000 | 3,672,000 |



Mr. Coghlan compares 1860 and 1888, to show the natural increase from excess of births over deaths, and the net immigration into each Colony in that interval, viz. :-

|                        | 1860-1888        |             |                |
|------------------------|------------------|-------------|----------------|
|                        | Natural Increase | Immigration | Total Increase |
| New South Wales . . .  | 415,000          | 322,000     | 737,000        |
| Victoria . . . . .     | 431,000          | 122,000     | 553,000        |
| South Australia . . .  | 150,000          | 39,000      | 189,000        |
| Tasmania . . . . .     | 53,000           | 5,000       | 58,000         |
| New Zealand . . . . .  | 262,000          | 266,000     | 528,000        |
| Queensland . . . . .   | 103,000          | 256,000     | 359,000        |
| West Australia . . . . | 13,000           | 13,000      | 26,000         |
| Total . . . . .        | 1,427,000        | 1,023,000   | 2,450,000      |

The Census of 1881 showed the population to be compared thus :-

|            | Total | N. S. Wales | Victoria | South Australia | Tasmania | New Zealand | Queensland | Western Australia |
|------------|-------|-------------|----------|-----------------|----------|-------------|------------|-------------------|
| Australian | 60.8  | 62.2        | 57.9     | 59.8            | 69.1     | 45.6        | 40.4       | 59.8              |
| English    | 18.2  | 14.7        | 17.1     | 21.1            | 15.0     | 24.7        | 17.5       | 22.8              |
| Irish      | 9.6   | 9.2         | 10.1     | 6.5             | 6.2      | 10.1        | 13.3       | 10.0              |
| Scotch     | 5.5   | 3.3         | 5.6      | 3.8             | 3.2      | 10.8        | 4.6        | 2.5               |
| Various    | 5.9   | 10.6        | 9.3      | 8.8             | 6.5      | 8.8         | 24.2       | 4.9               |
| Total      | 100.0 | 100.0       | 100.0    | 100.0           | 100.0    | 100.0       | 100.0      | 100.0             |

The ratio of sexes since 1861 showed as follows :-

|         | Number    |           |           | Ratio |       |       |
|---------|-----------|-----------|-----------|-------|-------|-------|
|         | 1861      | 1871      | 1887      | 1861  | 1871  | 1887  |
| Males   | 731,000   | 1,094,000 | 1,929,000 | 576   | 552   | 543   |
| Females | 536,000   | 885,000   | 1,622,000 | 424   | 448   | 457   |
| Total   | 1,267,000 | 1,979,000 | 3,551,000 | 1,000 | 1,000 | 1,000 |

The disparity of the sexes is diminishing year by year. It is nevertheless more remarkable in some of the Colonies than in others, the figures for 1887 being as follows :-

|                   | Males     | Females   | Females to 100 Males |
|-------------------|-----------|-----------|----------------------|
| New South Wales   | 574,000   | 469,000   | 82                   |
| Victoria          | 550,000   | 486,000   | 88                   |
| South Australia   | 165,000   | 152,000   | 92                   |
| Western Australia | 24,000    | 17,000    | 71                   |
| Tasmania          | 76,000    | 66,000    | 88                   |
| New Zealand       | 325,000   | 279,000   | 86                   |
| Queensland        | 215,000   | 153,000   | 74                   |
| Total             | 1,929,000 | 1,622,000 | 84                   |

Mr. Coghlan gives the male population of working age (20 to 60) in the seven Colonies as follows :-

|                         | Ratio   |
|-------------------------|---------|
| Victoria . . . . .      | 211,000 |
| New South Wales . . .   | 200,000 |
| New Zealand . . . . .   | 135,000 |
| South Australia . . . . | 74,000  |
| Queensland . . . . .    | 69,000  |
| Tasmania . . . . .      | 26,000  |
| Western Australia . . . | 9,000   |
| Total . . . . .         | 724,000 |

The population of the cities has been as follows :-

|            | 1841   | 1861    | 1871    | 1881    | 1889      |
|------------|--------|---------|---------|---------|-----------|
| Melbourne  | 4,000  | 140,000 | 207,000 | 283,000 | 458,000   |
| Sydney     | 39,000 | 94,000  | 135,000 | 224,000 | 382,000   |
| Adelaide   | 5,000  | 18,000  | 60,000  | 104,000 | 122,000   |
| Brisbane   | ...    | 6,000   | 15,000  | 31,000  | 87,000    |
| Auckland   | ...    | 10,000  | 30,000  | 50,000  | 62,000    |
| Wellington | ...    | 5,000   | 10,000  | 21,000  | 33,000    |
| Hobart     | 10,000 | 19,000  | 19,000  | 21,000  | 35,000    |
| Perth      | 2,000  | 3,000   | 5,000   | 6,000   | 9,000     |
| Total      | 60,000 | 295,000 | 481,000 | 740,000 | 1,188,000 |

There are twenty minor towns, with an aggregate population of 355,000 souls, making a total urban population of 1,543,000, or 40 per cent. of the total.

#### CANADA

The population of Canada, including Nova Scotia, Newfoundland, &c., has been as follows :-

| Year | Population | Year | Population | Year | Population |
|------|------------|------|------------|------|------------|
| 1665 | 3,200      | 1800 | 476,000    | 1860 | 3,360,000  |
| 1695 | 13,700     | 1820 | 840,000    | 1870 | 3,830,000  |
| 1726 | 29,400     | 1830 | 910,000    | 1880 | 4,500,000  |
| 1736 | 39,000     | 1840 | 1,690,000  | 1887 | 5,020,000  |

The Census of 1881 showed the population of Canada thus :-

|                  | Number    | Ratio |
|------------------|-----------|-------|
| French Canadians | 1,209,000 | 30.0  |
| Irish            | 957,000   | 22.2  |
| English          | 881,000   | 20.4  |
| Scotch           | 700,000   | 16.2  |
| Germans          | 254,000   | 5.9   |
| Indians          | 109,000   | 2.5   |
| Various          | 125,000   | 3.0   |
| Total            | 4,325,000 | 100.0 |
| Males            | 2,189,000 | 506   |
| Females          | 2,136,000 | 494   |
| Total            | 4,325,000 | 1,000 |

#### MEXICO

The Census of 1882 showed as follows :-

| Sex               | Ratio      | Race                | Ratio      |
|-------------------|------------|---------------------|------------|
| Males . . . . .   | 5,070,000  | White . . . . .     | 1,980,000  |
| Females . . . . . | 5,375,000  | Indian, &c. . . . . | 8,465,000  |
| Total             | 10,445,000 | Total               | 10,445,000 |

The city of Mexico has 350,000, Puebla 112,000 inhabitants. An official return in 1837 gave the population of Mexico as 7,557,000, and another in 1857 as 7,995,000.

#### CHILE

According to Census returns the population was :-

|      |           |
|------|-----------|
| 1865 | 1,811,000 |
| 1875 | 2,076,000 |
| 1885 | 2,548,000 |

The Census of 1885 was as follows :-

|                   | Ratio     |
|-------------------|-----------|
| Males . . . . .   | 1,284,000 |
| Females . . . . . | 1,264,000 |
| Total             | 2,548,000 |

Santiago had 189,000, Valparaiso 105,000 inhabitants. There were 87,000 foreign residents, including 35,000 Peruvians, 13,000 Bolivians, 7000 Germans, and 4000 Italians.

## BRAZIL

The Census of 1883 compares with that of 1872 thus :—

|                  | 1872      | 1888       |
|------------------|-----------|------------|
| Free . . . . .   | 8,420,000 | 10,684,000 |
| Slaves . . . . . | 1,511,000 | 1,319,000  |
| Total . . . . .  | 9,931,000 | 12,003,000 |

The sexes in 1872 stood as follows :—

|                   | Free      | Slaves    | Total     | Ratio |        |       |
|-------------------|-----------|-----------|-----------|-------|--------|-------|
|                   |           |           |           | Free  | Slaves | Total |
| Males . . . . .   | 4,319,000 | 805,000   | 5,124,000 | 503   | 533    | 516   |
| Females . . . . . | 4,101,000 | 706,000   | 4,807,000 | 497   | 467    | 484   |
| Total . . . . .   | 8,420,000 | 1,511,000 | 9,931,000 | 1,000 | 1,000  | 1,000 |

In 1872 there were 244,000 foreign residents, including 121,000 Portuguese, 46,000 Germans, besides Italians, French, &c.

The population was classified thus :—

|                            |           | Ratio |
|----------------------------|-----------|-------|
| Europeans . . . . .        | 244,000   | 2.5   |
| White Brazilians . . . . . | 3,543,000 | 35.7  |
| Mulattoes . . . . .        | 3,802,000 | 38.2  |
| Negroes . . . . .          | 1,954,000 | 19.6  |
| Indians . . . . .          | 388,000   | 4.0   |
| Total . . . . .            | 9,931,000 | 100.0 |

## ARGENTINA

The population has trebled in thirty years, viz. :—

|                           | 1867      | 1869      | 1886      |
|---------------------------|-----------|-----------|-----------|
| Buenos Ayres . . . . .    | 277,000   | 495,000   | 1,085,000 |
| Upper Provinces . . . . . | 883,000   | 1,342,000 | 2,009,000 |
| Total . . . . .           | 1,160,000 | 1,837,000 | 3,094,000 |

Estimates for 1886 compare with the Census returns of 1869 as follows :—

|                             | Number    |           | Ratio |       |
|-----------------------------|-----------|-----------|-------|-------|
|                             | 1869      | 1886      | 1869  | 1886  |
| Italians . . . . .          | 71,000    | 530,000   | 3.8   | 17.1  |
| French . . . . .            | 32,000    | 120,000   | 1.8   | 3.9   |
| Spaniards . . . . .         | 34,000    | 140,000   | 1.9   | 4.5   |
| British and Irish . . . . . | 11,000    | 30,000    | 0.6   | 1.0   |
| Germans, Swiss, &c. . . . . | 64,000    | 100,000   | 3.5   | 3.2   |
| Argentines . . . . .        | 1,625,000 | 2,174,000 | 88.4  | 70.3  |
| Total . . . . .             | 1,837,000 | 3,094,000 | 100.0 | 100.0 |

In 1869 the sexes stood thus :—

|                   | Ratio     |
|-------------------|-----------|
| Males . . . . .   | 858,000   |
| Females . . . . . | 846,000   |
| Total . . . . .   | 1,744,000 |

In 1886 the population appears to have been composed as follows :—

|                                | Ratio     |
|--------------------------------|-----------|
| Europeans . . . . .            | 920,000   |
| Children of settlers . . . . . | 1,250,000 |
| Argentines . . . . .           | 924,000   |
| Total . . . . .                | 3,094,000 |

A Census taken in the city of Buenos Ayres in 1887 showed 435,000 inhabitants, against 178,000 in 1869.

## CHINA

According to different authorities we find as follows :—

| Year           | Population  | Year           | Population  |
|----------------|-------------|----------------|-------------|
| 1736 . . . . . | 125,046,000 | 1812 . . . . . | 360,280,000 |
| 1792 . . . . . | 307,467,000 | 1877 . . . . . | 381,600,000 |

Probably the figures for 1736 were much too low, or applied only to a part of the Empire. The population of eight cities in 1877 was stated thus :—

|                    |           |                      |         |
|--------------------|-----------|----------------------|---------|
| Pekin . . . . .    | 1,600,000 | Shanghai . . . . .   | 355,000 |
| Canton . . . . .   | 1,600,000 | Ningpo . . . . .     | 240,000 |
| Tientsin . . . . . | 950,000   | Takao . . . . .      | 235,000 |
| Hankow . . . . .   | 750,000   | Tchinkiang . . . . . | 135,000 |
| Foochoo . . . . .  | 630,000   |                      |         |

The number of foreign residents is only 6000, of whom 2500 are British, 800 Americans, 600 Germans, and 400 French.

The occupations of the natives are as follows :—

| Per 1000 of the Population |     |                       |     |
|----------------------------|-----|-----------------------|-----|
| Agriculture . . . . .      | 100 | Bricklayers . . . . . | 10  |
| Washing . . . . .          | 10  | Carpenters . . . . .  | 10  |
|                            |     | Blacksmiths . . . . . | 7   |
|                            |     | Sundry . . . . .      | 863 |

## JAPAN

The Census of 1888 showed as follows :—

|                   | Ratio      |
|-------------------|------------|
| Males . . . . .   | 20,008,000 |
| Females . . . . . | 19,599,000 |
| Total . . . . .   | 39,607,000 |

There were 7,803,600 houses, and 7,420,000 married couples.

The principal cities are as follows :—

|                 | Population |                  | Population |
|-----------------|------------|------------------|------------|
| Tokio . . . . . | 903,000    | Kioto . . . . .  | 255,000    |
| Osaka . . . . . | 353,000    | Nagoya . . . . . | 127,000    |

There are 3000 foreign residents including 1400 British and 600 Americans.

## POST-OFFICE

The total traffic in 1888 may be approximately summed up thus :—

|                            | Millions          |             |        | Postal Revenue, £ |
|----------------------------|-------------------|-------------|--------|-------------------|
|                            | Letters and Cards | Papers, &c. | Total  |                   |
| United Kingdom . . . . .   | 1,759             | 542         | 2,363  | 11,200,000        |
| Continent . . . . .        | 3,727             | 3,147       | 6,874  | 31,200,000        |
| United States . . . . .    | 2,300             | 4,728       | 7,028  | 11,700,000        |
| South America . . . . .    | 125               | 105         | 230    | 1,100,000         |
| British Colonies . . . . . | 570               | 210         | 780    | 3,200,000         |
| Various . . . . .          | 146               | 27          | 173    | 700,000           |
| Total . . . . .            | 8,569             | 8,759       | 17,448 | 59,100,000        |

In the above postal revenue are included, moreover, the receipts for telegraphic service, except in the case of the United States and those other countries where the telegraphs are mostly owned by companies.

Postal traffic increased 95 per cent. in seven years, viz. :—

|                            | Millions of Letters, Papers, &c. |        |
|----------------------------|----------------------------------|--------|
|                            | 1881                             | 1888   |
| United Kingdom . . . . .   | 1,682                            | 2,363  |
| Continental . . . . .      | 4,536                            | 6,874  |
| United States . . . . .    | 2,243                            | 7,028  |
| British Colonies . . . . . | 287                              | 780    |
| South America . . . . .    | 54                               | 230    |
| Various . . . . .          | 86                               | 173    |
| Total . . . . .            | 8,888                            | 17,448 |

The following table gives a general view of the traffic in 1888, or latest year published:—

|             | Millions |       |        |          |        | Average per Inhabitant | Postal Revenue, £ |
|-------------|----------|-------|--------|----------|--------|------------------------|-------------------|
|             | Letters  | Cards | Papers | Sundries | Total  |                        |                   |
| U. Kingdom  | 1,558    | 201   | 152    | 452      | 2,363  | 60                     | 11,200,000        |
| France      | 672      | 41    | 402    | 408      | 1,523  | 39                     | 6,500,000         |
| Germany     | 956      | 296   | 725    | 511      | 2,488  | 53                     | 11,400,000        |
| Russia      | 153      | 18    | 106    | 49       | 326    | 4                      | 2,600,000         |
| Austria     | 611      | 122   | 147    | 80       | 960    | 24                     | 4,000,000         |
| Italy       | 178      | 48    | 181    | 69       | 476    | 16                     | 2,300,000         |
| Spain       | 102      | 1     | 21     | ...      | 124    | 7                      | ...               |
| Portugal    | 20       | 3     | 17     | ...      | 40     | 9                      | ...               |
| Sweden      | 60       | ...   | 46     | ...      | 106    | 22                     | 340,000           |
| Norway      | 18       | 1     | 16     | 3        | 38     | 19                     | 190,000           |
| Denmark     | 42       | ...   | 4      | 4        | 50     | 25                     | 380,000           |
| Holland     | 66       | 27    | 83     | 4        | 180    | 40                     | 600,000           |
| Belgium     | 107      | 27    | 96     | 60       | 290    | 49                     | 750,000           |
| Switzerland | 105      | 17    | 80     | 19       | 221    | 74                     | ...               |
| Greece      | 6        | ...   | 6      | ...      | 12     | 6                      | 30,000            |
| Roumania    | 16       | 3     | 6      | ...      | 25     | 5                      | 180,000           |
| Servia      | 8        | ...   | 1      | ...      | 9      | 4                      | 30,000            |
| Bulgaria    | 3        | ...   | 2      | 1        | 6      | 2                      | 20,000            |
| Europe      | 4,681    | 805   | 2,091  | 1,660    | 9,237  | 25                     | ...               |
| U. States   | 2,300    | ...   | 1,500  | 3,228    | 7,028  | 110                    | 11,700,000        |
| Canada      | 93       | 19    | 66     | 21       | 199    | 40                     | 620,000           |
| Mexico      | 13       | ...   | 25     | ...      | 38     | 4                      | ...               |
| Venezuela   | 4        | ...   | ...    | ...      | 4      | 2                      | ...               |
| Peru        | 2        | ...   | ...    | ...      | 2      | 1                      | ...               |
| Chili       | 41       | ...   | ...    | ...      | 41     | 14                     | ...               |
| Argentina   | 40       | ...   | 37     | ...      | 77     | 20                     | ...               |
| Uruguay     | 6        | ...   | 14     | ...      | 20     | 30                     | ...               |
| Brazil      | 18       | 1     | 29     | ...      | 48     | 4                      | 200,000           |
| America     | 2,517    | 20    | 1,671  | 3,249    | 7,457  | 75                     | ...               |
| Australia   | 175      | ...   | 95     | 24       | 294    | 82                     | 1,200,000         |
| India       | 274      | ...   | ...    | ...      | 274    | 1                      | 1,200,000         |
| Japan       | 77       | 40    | 18     | 2        | 137    | 4                      | 400,000           |
| Java        | 5        | ...   | 3      | ...      | 8      | ...                    | ...               |
| Persia      | 2        | ...   | ...    | ...      | 2      | ...                    | ...               |
| Egypt       | 13       | ...   | 4      | ...      | 17     | 3                      | 90,000            |
| Algeria     | 10       | ...   | ...    | ...      | 10     | 3                      | ...               |
| Cape Colony | 8        | ...   | 4      | ...      | 12     | 11                     | 150,000           |
| The World   | 7,762    | 865   | 3,886  | 4,935    | 17,448 | 25                     | ...               |

In the preceding table post-cards are in many cases included with letters. As regards the United States, the official table gives no more than the total of letters, papers, and parcels, but the figures given above may be taken as a fair estimate, the returns for 1881 having shown 1155 million letters and cards and 761 million newspapers.

A summary of postal traffic in Europe in 1883 was published at Florence in 1885, which compares with the figures given above for 1888 as follows:—

| Year | Millions |       |        |          |       | Postal Revenue, £ |
|------|----------|-------|--------|----------|-------|-------------------|
|      | Letters  | Cards | Papers | Sundries | Total |                   |
| 1883 | 3,683    | 546   | 1,672  | 1,046    | 6,947 | 38,150,000        |
| 1888 | 4,681    | 805   | 2,091  | 1,660    | 9,237 | 42,500,000        |

In 1883 there were in Europe 65,500 post-offices, 41,150 telegraph offices, and 225,000 letter-boxes. The postal service employed 356,000 men, and carried (Europe only) 800,000 tons of letters, papers, &c., according to the Florentine writer. In 1879 there were, says Fischer, 70 regular lines of mail-steamers, 26 British, 11 German, 11 French, 6 Dutch, 6 American, 5 Italian, and 5 Austrian. The amount represented by money orders transmitted through countries of the Postal Union in 1887 was 480

millions sterling; the value of goods sent through the parcel-post, 540 millions sterling.

Telegraphs have increased in late years with great rapidity, as shown thus:—

|                  | Miles  |         |         | Messages, Millions |      |
|------------------|--------|---------|---------|--------------------|------|
|                  | 1858   | 1870    | 1888    | 1870               | 1888 |
| United Kingdom   | 10,000 | 24,000  | 30,700  | 10                 | 58   |
| France           | 8,000  | 25,600  | 58,500  | 6                  | 28   |
| Germany          | 9,500  | 20,400  | 57,700  | 9                  | 24   |
| Russia           | 5,000  | 29,200  | 92,700  | 3                  | 11   |
| Austria          | 6,500  | 22,000  | 38,200  | 5                  | 13   |
| Italy            | 2,500  | 11,100  | 21,100  | 2                  | 9    |
| Spain & Portugal | 1,000  | 9,000   | 14,700  | 2                  | 5    |
| Scandinavia      | 2,400  | 9,000   | 14,500  | 2                  | 5    |
| Holland          | 700    | 1,700   | 3,100   | 2                  | 4    |
| Belgium          | 900    | 2,700   | 4,200   | 2                  | 7    |
| Switzerland      | 1,600  | 3,200   | 4,400   | 2                  | 3    |
| Roumania, &c.    | 300    | 8,400   | 28,200  | 1                  | 3    |
| Europe           | 48,400 | 166,300 | 368,000 | 46                 | 170  |
| United States    | 35,000 | 54,100  | 200,000 | 9                  | 57   |
| Canada           | 5,000  | 8,000   | 29,500  | 1                  | 4    |
| South America    | 5,000  | 17,000  | 61,500  | 3                  | 11   |
| Australia        | 1,600  | 15,000  | 39,200  | 2                  | 11   |
| India            | 4,800  | 14,500  | 31,900  | 1                  | 3    |
| Japan            | ...    | ...     | 6,200   | ...                | 3    |
| Java             | ...    | ...     | 6,600   | ...                | 1    |
| Persia           | ...    | ...     | 3,800   | ...                | 1    |
| Egypt            | ...    | 3,100   | 6,500   | ...                | 1    |
| Algeria          | ...    | 2,000   | 6,700   | ...                | 2    |
| Cape Colony      | ...    | 600     | 4,400   | ...                | 1    |
| Various          | ...    | 400     | 3,500   | ...                | 1    |
| The World        | 99,800 | 281,000 | 767,800 | 62                 | 266  |

The following is the summary of a report published in 1886 on the progress of telegraphs in Europe only, from 1860 to 1885:—

| Year | Miles   | Offices | Messages    |
|------|---------|---------|-------------|
| 1860 | 78,000  | 3,500   | 9,000,000   |
| 1865 | 110,000 | 7,800   | 21,000,000  |
| 1870 | 170,000 | 13,400  | 39,000,000  |
| 1875 | 210,000 | 26,100  | 79,000,000  |
| 1880 | 260,000 | 34,000  | 90,000,000  |
| 1885 | 315,000 | 45,000  | 118,000,000 |

The number of messages for 1870 is too low; perhaps official messages were not counted; but even this would not wholly explain the deficit. According to Mr. Preece, the telegraph system of the world in 1886 was summed up thus:—

|                   | Miles   | Cost, £    |
|-------------------|---------|------------|
| Land lines        | 714,000 | 51,700,000 |
| Company cables    | 107,550 | 36,000,000 |
| Government cables | 12,520  | 3,700,000  |
| Total             | 834,070 | 91,400,000 |

In 1888 the mileage was considerably higher, and at the value expressed above would stand thus:—

|            | Miles   | Cost, £    |
|------------|---------|------------|
| Land lines | 768,000 | 55,500,000 |
| 950 cables | 132,000 | 44,000,000 |
| Total      | 900,000 | 99,500,000 |

Mr. Preece shows that the maximum speed of transmission has been thus :—

| Year           | Words per Minute |
|----------------|------------------|
| 1870 . . . . . | 80               |
| 1880 . . . . . | 200              |
| 1885 . . . . . | 350              |
| 1887 . . . . . | 600              |

Six messages can now go on one wire simultaneously.

The time occupied in sending a message from London to various parts of the world is as follows :—

| To               | Minutes | To                  | Minutes |
|------------------|---------|---------------------|---------|
| Egypt . . . . .  | 20      | China . . . . .     | 120     |
| Bombay . . . . . | 50      | Australia . . . . . | 160     |

The following table shows the number of post and telegraph offices, of employees, the average receipt on each telegram, and on every 100 letters or papers sent :—

|                       | Post-Offices | Telegraph Offices | Em-<br>ployees | Tele-<br>grams | Per 100<br>Letters,<br>&c. |
|-----------------------|--------------|-------------------|----------------|----------------|----------------------------|
|                       | 1888         | 1888              | 1881           | Pence          | Pence                      |
| U. Kingdom            | 17,800       | 7,030             | 74,000         | 8              | 88                         |
| France . . . . .      | 6,930        | 8,000             | 49,000         | 9              | 88                         |
| Germany . . . . .     | 20,660       | 13,400            | 79,000         | 12             | 82                         |
| Russia . . . . .      | 5,430        | 3,780             | 15,000         | 22             | 111                        |
| Austria . . . . .     | 8,670        | 5,240             | 19,000         | 12             | 87                         |
| Italy . . . . .       | 5,300        | 4,060             | 16,000         | 16             | 86                         |
| Spain . . . . .       | 3,070        | 950               | 7,400          | 16             | ...                        |
| Portugal . . . . .    | 1,640        | 275               | 1,300          | 10             | ...                        |
| Scandinavia . . . . . | 3,770        | 1,560             | 5,700          | 11             | 67                         |
| Holland . . . . .     | 1,650        | 600               | 4,100          | 6              | 66                         |
| Belgium . . . . .     | 820          | 1,530             | 4,400          | 4              | 52                         |
| Switzerland . . . . . | 815          | 1,330             | 5,700          | 10             | ...                        |
| Greece . . . . .      | 250          | 170               | 200            | 9              | 66                         |
| Roumania . . . . .    | 300          | 360               | 1,400          | ...            | 122                        |
| Bulgaria . . . . .    | 110          | 106               | 400            | ...            | 80                         |
| Servia . . . . .      | 90           | 118               | 400            | ...            | 77                         |
| Turkey . . . . .      | 1,150        | 670               | ...            | ...            | ...                        |
| Europe . . . . .      | 79,455       | 49,179            | 283,000        | 11             | 82                         |
| U. States . . . . .   | 59,000       | 19,700            | ...            | 19             | 40                         |
| Canada . . . . .      | 7,840        | 2,230             | ...            | ...            | 72                         |
| Australia . . . . .   | 5,610        | 1,750             | ...            | 15             | 50                         |
| India . . . . .       | 16,970       | 750               | ...            | 7              | 110                        |
| Japan . . . . .       | 4,800        | 230               | ...            | 12             | 55                         |
| Total . . . . .       | 173,675      | 73,839            | ...            | ...            | ...                        |

## UNITED KINGDOM

The importance of the post-office at successive dates may be judged by its receipts, viz. :—

| Year           | Receipts, £ | Pence<br>per Inhabitant |
|----------------|-------------|-------------------------|
| 1663 . . . . . | 22,000      | 1                       |
| 1685 . . . . . | 65,000      | 3                       |
| 1707 . . . . . | 111,000     | 5                       |
| 1744 . . . . . | 235,000     | 7                       |
| 1790 . . . . . | 480,000     | 12                      |
| 1835 . . . . . | 2,353,000   | 22                      |
| 1889 . . . . . | 10,340,000  | 66                      |

The following were the charges on letters at three distinct epochs :—

| London to             | Pence |      |      |
|-----------------------|-------|------|------|
|                       | 1645  | 1835 | 1889 |
| York . . . . .        | 6     | 11   | 1    |
| Edinburgh . . . . .   | 8     | 13   | 1    |
| Dublin . . . . .      | ...   | 16   | 1    |
| Madrid . . . . .      | ...   | 26   | 2½   |
| New York . . . . .    | ...   | 26   | 2½   |
| Rio Janeiro . . . . . | ...   | 42   | 4    |

The inland postal tariff from 1710 to 1840 was as follows :—

| Miles              | Pence |      |         |
|--------------------|-------|------|---------|
|                    | 1710  | 1783 | 1812-40 |
| Under 15 . . . . . | 3     | 2    | 4       |
| 15-30 . . . . .    | 3     | 3    | 5       |
| 30-50 . . . . .    | 3     | 4    | 7       |
| 50-80 . . . . .    | 3     | 4    | 8       |
| 80-120 . . . . .   | 4     | 5    | 9       |
| Over 120 . . . . . | 4     | 6    | 10-16   |

The number of letters yearly passing through the United Kingdom was :—

| Year              | Millions Yearly Average |          |         |       |
|-------------------|-------------------------|----------|---------|-------|
|                   | England                 | Scotland | Ireland | Total |
| 1839 . . . . .    | 65                      | 8        | 9       | 82    |
| 1841-45 . . . . . | 179                     | 24       | 24      | 227   |
| 1851-55 . . . . . | 330                     | 41       | 39      | 410   |
| 1861-65 . . . . . | 534                     | 61       | 53      | 648   |
| 1871-75 . . . . . | 772                     | 85       | 68      | 925   |
| 1881-85 . . . . . | 1,082                   | 116      | 85      | 1,283 |
| 1889 . . . . .    | 1,327                   | 136      | 95      | 1,558 |

The annual number of letters was about 1,500,000 under Charles II., 8,000,000 under George II., and 20,000,000 at the beginning of the wars with Bonaparte.

In 1881 the number of letters, papers, &c., which passed through the British post-office was 1682 millions, viz. :—

|                              | Millions of Letters,<br>Papers, &c. |         |       | Ratio |
|------------------------------|-------------------------------------|---------|-------|-------|
|                              | Received<br>from                    | Sent to | Total |       |
| United Kingdom . . . . .     | 1,526                               | 1,526   | 1,526 | 90.7  |
| America . . . . .            | 22                                  | 22      | 44    | 2.6   |
| European Continent . . . . . | 37                                  | 44      | 81    | 4.8   |
| The East . . . . .           | 4                                   | 9       | 13    | 0.8   |
| Australia . . . . .          | 4                                   | 6       | 10    | 0.6   |
| Africa . . . . .             | 2                                   | 6       | 8     | 0.5   |
| Total . . . . .              | 1,595                               | 1,613   | 1,682 | 100.0 |

The following table, comparing the number of letters in the United Kingdom and France, was published in 1882 :—

| Period            | Annual Average,<br>Millions |        | Number per Inha-<br>bitant |        |
|-------------------|-----------------------------|--------|----------------------------|--------|
|                   | U. Kingdom                  | France | U. Kingdom                 | France |
| 1841-50 . . . . . | 277                         | 122    | 10                         | 4      |
| 1851-60 . . . . . | 466                         | 210    | 17                         | 6      |
| 1861-70 . . . . . | 724                         | 340    | 24                         | 9      |
| 1881 . . . . .    | 1,299                       | 595    | 37                         | 16     |

The letters and papers despatched from the United Kingdom in 1888 showed this ratio :—

| To                      |       |
|-------------------------|-------|
| France . . . . .        | 21.3  |
| United States . . . . . | 19.4  |
| Germany . . . . .       | 16.7  |
| Colonies . . . . .      | 16.4  |
| Various . . . . .       | 26.2  |
| Total . . . . .         | 100.0 |

In nine years the postal traffic rose 50 per cent., viz. :—

|                    | 1880     | 1889     |
|--------------------|----------|----------|
|                    | Millions | Millions |
| Letters . . . . .  | 1,128    | 1,558    |
| Cards . . . . .    | 114      | 201      |
| Books, &c. . . . . | 214      | 452      |
| Papers . . . . .   | 131      | 152      |
| Total . . . . .    | 1,587    | 2,363    |

In 1889 the British post-office left a net profit of £3,000,000, against £400,000 in 1855 and £1,800,000 in 1875.

The telegraphs showed as follows :—

| Year           | Miles of Wire | Stations | Messages   |
|----------------|---------------|----------|------------|
| 1851 . . . . . | 7,303         | 108      | 48,000     |
| 1862 . . . . . | 57,879        | 1,616    | 2,676,000  |
| 1872 . . . . . | 87,719        | 5,179    | 15,502,000 |
| 1881 . . . . . | 121,052       | 5,637    | 31,345,000 |
| 1889 . . . . . | 183,500       | 7,030    | 58,000,000 |

The following table shows the increase, in ten years, in letters and telegrams for the three kingdoms :—

|                          | Letters, Millions |       | Letters per Inhab. |      |
|--------------------------|-------------------|-------|--------------------|------|
|                          | 1879              | 1889  | 1879               | 1889 |
| England . . . . .        | 922               | 1,327 | 37                 | 46   |
| Scotland . . . . .       | 99                | 136   | 27                 | 33   |
| Ireland . . . . .        | 76                | 95    | 14                 | 20   |
| United Kingdom . . . . . | 1,097             | 1,558 | 32                 | 41   |

|                      | Telegrams  |            | Per Inhab. |      |
|----------------------|------------|------------|------------|------|
|                      | 1879       | 1889       | 1879       | 1889 |
| England . . . . .    | 20,400,000 | 48,500,000 | 0.8        | 1.7  |
| Scotland . . . . .   | 2,500,000  | 6,000,000  | 0.7        | 1.5  |
| Ireland . . . . .    | 1,600,000  | 3,200,000  | 0.3        | 0.7  |
| U. Kingdom . . . . . | 24,500,000 | 57,700,000 | 0.7        | 1.5  |

The number and amount of postal and money orders issued in the United Kingdom were as follows :—

| Year           | Number     | Amount, £  |
|----------------|------------|------------|
| 1880 . . . . . | 17,300,000 | 26,400,000 |
| 1889 . . . . . | 50,800,000 | 42,700,000 |

The parcel post, begun in 1883, showed as follows :—

| Year           | Number     | Weight, Tons | Receipts, £ | £ per Ton | Paid to Railways, £ |
|----------------|------------|--------------|-------------|-----------|---------------------|
| 1884 . . . . . | 22,100,000 | 19,700       | 490,000     | 25        | 250,000             |
| 1888 . . . . . | 38,800,000 | 40,900       | 860,000     | 21        | 425,000             |

Official returns of postal revenue and expenditure show as follows :—

| Period             | Revenue, £  | Expenditure, £ | Profit, £  |
|--------------------|-------------|----------------|------------|
| 1865-69 . . . . .  | 22,200,000  | 15,400,000     | 6,800,000  |
| 1870-74 . . . . .  | 28,000,000  | 21,000,000     | 7,000,000  |
| 1875-79 . . . . .  | 36,400,000  | 25,400,000     | 11,000,000 |
| 1880-84 . . . . .  | 43,200,000  | 29,100,000     | 14,100,000 |
| 1885-89 . . . . .  | 51,700,000  | 38,800,000     | 12,900,000 |
| 25 years . . . . . | 181,500,000 | 129,700,000    | 51,800,000 |

In 1889 the accounts stood thus :—

|                       | Receipts, £ | Expenses, £ | Profit, £ |
|-----------------------|-------------|-------------|-----------|
| Post-office . . . . . | 9,100,000   | 6,300,000   | 2,800,000 |
| Telegraphs . . . . .  | 2,100,000   | 1,950,000   | 150,000   |
| Total . . . . .       | 11,200,000  | 8,250,000   | 2,950,000 |

#### FRANCE

The official returns are as follows :—

| Year           | Millions |             |       | Receipts, £ |
|----------------|----------|-------------|-------|-------------|
|                | Letters  | Papers, &c. | Total |             |
| 1830 . . . . . | 64       | 40          | 104   | 1,200,000   |
| 1840 . . . . . | 94       | 53          | 147   | 1,600,000   |
| 1850 . . . . . | 160      | 94          | 254   | 1,500,000   |
| 1860 . . . . . | 264      | 179         | 443   | 2,400,000   |
| 1870 . . . . . | 281      | 348         | 629   | 2,600,000   |
| 1880 . . . . . | 531      | 700         | 1,231 | 4,300,000   |
| 1887 . . . . . | 671      | 852         | 1,523 | 6,500,000   |

The receipts of course include the telegraph department, of which we have the following :—

| Year           | Miles  | Messages   | Receipts, £ | Pence per Message |
|----------------|--------|------------|-------------|-------------------|
| 1851 . . . . . | 1,200  | 9,000      | 3,000       | 80                |
| 1860 . . . . . | 14,700 | 720,000    | 168,000     | 56                |
| 1870 . . . . . | 25,600 | 5,660,000  | 380,000     | 16                |
| 1880 . . . . . | 40,200 | 17,100,000 | 930,000     | 13                |
| 1887 . . . . . | 58,500 | 27,900,000 | 1,060,000   | 9                 |

The above does not include railway telegraphic service. In 1885 the railways had 21,000 miles of telegraphs, which carried 6,500,000 messages. This makes the total 80,000 miles, 34,500,000 messages.

The parcel-post was instituted in 1880, in which year 4,000,000 parcels were carried; in 1888 more than 21 millions. In nine years the total carried was 131 million parcels, which paid £3,550,000, averaging 6d. each. Money orders in 1887 were issued to the number of 22,600,000, the aggregate amount being £28,500,000, being an average of 25s. each. France has 6932 post-offices and 58,500 letter-boxes.

#### GERMANY

Official returns give the number of letters thus :—

| Year           | Millions | Per Inhabitant |
|----------------|----------|----------------|
| 1871 . . . . . | 339      | 85             |
| 1877 . . . . . | 717      | 160            |
| 1888 . . . . . | 956      | 200            |

The total traffic of 1888 compares with that of 1881 as follows :—

|                             | 1881     | 1888     |
|-----------------------------|----------|----------|
|                             | Millions | Millions |
| Letters and cards . . . . . | 721      | 1,252    |
| Newspapers . . . . .        | 452      | 725      |
| Sundries . . . . .          | 126      | 511      |
| Total . . . . .             | 1,299    | 2,488    |

In 1888 the amount transmitted in 74 million money orders was £933,600,000, or about 3 millions sterling daily. The postal and telegraph services earned £11,350,000; expenditure £9,800,000; net profit

£1,550,000. Telegraphic service has grown as follows, viz. :—

|            | Miles  | Messages   | Receipts, £ | Pence per Message |
|------------|--------|------------|-------------|-------------------|
| 1870 . . . | 20,400 | 8,600,000  | 390,000     | 11                |
| 1880 . . . | 44,100 | 17,200,000 | 850,000     | 12                |
| 1888 . . . | 57,700 | 24,100,000 | 1,200,000   | 12                |

The number of postal and telegraph servants in 1886 was 98,000, the weight of goods carried by parcel-post 404,000 tons.

## RUSSIA

The returns for 1887 compare with those for 1881 thus :—

|                  | 1881        | 1887        |
|------------------|-------------|-------------|
| Letters . . .    | 110,000,000 | 152,600,000 |
| Newspapers . . . | 75,000,000  | 106,200,000 |
| Sundries . . .   | 7,000,000   | 66,900,000  |
| Total . . .      | 192,000,000 | 325,700,000 |

Besides the railways and canals, there are 110,000 miles of mail-coach roads, on which the State maintains 47,000 horses at various posting-stations. The post-office in 1887 transmitted money orders to the number of 11,300,000, and value of 390 millions sterling, an average of £34 each. The growth of telegraphs has been as follows :—

| Year       | Miles  | Messages   | Receipts, £ | Pence per Message |
|------------|--------|------------|-------------|-------------------|
| 1870 . . . | 29,200 | 2,700,000  | 300,000     | 26                |
| 1880 . . . | 58,800 | 7,300,000  | 770,000     | 25                |
| 1887 . . . | 92,700 | 10,500,000 | 950,000     | 22                |

There are 3780 telegraph offices. In the years 1884–87 the annual averages for postal and telegraph services were :—

|                       |             |
|-----------------------|-------------|
| Receipts . . . . .    | £ 2,550,000 |
| Expenditure . . . . . | 2,470,000   |

Leaving a net profit of £80,000 a year.

## AUSTRIA

Official returns are as follows :—

| Year       | Letters and Papers, Millions |         |       |
|------------|------------------------------|---------|-------|
|            | Austria                      | Hungary | Total |
| 1850 . . . | 42                           | ...     | ...   |
| 1860 . . . | 60                           | ...     | ...   |
| 1870 . . . | 194                          | 57      | 251   |
| 1880 . . . | 399                          | 135     | 534   |
| 1888 . . . | 730                          | 230     | 960   |

The figures for the whole Empire were made up thus in 1888 :—

|                  | Austria     | Hungary     | Total       |
|------------------|-------------|-------------|-------------|
| Letters . . .    | 484,400,000 | 126,600,000 | 611,000,000 |
| Cards . . .      | 91,200,000  | 30,800,000  | 122,000,000 |
| Newspapers . . . | 93,400,000  | 53,500,000  | 146,900,000 |
| Books, &c. . .   | 59,900,000  | 20,500,000  | 80,400,000  |
| Total . . .      | 728,900,000 | 231,400,000 | 960,300,000 |

In 1886 there were 29,200,000 postal orders transmitted, for a total value of £70,600,000, averaging 48s. each.

The progress of telegraphs is shown as follows :—

| Year       | Miles  | Messages   | Receipts, £ | Pence per Message |
|------------|--------|------------|-------------|-------------------|
| 1875 . . . | 29,300 | 6,800,000  | 320,000     | 11                |
| 1880 . . . | 30,800 | 8,300,000  | 410,000     | 12                |
| 1887 . . . | 38,200 | 13,200,000 | ...         | ...               |

The returns for 1887 showed thus :—

|                | Austria   | Hungary   | Total      |
|----------------|-----------|-----------|------------|
| Miles . . .    | 26,700    | 11,500    | 38,200     |
| Offices . . .  | 3,690     | 1,550     | 5,240      |
| Messages . . . | 9,520,000 | 3,720,000 | 13,240,000 |

The total postal and telegraph receipts and outlay were :—

|               | Receipts, £ | Outlay, £ |
|---------------|-------------|-----------|
| Austria . . . | 2,800,000   | 2,410,000 |
| Hungary . . . | 1,230,000   | 860,000   |
| Total . . .   | 4,030,000   | 3,270,000 |

## ITALY

The post-office traffic at various dates showed thus :—

| Year       | Letters     | Papers, &c. | Total       | Per Inhab. |
|------------|-------------|-------------|-------------|------------|
| 1862 . . . | 72,000,000  | 40,000,000  | 112,000,000 | 5          |
| 1871 . . . | 99,000,000  | 96,000,000  | 195,000,000 | 8          |
| 1881 . . . | 169,000,000 | 107,000,000 | 276,000,000 | 10         |
| 1887 . . . | 252,000,000 | 199,200,000 | 452,800,000 | 15         |

There are 5300 post-offices and 4060 telegraph offices. Receipts and expenses were in 1888 as follows :—

|                  | Receipts, £ | Expenses, £ |
|------------------|-------------|-------------|
| Mails . . .      | 1,700,000   | 1,400,000   |
| Telegraphs . . . | 600,000     | 520,000     |
| Total . . .      | 2,300,000   | 1,920,000   |

In 1885 there were 4,300,000 postal orders transmitted, showing an aggregate of 22 millions sterling, say £5 each. Telegraph service has grown as follows :—

| Year       | Miles  | Messages  | Receipts, £ | Pence per Message |
|------------|--------|-----------|-------------|-------------------|
| 1870 . . . | 11,100 | 2,200,000 | 200,000     | 22                |
| 1880 . . . | 16,200 | 6,100,000 | 420,000     | 16                |
| 1887 . . . | 21,100 | 8,800,000 | 560,000     | 16                |

Government lines exceed 20,000 miles, the rest belonging to companies.

## SPAIN

Official returns show the number of letters thus :—

| Year       | Letters     | Per Inhabitant |
|------------|-------------|----------------|
| 1846 . . . | 15,200,000  | 1.2            |
| 1880 . . . | 71,400,000  | 4.4            |
| 1887 . . . | 102,600,000 | 6.0            |

There are 3070 post-offices and 952 telegraph offices. There were 90,000 postal orders in 1887, representing a

# POST-OFFICE

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total of 7 millions sterling, averaging £78 each. Telegraph lines have grown as follows :—

| Year         | Miles  | Messages  | Receipts, £ | Pence per Message |
|--------------|--------|-----------|-------------|-------------------|
| 1855 . . . . | 440    | 3,000     | 5,000       | 400               |
| 1860 . . . . | 4,500  | 310,000   | 60,000      | 45                |
| 1870 . . . . | 7,200  | 1,040,000 | 60,000      | 14                |
| 1880 . . . . | 10,010 | 2,250,000 | 160,000     | 17                |
| 1887 . . . . | 11,510 | 3,550,000 | 240,000     | 16                |

Down to 1886 the construction of telegraphs had cost £700,000 sterling.

## PORTUGAL

The number of letters carried was as follows :—

| Year         | Letters    | Per Inhabitant |
|--------------|------------|----------------|
| 1878 . . . . | 12,200,000 | 3.0            |
| 1887 . . . . | 20,200,000 | 4.4            |

Telegraphs show as follows :—

| Year         | Miles | Messages  | Receipts, £ | Pence per Message |
|--------------|-------|-----------|-------------|-------------------|
| 1875 . . . . | 2,200 | 1,300,000 | 45,000      | 8                 |
| 1880 . . . . | 2,700 | 1,600,000 | 55,000      | 8                 |
| 1885 . . . . | 3,200 | 1,730,000 | 70,000      | 10                |

There are 1640 post-offices and 275 for telegraphs.

## SWEDEN AND NORWAY

The aggregate post-office traffic of the two kingdoms was as follows :—

| Year         | Letters and Papers | Per Inhabitant |
|--------------|--------------------|----------------|
| 1881 . . . . | 81,000,000         | 12             |
| 1887 . . . . | 142,000,000        | 21             |

The telegraph returns for 1888 showed thus :—

|                | Miles  | Messages  |
|----------------|--------|-----------|
| Sweden . . . . | 5,120  | 1,430,000 |
| Norway . . . . | 5,640  | 1,310,000 |
| Total . . . .  | 10,760 | 2,740,000 |

In 1886 the Norwegian post-office transmitted money orders worth 11 millions sterling. The postal finances showed thus for the two kingdoms :—

|                  | Sweden    | Norway    | Total     |
|------------------|-----------|-----------|-----------|
| Receipts . . . . | £ 340,000 | £ 185,000 | £ 525,000 |
| Expenses . . . . | 335,000   | 195,000   | 530,000   |

If we take collectively the whole telegraph system of the two countries, we find as follows :—

| Year         | Miles  | Messages  | Receipts, £ | Pence per Message |
|--------------|--------|-----------|-------------|-------------------|
| 1855 . . . . | 1,900  | 80,000    | 9,000       | 27                |
| 1860 . . . . | 4,700  | 290,000   | 40,000      | 34                |
| 1870 . . . . | 7,800  | 1,060,000 | 70,000      | 16                |
| 1880 . . . . | 9,800  | 1,770,000 | 120,000     | 16                |
| 1888 . . . . | 10,760 | 2,740,000 | 130,000     | 11                |

The above does not include Government telegrams.

# POST-OFFICE

## DENMARK

The total business in 1887 comprised :—

|                   |            |
|-------------------|------------|
| Letters . . . .   | 42,000,000 |
| Papers, &c. . . . | 45,000,000 |

Total . . . . 87,000,000

Total post-office income £380,000, expenses £470,000. Telegraphic service shows as follows :—

|              | Miles | Messages  |
|--------------|-------|-----------|
| 1870 . . . . | 1,210 | 520,000   |
| 1880 . . . . | 2,200 | 1,170,000 |
| 1887 . . . . | 3,670 | 1,500,000 |

No separate accounts of receipts are kept, being included in those of the post-office. There are 360 telegraph offices, of which 200 belong to the railway companies.

## HOLLAND

Postal traffic was as follows :—

|                           | 1884        | 1888        |
|---------------------------|-------------|-------------|
| Letters and cards . . . . | 84,300,000  | 92,700,000  |
| Papers, &c. . . .         | 73,600,000  | 86,200,000  |
| Total . . . .             | 157,900,000 | 178,900,000 |

Telegraphic service has progressed as follows :—

| Year         | Miles | Messages  | Receipts, £ | Pence per Message |
|--------------|-------|-----------|-------------|-------------------|
| 1855 . . . . | 620   | 140,000   | 13,000      | 23                |
| 1865 . . . . | 1,220 | 970,000   | 43,000      | 11                |
| 1875 . . . . | 2,140 | 2,200,000 | 62,000      | 7                 |
| 1880 . . . . | 2,370 | 3,100,000 | 85,000      | 7                 |
| 1888 . . . . | 3,100 | 4,100,000 | 100,000     | 6                 |

The above comprises only the State lines, besides which there are twenty-nine companies, but their business is small. In 1888 the finances of the post-office and telegraph service were :—

|                     | Receipts, £ | Expenses, £ |
|---------------------|-------------|-------------|
| Post-office . . . . | 500,000     | 380,000     |
| Telegraphs . . . .  | 100,000     | 120,000     |
| Total . . . .       | 600,000     | 500,000     |

## BELGIUM

The official tables show as follows :—

| Year         | Letters     | Papers, &c. | Total       | Per Inhab. | Receipts, £ |
|--------------|-------------|-------------|-------------|------------|-------------|
| 1850 . . . . | 13,000,000  | 12,000,000  | 25,000,000  | 6          | 120,000     |
| 1860 . . . . | 28,000,000  | 33,000,000  | 61,000,000  | 13         | 200,000     |
| 1870 . . . . | 53,000,000  | 67,000,000  | 120,000,000 | 24         | 280,000     |
| 1880 . . . . | 85,000,000  | 131,000,000 | 216,000,000 | 39         | 480,000     |
| 1888 . . . . | 106,900,000 | 183,300,000 | 290,200,000 | 49         | 620,000     |

Telegraphic statistics are summed up thus :—

| Year         | Miles | Messages  | Receipts, £ | Pence per Message |
|--------------|-------|-----------|-------------|-------------------|
| 1850 . . . . | 250   | 14,000    | 4,000       | 68                |
| 1860 . . . . | 920   | 330,000   | 20,000      | 15                |
| 1870 . . . . | 2,700 | 2,400,000 | 60,000      | 6                 |
| 1880 . . . . | 3,500 | 6,200,000 | 100,000     | 4                 |
| 1888 . . . . | 4,200 | 7,300,000 | 130,000     | 4                 |

The aggregate income in 1888 from mails and telegraphs was £750,000; expenditure £505,000; leaving a net profit of £245,000.

## SWITZERLAND

Postal traffic showed as follows:—

|                         | 1881        | 1888        |
|-------------------------|-------------|-------------|
| Letters and cards . . . | 65,000,000  | 121,800,000 |
| Papers, &c. . . . .     | 65,000,000  | 99,400,000  |
| Total . . . . .         | 130,000,000 | 221,200,000 |

Postal orders in 1888 amounted to £13,200,000 sterling. The telegraphic service was as follows:—

| Year           | Miles | Messages  | Receipts, £ | Pence per Message |
|----------------|-------|-----------|-------------|-------------------|
| 1855 . . . . . | 1,350 | 160,000   | 12,000      | 18                |
| 1860 . . . . . | 1,790 | 300,000   | 20,000      | 16                |
| 1870 . . . . . | 3,200 | 1,600,000 | 50,000      | 8                 |
| 1880 . . . . . | 4,070 | 2,800,000 | 95,000      | 8                 |
| 1887 . . . . . | 4,400 | 3,200,000 | 140,000     | 10                |

Down to 1887 the cost of construction was £200,000 sterling.

## UNITED STATES

Official returns for 100 years show as follows:—

| Year | Routes, Miles | Post-Offices | Revenue, £ | Expenditure, £ |
|------|---------------|--------------|------------|----------------|
| 1790 | 1,875         | 75           | 8,000      | 7,000          |
| 1800 | 20,800        | 903          | 60,000     | 45,000         |
| 1810 | 36,400        | 2,300        | 110,000    | 100,000        |
| 1820 | 72,400        | 4,500        | 220,000    | 240,000        |
| 1830 | 115,200       | 8,450        | 390,000    | 395,000        |
| 1840 | 155,700       | 13,470       | 950,000    | 980,000        |
| 1850 | 178,700       | 18,420       | 1,150,000  | 1,120,000      |
| 1860 | 240,600       | 28,500       | 1,770,000  | 3,950,000      |
| 1870 | 231,200       | 28,500       | 3,680,000  | 4,400,000      |
| 1880 | 343,900       | 42,990       | 6,920,000  | 7,600,000      |
| 1889 | 416,200       | 59,000       | 11,700,000 | 12,800,000     |

The railroad postal service is shown as follows:—

| Year           | Miles of Railway | Miles Run with Mails | Cost, £   |
|----------------|------------------|----------------------|-----------|
| 1844 . . . . . | 4,380            | 5,750,000            | 110,000   |
| 1850 . . . . . | 9,020            | 6,520,000            | 170,000   |
| 1860 . . . . . | 30,640           | 27,600,000           | 700,000   |
| 1870 . . . . . | 52,910           | 47,600,000           | 940,000   |
| 1880 . . . . . | 93,350           | 96,500,000           | 2,240,000 |
| 1889 . . . . . | 156,080          | 204,200,000          | 4,500,000 |

The number of letters and papers, &c., that passed through the post-office was:—

| Year           | Millions | Per Inhab. |
|----------------|----------|------------|
| 1885 . . . . . | 4,965    | 90         |
| 1889 . . . . . | 7,028    | 110        |

In 1889 there were issued 17,760,000 money orders, to a value of £29,400,000, averaging 34s. each.

The postal traffic of the United States, as already shown (at p. 457), constitutes 40 per cent. of that of the world, and exceeds the aggregate of all the nations of Continental Europe. As compared with population, the ratio in the United States is almost double what it is in the United Kingdom, or three times that of France. Postal revenue in the above table does not include telegraph receipts, which belong to companies; but if these were added, the total would be £16,500,000, or a little over 5s. per head, against 6s. in the United Kingdom.

The Western Union Telegraph has most of the busi-

ness of the United States, possessing in 1889 a mileage of 179,000 out of a total of 200,000 miles. The Western Company showed as follows:—

| Year | Miles   | Offices | Messages   | Receipts, £ | Pence per Message |
|------|---------|---------|------------|-------------|-------------------|
| 1867 | 46,300  | 2,560   | 5,880,000  | 1,360,000   | 54                |
| 1870 | 54,100  | 3,970   | 9,200,000  | 1,400,000   | 36                |
| 1880 | 85,600  | 9,080   | 29,200,000 | 2,660,000   | 23                |
| 1889 | 178,800 | 18,470  | 54,100,000 | 4,320,000   | 19                |

If the other lines, which sum up 21,000 miles, be credited with half the mileage traffic of the Western Union, this would add 2,900,000 messages, bringing up the total to 57 millions and the receipts to £4,800,000 per annum.

## CANADA

The Handbook gives the following statistics:—

| Year | Post-Offices | Letters    | Papers, &c. | Total       | Per Inhab. | Postal Revenue, £ |
|------|--------------|------------|-------------|-------------|------------|-------------------|
| 1870 | 3,820        | 24,500,000 | 20,200,000  | 44,700,000  | 12         | 210,000           |
| 1880 | 5,770        | 45,800,000 | 58,400,000  | 104,200,000 | 24         | 340,000           |
| 1888 | 7,840        | 92,700,000 | 106,400,000 | 199,100,000 | 40         | 620,000           |

The expenditure in 1888 was £160,000 over the receipts, caused by the fact that many post-offices are in remote, thinly-settled districts. In 1888 the mails were carried over 25,760,000 miles, against 10,600,000 miles in 1868. The "dead-letter" office in 1887 showed 830,000 letters and papers, say 5 per 1000 of total traffic, against 592,000, or 6 per 1000, in 1880.

The money order office showed as follows:—

| Year           | Orders  | Amount, £ | Average, £ |
|----------------|---------|-----------|------------|
| 1870 . . . . . | 110,000 | 820,000   | 7.5        |
| 1880 . . . . . | 306,000 | 1,500,000 | 4.9        |
| 1888 . . . . . | 674,000 | 2,360,000 | 3.5        |

Telegraph lines mostly belong to companies. The traffic in 1887 was as follows:—

|                          | Miles  | Offices | Messages  |
|--------------------------|--------|---------|-----------|
| Pacific Railroad Co. . . | 5,000  | 550     | 500,000   |
| North-Western Co. . .    | 17,660 | 1,502   | 3,100,000 |
| Western . . . . .        | 2,920  | 176     | 400,000   |
| Total . . . . .          | 25,580 | 2,228   | 4,000,000 |

The returns for 1888 compare with 1880 as follows:—

|                | Miles  | Messages  |
|----------------|--------|-----------|
| 1880 . . . . . | 11,300 | 1,200,000 |
| 1888 . . . . . | 29,460 | 4,050,000 |

In 1888 the mileage included 2900 miles of Government lines.

## AUSTRALIA

Coghlan's table shows as follows for Australasia:—

| Year           | Letters     | Papers, &c. | Total       | Per Inhab. |
|----------------|-------------|-------------|-------------|------------|
| 1851 . . . . . | 2,100,000   | 2,200,000   | 4,300,000   | 9          |
| 1861 . . . . . | 14,600,000  | 11,500,000  | 26,100,000  | 21         |
| 1871 . . . . . | 31,300,000  | 17,600,000  | 48,900,000  | 26         |
| 1881 . . . . . | 99,020,000  | 53,440,000  | 152,460,000 | 56         |
| 1888 . . . . . | 174,500,000 | 119,200,000 | 293,700,000 | 82         |



In 1888 the several Colonies stood thus :—

|                         | Post-Offices | Letters     | Papers, &c. | Total       | Per Inhab. | Receipts, £ | Expenses, £ |
|-------------------------|--------------|-------------|-------------|-------------|------------|-------------|-------------|
| New South Wales . . .   | 1,203        | 49,000,000  | 40,400,000  | 89,400,000  | 81         | 370,000     | 420,000     |
| Victoria . . . . .      | 1,544        | 47,700,000  | 30,800,000  | 78,500,000  | 71         | ...         | ...         |
| Queensland . . . . .    | 766          | 12,900,000  | 12,200,000  | 25,100,000  | 62         | 130,000     | 200,000     |
| South Australia . . . . | 594          | 17,000,000  | 8,700,000   | 25,700,000  | 82         | 110,000     | 180,000     |
| New Zealand . . . . .   | 1,145        | 42,100,000  | 20,900,000  | 63,000,000  | 103        | 210,000     | 160,000     |
| Tasmania . . . . .      | 278          | 4,700,000   | 4,800,000   | 9,500,000   | 64         | 35,000      | 40,000      |
| Western Australia . . . | 78           | 1,100,000   | 1,400,000   | 2,500,000   | 60         | 15,000      | ...         |
| Total . . . . .         | 5,608        | 174,500,000 | 119,200,000 | 293,700,000 | 82         | ...         | ...         |

The telegraph service was introduced at Sydney in 1851, and a line was opened from that city to Melbourne and Adelaide in 1858. A cable from Melbourne to Tasmania was laid in 1869, and communication by cable with Europe commenced in 1872. Connection was established with New Zealand in 1876, and finally in 1877 Western Australia was joined to the other colonies. The line between London and Adelaide consists of 9146 miles of cable and 3424 of land line. The cable from Australia to New Zealand is 1191 miles long. The land lines of the Colonies had the following :—

| Year           | Miles  | Messages   |
|----------------|--------|------------|
| 1861 . . . . . | 2,385  | ...        |
| 1880 . . . . . | 26,900 | 5,100,000  |
| 1888 . . . . . | 39,200 | 10,580,000 |

In 1888 the telegraphs of the several Colonies showed :—

|                         | Miles  | Messages   | Receipts, £ | Pence per Message |
|-------------------------|--------|------------|-------------|-------------------|
| N. S. Wales . . . . .   | 10,690 | 3,410,000  | 185,000     | 13                |
| Victoria . . . . .      | 4,190  | 2,740,000  | 125,000     | 11                |
| Queensland . . . . .    | 9,170  | 1,440,000  | 105,000     | 17                |
| South Australia . . . . | 5,510  | 990,000    | 105,000     | 25                |
| New Zealand . . . . .   | 4,790  | 1,550,000  | 90,000      | 14                |
| Tasmania . . . . .      | 1,900  | 270,000    | 20,000      | 18                |
| W. Australia . . . . .  | 2,960  | 180,000    | 10,000      | 13                |
| Total . . . . .         | 39,210 | 10,580,000 | 640,000     | 15                |

### INDIA

Postal development dates from the overthrow of the East India Company in 1856, when there were only 750 post-offices. The traffic in 1884 and 1888 showed :—

| Year           | Post-Offices | Letters and Papers | Revenue, £ | Expenditure, £ |
|----------------|--------------|--------------------|------------|----------------|
| 1884 . . . . . | 14,305       | 203,300,000        | 1,100,000  | 1,010,000      |
| 1888 . . . . . | 16,970       | 274,400,000        | 1,200,000  | 1,370,000      |

The mileage of mails carried was as follows :—

| By              | 1870   | 1888   |
|-----------------|--------|--------|
| Rail . . . . .  | 4,200  | 14,040 |
| Boat . . . . .  | 40,600 | 48,900 |
| Horse . . . . . | 5,500  | 4,000  |
| Total . . . . . | 50,300 | 66,940 |

The telegraph service shows as follows :—

| Year           | Miles  | Messages  | Receipts, £ | Pence per Message |
|----------------|--------|-----------|-------------|-------------------|
| 1880 . . . . . | 22,200 | 1,600,000 | ...         | ...               |
| 1888 . . . . . | 31,900 | 2,800,000 | 76,000      | 7                 |

The above does not include Government messages, nor those of the Indo-European cable.

### ARGENTINA

Official returns give the following :—

| Year           | Letters and Papers | Per Inhabitant |
|----------------|--------------------|----------------|
| 1860 . . . . . | 410,000            | 0.3            |
| 1865 . . . . . | 990,000            | 0.6            |
| 1875 . . . . . | 6,920,000          | 3.0            |
| 1880 . . . . . | 9,880,000          | 3.6            |
| 1888 . . . . . | 76,810,000         | 21.2           |

There are 14,700 miles of telegraph, of which 7300 belong to the State. In 1889 the number of messages was 3,510,000.

### POTATOES

Spallart's table down to 1884 is included in the following :—

|                     | Production, Tons | Value, £    | Year 1887  |            | Tons per Acre |
|---------------------|------------------|-------------|------------|------------|---------------|
|                     |                  |             | Tons       | Acres      |               |
| G. Britain          | 3,300,000        | 9,900,000   | 3,560,000  | 560,000    | 6.4           |
| Ireland . . . . .   | 3,590,000        | 9,700,000   | 3,570,000  | 800,000    | 4.5           |
| France . . . . .    | 11,300,000       | 22,600,000  | 11,290,000 | 3,570,000  | 3.2           |
| Germany             | 21,860,000       | 44,000,000  | 25,140,000 | 7,250,000  | 3.5           |
| Russia . . . . .    | 12,110,000       | 18,200,000  | 7,500,000  | 3,700,000  | 2.0           |
| Austria . . . . .   | 7,210,000        | 14,400,000  | 8,200,000  | 2,760,000  | 3.0           |
| Hungary             | 2,390,000        | 4,800,000   | 2,200,000  | 1,020,000  | 2.2           |
| Italy . . . . .     | 700,000          | 1,400,000   | 620,000    | 370,000    | 1.7           |
| Spain . . . . .     | 1,590,000        | 3,200,000   | 1,590,000  | 800,000    | 2.0           |
| Portugal            | 280,000          | 600,000     | 280,000    | 140,000    | 2.0           |
| Sweden . . . . .    | 1,610,000        | 3,200,000   | 1,500,000  | 390,000    | 3.9           |
| Norway . . . . .    | 630,000          | 1,300,000   | 500,000    | 90,000     | 5.5           |
| Denmark             | 360,000          | 700,000     | 360,000    | 110,000    | 3.3           |
| Finland . . . . .   | 380,000          | 750,000     | 380,000    | 100,000    | 3.8           |
| Holland . . . . .   | 1,490,000        | 3,000,000   | 1,550,000  | 350,000    | 4.4           |
| Belgium . . . . .   | 2,490,000        | 5,000,000   | 3,000,000  | 490,000    | 6.1           |
| Switzerland         | 1,250,000        | 2,500,000   | 1,250,000  | 400,000    | 3.1           |
| Roumania . . . . .  | 500,000          | 1,000,000   | 500,000    | 200,000    | 2.5           |
| Servia . . . . .    | 250,000          | 500,000     | 250,000    | 100,000    | 2.5           |
| Greece . . . . .    | 250,000          | 500,000     | 250,000    | 100,000    | 2.5           |
| Europe . . . . .    | 73,540,000       | 147,250,000 | 73,490,000 | 23,300,000 | 3.2           |
| U. States . . . . . | 4,590,000        | 16,000,000  | 5,060,000  | 2,530,000  | 2.0           |
| Canada . . . . .    | 1,200,000        | 2,400,000   | 1,200,000  | 430,000    | 2.8           |
| Australia . . . . . | 400,000          | 800,000     | 430,000    | 110,000    | 3.9           |
| Total . . . . .     | 79,730,000       | 166,450,000 | 80,180,000 | 26,370,000 | 3.1           |

We have nothing later than 1884 as regards Spain, Portugal, Switzerland, Roumania, Servia, and Greece. Four bushels of potatoes contain as much food as one bushel of wheat. They were first introduced into Germany in 1710, into Russia in 1769, and into Scotland about

1775: the man who sowed the first field of potatoes in Scotland died in 1850.

The production in various countries at different dates was approximately as follows:—

| France  |            | Germany |            | Russia |           |
|---------|------------|---------|------------|--------|-----------|
| Years   | Tons       | Year    | Tons       | Year   | Tons      |
| 1815-20 | 1,950,000  | 1861    | 15,200,000 | 1849   | 2,550,000 |
| 1861-80 | 6,500,000  | 1879    | 18,900,000 | 1870   | 8,000,000 |
| 1887    | 11,300,000 | 1887    | 25,100,000 | 1887   | 7,500,000 |

| Austria |           | Holland |           | Belgium |           |
|---------|-----------|---------|-----------|---------|-----------|
| Years   | Tons      | Year    | Tons      | Year    | Tons      |
| 1846    | 2,300,000 | 1851    | 700,000   | 1846    | 1,800,000 |
| 1859    | 5,020,000 | 1861    | 850,000   | 1856    | 2,000,000 |
| 1887    | 8,200,000 | 1887    | 1,550,000 | 1887    | 3,000,000 |

| Sweden |           | United States |           |
|--------|-----------|---------------|-----------|
| Years  | Tons      | Year          | Tons      |
| 1837   | 400,000   | 1840          | 2,700,000 |
| 1859   | 510,000   | 1850          | 2,600,000 |
| 1887   | 1,500,000 | 1860          | 2,800,000 |

For consumption of potatoes see *Food*.

### POULTRY.

The numbers are not known. The following is an approximate estimate:—

|                 | Poultry, Number | Eggs Millions Yearly |             | Consumption per Inhabitant |
|-----------------|-----------------|----------------------|-------------|----------------------------|
|                 |                 | Production           | Consumption |                            |
| United Kingdom  | 30,000,000      | 2,100                | 3,230       | 85                         |
| France . . . .  | 50,000,000      | 3,500                | 3,000       | 78                         |
| Germany . . . . | 50,000,000      | 3,500                | 3,500       | 75                         |
| Belgium . . . . | 4,500,000       | 320                  | 420         | 70                         |
| Denmark . . . . | 4,000,000       | 280                  | 160         | 80                         |
| Italy . . . . . | 25,000,000      | 1,800                | 1,400       | 47                         |
| Canada . . . .  | 10,000,000      | 700                  | 450         | 90                         |
| United States . | 80,000,000      | 5,600                | 5,600       | 85                         |

In the United Kingdom it is believed that 5 per cent. of eggs are hatched, and the gross product yearly is set down thus:—

|                                |             |
|--------------------------------|-------------|
| 160 million dozen eggs . . . . | £ 5,300,000 |
| 80 million birds . . . . .     | 4,000,000   |

Total . . . . . 9,300,000

The countries which have a surplus for exportation, and the quantities exported, appear as follows:—

| Year | Millions Eggs Exported |       |        |         | Value, £  |           |         |         |
|------|------------------------|-------|--------|---------|-----------|-----------|---------|---------|
|      | France                 | Italy | Canada | Denmark | France    | Italy     | Canada  | Denmark |
| 1861 | 264                    | 42    | 12     | ...     | 710,000   | 67,000    | 19,000  | ...     |
| 1870 | 499                    | 139   | 31     | ...     | 1,250,000 | 206,000   | 65,000  | ...     |
| 1880 | 428                    | 502   | 109    | 23      | 1,202,000 | 1,450,000 | 230,000 | 60,000  |
| 1888 | 500                    | 420   | 220    | 111     | 1,100,000 | 1,000,000 | 450,000 | 260,000 |

Importation into the United Kingdom has been as follows:—

| Year           | Millions | Eggs per Inhabitant |
|----------------|----------|---------------------|
| 1853 . . . . . | 123      | 4                   |
| 1865 . . . . . | 364      | 12                  |
| 1875 . . . . . | 741      | 23                  |
| 1889 . . . . . | 1,131    | 30                  |

The ordinary weight of hen-eggs is seven to 1 lb. in Spain, eight in England and France, nine in Poland, and ten in Germany. Frankland says that 100 oz. of eggs contain as much nutriment as 104 oz. of beef, but 100 oz. of the yolk of eggs contain as much as 230 oz. of beef.

Mr. Baker, of New York, the "chicken-king," hatches 250,000 chickens yearly by steam. France has 1,800,000 turkeys, the United Kingdom 1,500,000.

### POWER

The working-power of an able-bodied adult is equal to 300 foot-tons daily, that of a horse 3000, and of steam horse-power 4000. In the following table the number of horses in Russia is supposed to be only half that recorded officially, as it is probable that not more than half are available for labour:—

|                | Millions of Foot-Tons Daily |         |         |         | Foot-Tons per Inhab. |
|----------------|-----------------------------|---------|---------|---------|----------------------|
|                | Hand                        | Horse   | Steam   | Total   |                      |
| U. Kingdom .   | 2,310                       | 8,700   | 36,800  | 47,810  | 1,200                |
| France . . .   | 2,970                       | 9,600   | 18,100  | 30,670  | 770                  |
| Germany . . .  | 3,330                       | 10,500  | 24,800  | 38,630  | 790                  |
| Russia . . .   | 6,300                       | 30,000  | 9,000   | 45,300  | 520                  |
| Austria . . .  | 2,850                       | 11,300  | 8,600   | 22,750  | 550                  |
| Italy . . . .  | 2,160                       | 3,300   | 3,300   | 8,760   | 290                  |
| Spain . . . .  | 1,260                       | 5,500   | 3,000   | 9,760   | 550                  |
| Portugal . . . | 360                         | 400     | 300     | 1,060   | 280                  |
| Switzerland .  | 210                         | 330     | 1,200   | 1,740   | 580                  |
| Belgium . . .  | 420                         | 850     | 3,200   | 4,470   | 700                  |
| Holland . . .  | 300                         | 840     | 1,400   | 2,540   | 550                  |
| Scandinavia .  | 630                         | 2,900   | 2,500   | 6,030   | 660                  |
| Europe . . .   | 23,100                      | 84,220  | 112,200 | 219,520 | 700                  |
| United States  | 4,400                       | 46,200  | 57,600  | 108,200 | 700                  |
| Total . . .    | 27,500                      | 130,420 | 169,800 | 327,720 | 600                  |

In Spain and Italy mules are counted the same as horses. The above table excludes water-power, as it is impossible to make any comparison of how much is available in the various countries.

### PRESS

The number of newspapers has multiplied nearly ten-fold since 1840, viz.:—

|                    | 1840  | 1890   | Approximate Issue Monthly | Date of First Paper |
|--------------------|-------|--------|---------------------------|---------------------|
| United Kingdom     | 493   | 1,840  | 150,000,000               | 1622                |
| France . . . .     | 776   | 4,100  | 120,000,000               | 1605                |
| Germany . . . .    | 305   | 5,500  | 140,000,000               | 1524                |
| Russia . . . .     | 204   | 667    | 12,000,000                | 1714                |
| Austria . . . .    | 132   | 2,233  | 40,000,000                | 1560                |
| Italy . . . . .    | 210   | 1,606  | 36,000,000                | 1562                |
| Spain . . . . .    | 74    | 1,161  | 11,000,000                | 1704                |
| Portugal . . . .   | 18    | 42     | 3,000,000                 | ...                 |
| Belgium . . . .    | 52    | 872    | 13,000,000                | 1764                |
| Holland . . . .    | 28    | 300    | 6,000,000                 | 1757                |
| Scandinavia . . .  | 104   | 250    | 9,000,000                 | 1644                |
| Switzerland . . .  | 54    | 450    | 6,000,000                 | ...                 |
| Greece, &c. . . .  | 10    | 100    | 1,000,000                 | ...                 |
| Europe . . . .     | 2,460 | 19,121 | 547,000,000               | ...                 |
| United States . .  | 1,210 | 15,392 | 230,000,000               | 1704                |
| Spanish America .  | 99    | 1,170  | 14,000,000                | 1726                |
| Australia . . . .  | 43    | 408    | 13,000,000                | 1803                |
| Canada . . . . .   | 88    | 565    | 9,000,000                 | 1765                |
| India . . . . .    | 63    | 644    | ...                       | 1781                |
| Japan . . . . .    | 1     | 470    | ...                       | ...                 |
| Africa . . . . .   | 14    | 200    | ...                       | ...                 |
| West Indies, &c. . | 38    | 66     | ...                       | ...                 |
| Total . . . .      | 4,016 | 38,036 | 813,000,000               | ...                 |

This means an average circulation in the world of about 33,000,000 newspapers daily. The number of books printed yearly cannot be ascertained; a certain London publisher sells a million. Great Britain exports annually over 10 millions.

According to *Hubbard's American Newspaper Directory* for 1880, there were in:—

|                   | Dailies | Periodicals | Total  |
|-------------------|---------|-------------|--------|
| Europe . . . .    | 2,403   | 10,730      | 13,133 |
| North America . . | 1,136   | 9,656       | 10,792 |
| South America . . | 208     | 427         | 635    |
| Africa . . . .    | 25      | 125         | 150    |
| Asia . . . .      | 154     | 337         | 491    |
| Australasia . . . | 94      | 471         | 565    |
| Total . . . .     | 4,020   | 21,746      | 26,766 |

Mr. P. L. Simmonds, an old journalist, from a careful investigation, gives the following result, excluding the papers published at intervals longer than a week:—

|                   |        |
|-------------------|--------|
| Europe . . . .    | 17,000 |
| North America . . | 12,794 |
| South America . . | 1,260  |
| Africa . . . .    | 210    |
| Asia . . . .      | 692    |
| Australasia . . . | 568    |
| West Indies . . . | 181    |
| Total . . . .     | 32,705 |

Mr. Simmonds also gives the following as a rough

#### UNITED KINGDOM

The advance of the newspaper press is shown thus:—

|                    | Average Monthly Issue |           |            |             | Per 1000 Inhabitants |       |
|--------------------|-----------------------|-----------|------------|-------------|----------------------|-------|
|                    | 1801                  | 1831      | 1864       | 1882        | 1831                 | 1882  |
| England . . . .    | 1,330,000             | 2,750,000 | 40,200,000 | 112,500,000 | 190                  | 4,270 |
| Scotland . . . .   | 80,000                | 160,000   | 2,300,000  | 11,700,000  | 70                   | 3,130 |
| Ireland . . . .    | 160,000               | 330,000   | 3,000,000  | 10,800,000  | 43                   | 2,120 |
| United Kingdom . . | 1,570,000             | 3,240,000 | 45,500,000 | 135,000,000 | 137                  | 3,700 |

The new works issued in 1888 and 1889 were:—

|                         | 1888  | 1889  |
|-------------------------|-------|-------|
| Economy . . . .         | 111   | 110   |
| History and travels . . | 601   | 513   |
| Theology . . . .        | 743   | 630   |
| Medicine . . . .        | 136   | 133   |
| Poetry . . . .          | 163   | 133   |
| Fiction . . . .         | 929   | 1,040 |
| Sandries . . . .        | 2,277 | 2,135 |
| New . . . .             | 4,960 | 4,694 |
| Reprints . . . .        | 1,631 | 1,375 |
| Total . . . .           | 6,591 | 6,069 |

In 1885 the newspapers of the United Kingdom were:—

|                    | Dailies | Weeklies, &c. | Total |
|--------------------|---------|---------------|-------|
| London . . . .     | 15      | 360           | 375   |
| Provinces . . . .  | 116     | 987           | 1,103 |
| Scotland . . . .   | 22      | 161           | 183   |
| Ireland . . . .    | 16      | 140           | 156   |
| United Kingdom . . | 169     | 1,648         | 1,817 |

summary of the papers published in the English language:—

|                                       |        |
|---------------------------------------|--------|
| United Kingdom . . . .                | 2,100  |
| North America . . . .                 | 12,700 |
| South America and the West Indies . . | 60     |
| Australasia . . . .                   | 575    |
| European Continent . . . .            | 20     |
| Africa . . . .                        | 114    |
| Asia . . . .                          | 203    |
| Total . . . .                         | 15,772 |

The average number of works published yearly has been as follows:—

|                     | 1828-32 | 1866-69 | 1878-80 |
|---------------------|---------|---------|---------|
| Great Britain . . . | 1,060   | 3,220   | 5,771   |
| France . . . .      | 4,610   | 7,350   | 7,000   |
| Germany . . . .     | 5,530   | 9,095   | 14,560  |
| United States . . . | 1,013   | 2,165   | 2,500   |
| Total . . . .       | 12,243  | 21,830  | 29,831  |

No book has been so often printed as the Bible. No fewer than 1326 editions of the Bible were published in the 16th century. In the 17th and 18th centuries it was translated and published in many languages by the polyglot press of the Propaganda Fide at Rome. Rev. Dr. Ginsburg, British Museum, has more than 4000 editions of the Bible, one of the most interesting being the polyglot version printed by Cardinal Ximenes at the University of Alcalá. Down to 1870 there were printed 55,000,000 copies of Webster's Spelling-book, and the sale of his Dictionary is said to average 300,000 yearly. There were two million copies of *Uncle Tom's Cabin* sold in ten years down to 1870.

#### FRANCE

In 1811 the news in the Paris papers took the following number of days to reach Paris:—

| From               | Days | From            | Days | From           | Days |
|--------------------|------|-----------------|------|----------------|------|
| Strasbourg . . . . | 6    | Brest . . . .   | 6    | Rome . . . .   | 11   |
| Lyons . . . .      | 6    | Antwerp . . . . | 7    | Madrid . . . . | 21   |

The average speed was 70 miles a day.

In 1882 the French daily papers issued as follows:—

|                     | Daily     | Copies per 1000 Inhab. |
|---------------------|-----------|------------------------|
| Paris . . . .       | 1,470,000 | 630                    |
| Lyons . . . .       | 73,000    | 190                    |
| Marseilles . . . .  | 70,000    | 194                    |
| Bordeaux . . . .    | 40,000    | 188                    |
| Other towns . . . . | 647,000   | ...                    |
| France . . . .      | 2,300,000 | 60                     |

In 1840 the daily issue of all the Paris journals summed up only 90,000 copies. The number of new works published yearly in France exceeds 7000.

#### GERMANY

The first steam printing-press was put up in 1848. At present about 11,000,000 books are printed yearly,

of which 5,000,000 are exported. At the annual fair of Leipzig 8000 tons of books are sold, valued at £1,600,000 sterling. Germany had 2350 newspapers in 1882, the oldest being the *Allgemeine Zeitung* of Augsburg, dating from 1794. The new works published yearly average 17,500 on the following subjects:—

|                                 | Annual Average |         |
|---------------------------------|----------------|---------|
|                                 | 1884-85        | 1888-89 |
| Theology . . . . .              | 1,425          | 1,605   |
| Trade, economy, &c. . . . .     | 1,475          | 1,520   |
| Romance and poetry . . . . .    | 1,320          | 1,570   |
| School-books . . . . .          | 2,100          | 2,020   |
| Medicine . . . . .              | 915            | 1,180   |
| Classics . . . . .              | 1,190          | 1,185   |
| History and geography . . . . . | 1,270          | 1,390   |
| Sundries . . . . .              | 6,255          | 7,030   |
| Total . . . . .                 | 15,950         | 17,500  |

## RUSSIA

In 1882 this immense Empire had only 360 printing offices, and 1543 book-shops. The importation of books from France and elsewhere averages two million volumes yearly.

The press turned out in 1882 the following:—

|                          | Newspapers | Books |
|--------------------------|------------|-------|
| St. Petersburg . . . . . | 123        | 714   |
| Moscow . . . . .         | 31         | 525   |
| Provinces . . . . .      | 164        | 853   |
| Total . . . . .          | 318        | 2,092 |

The total number of works published down to 1839 was:—

| Period              | Number |
|---------------------|--------|
| 1750-1807 . . . . . | 4,000  |
| 1808-21 . . . . .   | 9,250  |
| 1822-39 . . . . .   | 13,750 |
| Total . . . . .     | 27,000 |

In 1888 the following number of books was published:—

| Language          | Number | Copies     |
|-------------------|--------|------------|
| Russian . . . . . | 5,318  | 17,400,000 |
| Polish . . . . .  | 716    | 1,890,000  |
| Hebrew . . . . .  | 343    | 1,005,000  |
| German . . . . .  | 311    | 515,000    |
| Various . . . . . | 739    | 2,295,000  |
| Total . . . . .   | 7,427  | 23,105,000 |

The aggregate daily issue of newspapers in St. Petersburg in 1880 was 125,000 copies. There were in the Empire 318 newspapers—264 Russian, 29 German, 6 French, 19 in various provincial tongues. According to the *Statesman's Yearbook* there were in 1889 no fewer than 667 papers and magazines:—

|                   |     |
|-------------------|-----|
| Russian . . . . . | 493 |
| Polish . . . . .  | 76  |
| German . . . . .  | 49  |
| Various . . . . . | 49  |
| Total . . . . .   | 667 |

## AUSTRIA

The first paper was the *Wiener Blatt*, 1671. The number of newspapers (excluding Hungary) was as follows:—

|                |     |                |       |
|----------------|-----|----------------|-------|
| 1847 . . . . . | 79  | 1873 . . . . . | 866   |
| 1862 . . . . . | 345 | 1886 . . . . . | 1,472 |

In twenty-five years down to 1873 there were 1931 papers started, of which—

|                                        |       |
|----------------------------------------|-------|
| Died under twelve months . . . . .     | 910   |
| Between first and fifth year . . . . . | 781   |
| Survived fifth year . . . . .          | 240   |
| Total . . . . .                        | 1,931 |

The age of papers in 1873 was—

|                         |     |
|-------------------------|-----|
| Over 20 years . . . . . | 51  |
| 3 to 20 years . . . . . | 409 |
| Under 3 years . . . . . | 406 |
| Total . . . . .         | 866 |

In 1886 the press of Austria counted—

|                    | Papers |
|--------------------|--------|
| German . . . . .   | 965    |
| Bohemian . . . . . | 263    |
| Italian . . . . .  | 54     |
| Polish . . . . .   | 84     |
| Various . . . . .  | 107    |
| Total . . . . .    | 1,473  |

There were 100 dailies, 450 weeklies, and 923 reviews, &c. In 1887 Hungary had 760 newspapers.

## ITALY

The number of newspapers has been as follows:—

|                |       |
|----------------|-------|
| 1840 . . . . . | 210   |
| 1875 . . . . . | 914   |
| 1887 . . . . . | 1,606 |

In 1875 the press stood thus:—

|                    |     |                        |     |
|--------------------|-----|------------------------|-----|
| Milan . . . . .    | 104 | Dailies . . . . .      | 127 |
| Florence . . . . . | 82  | Weeklies, &c. . . . .  | 787 |
| Turin . . . . .    | 68  |                        |     |
| Rome . . . . .     | 67  | Total . . . . .        | 914 |
| Naples . . . . .   | 52  | 20 years old . . . . . | 80  |
| Various . . . . .  | 541 | 5 to 20 . . . . .      | 236 |
| Total . . . . .    | 914 | Under 5 . . . . .      | 598 |
|                    |     | Total . . . . .        | 914 |

In 1887 the papers were as follows:—

|                      |       |                        |       |
|----------------------|-------|------------------------|-------|
| Dailies . . . . .    | 135   | Political . . . . .    | 420   |
| Weeklies . . . . .   | 667   | Agricultural . . . . . | 198   |
| Reviews, &c. . . . . | 804   | Various . . . . .      | 979   |
| Total . . . . .      | 1,606 | Total . . . . .        | 1,606 |

All were in Italian except twelve French and five English. The book-press issued in 1888 the following works:—

|                                      |        |
|--------------------------------------|--------|
| Religious . . . . .                  | 992    |
| History and geography . . . . .      | 1,141  |
| Agriculture and industries . . . . . | 1,133  |
| Various . . . . .                    | 7,597  |
| Total . . . . .                      | 10,863 |

## SPAIN

In 1889 there were 1161 papers and magazines, with an aggregate issue of 1,250,000, or about 1100 copies each, viz.:—

|                     |       |                      |       |
|---------------------|-------|----------------------|-------|
| Madrid . . . . .    | 327   | Political . . . . .  | 496   |
| Barcelona . . . . . | 177   | Scientific . . . . . | 237   |
| Seville . . . . .   | 38    | Religious . . . . .  | 113   |
| Various . . . . .   | 679   | Various . . . . .    | 315   |
| Total . . . . .     | 1,161 | Total . . . . .      | 1,161 |

## BELGIUM

In 1888 the press stood thus:—

|                      |     |                      |     |
|----------------------|-----|----------------------|-----|
| Dailies . . . . .    | 81  | Political . . . . .  | 365 |
| Weeklies . . . . .   | 594 | Scientific . . . . . | 90  |
| Reviews, &c. . . . . | 197 | Various . . . . .    | 417 |
| Total . . . . .      | 872 | Total . . . . .      | 872 |

In 1878, excluding reviews, there were 180 papers, of which 124 were in French and 56 in Flemish.

## UNITED STATES

The first printing-press was brought from Amsterdam with 49 lbs. of type, and set up at Cambridge, Massachusetts, A.D. 1639, where Harvard University now stands. Another was started by W. Penn at Philadelphia in 1686. The "Hoe" press was invented by Robert Hoe at New York in 1833, and improved by his sons, who have made 10-cylinder presses for many of the great journals of America and Great Britain. The first newspaper was at Boston in 1690, and was at once suppressed by the Governor. The *Boston Newsletter* was founded in 1704; the *Mercury* of Philadelphia in 1719. Franklin began the *New England Courant* in 1721. The *New York Gazette* appeared in 1725.

The number of papers at various dates, and the aggregate issue of copies monthly, were as follows:—

| Year | Dailies | Weeklies | Reviews, &c. | Total  | Issue Monthly |
|------|---------|----------|--------------|--------|---------------|
| 1788 | ...     | ...      | ...          | 37     | 330,000       |
| 1810 | ...     | ...      | ...          | 364    | 1,850,000     |
| 1828 | ...     | ...      | ...          | 892    | 6,100,000     |
| 1840 | 130     | 1,304    | 200          | 1,634  | ...           |
| 1850 | 254     | 1,902    | 370          | 2,526  | 34,400,000    |
| 1860 | 387     | 3,173    | 491          | 4,051  | 74,600,000    |
| 1870 | 574     | 4,256    | 1,001        | 5,871  | 119,600,000   |
| 1880 | 980     | 8,718    | 1,705        | 11,403 | 186,100,000   |
| 1890 | ...     | ...      | ...          | 15,392 | 230,000,000   |

The monthly issue for 1890 is only an estimate.

The circulation was as follows:—

|              | 1850      | 1860       | 1870       | 1880       |
|--------------|-----------|------------|------------|------------|
| Dailies      | 760,000   | 1,480,000  | 2,602,000  | 3,640,000  |
| Weeklies     | 2,940,000 | 7,580,000  | 10,594,000 | 19,460,000 |
| Reviews, &c. | 1,440,000 | 4,605,000  | 7,646,000  | 8,080,000  |
| Total        | 5,140,000 | 13,665,000 | 20,842,000 | 31,180,000 |

The aggregate number of copies issued monthly in the above years was approximately as follows:—

|              | 1850       | 1860       | 1870        | 1880        |
|--------------|------------|------------|-------------|-------------|
| Dailies      | 19,000,000 | 37,000,000 | 65,000,000  | 90,000,000  |
| Weeklies     | 14,000,000 | 33,000,000 | 47,000,000  | 88,000,000  |
| Reviews, &c. | 1,400,000  | 4,600,000  | 7,600,000   | 8,100,000   |
| Total        | 34,400,000 | 74,600,000 | 119,600,000 | 186,100,000 |

Census returns give the following daily issues:—

| States      | Number of Papers |      | Issue     |           |
|-------------|------------------|------|-----------|-----------|
|             | 1870             | 1880 | 1870      | 1880      |
| New England | 60               | 84   | 310,000   | 403,000   |
| Middle      | 171              | 259  | 1,369,000 | 1,799,000 |
| South       | 82               | 122  | 146,000   | 174,000   |
| West        | 261              | 497  | 776,000   | 1,264,000 |
| Total       | 574              | 962  | 2,601,000 | 3,640,000 |

In 1880 there were 10,515 papers in English, 641 in German, 49 in Swedish or Danish, 41 in French, and 26 in Spanish. No fewer than 57 were edited by women.

## JAPAN

In 1888 there were 470 newspapers and magazines, the principal journal being the *Osaka-Nippo*, which issues 10,000 copies daily. The *Japan Mail* and *Hiogo Times* are in English. The aggregate issue of newspapers is

about two millions monthly. The *Life of Washington* was published in 1880 in 42 quarto volumes.

## CHINA

The *Pekin Court Gazette* celebrated in 1884 the completion of its 10th century: it was 640 years old when the first newspaper was printed in Europe in 1524. Secretary Ho has published a translation of Shakespeare, and a Peking publisher has also issued Blackstone's Commentaries in Chinese.

## AUSTRALIA

The first paper was printed at Sydney in 1803. There were 43 in Australasia in 1840, and the number rose to 270 in 1882. The returns at present are incomplete, but may be taken approximately thus:—

|               |     |
|---------------|-----|
| Dailies       | 156 |
| Weeklies, &c. | 252 |
| Total         | 408 |

The number of newspapers sent through the post compared with population thus:—

| Year | Number     | Per Inhab. |
|------|------------|------------|
| 1851 | 2,150,000  | 4.7        |
| 1871 | 17,580,000 | 9.3        |
| 1888 | 93,410,000 | 25.9       |

The above shows an average postal circulation of 300,000 copies daily: the total issue, therefore, can hardly fall short of half-a-million copies, say 13 millions monthly, or one-tenth of that of the United Kingdom in 1882.

## CANADA

In 1765 the first paper was printed at Quebec. There were 88 in 1840, and the latest report showed 565. The number of newspapers sent through the post was:—

| Year | Number     | Per Inhab. |
|------|------------|------------|
| 1870 | 20,200,000 | 5.5        |
| 1887 | 64,300,000 | 13.2       |

The total issue is approximately 350,000 copies daily.

## SOUTH AMERICA

The first printing-press introduced into the New World was that established by the Jesuits at Cordoba, in the province of Tucuman, about 1610. Another was established at Misiones, in Paraguay, about 1680, and some books of this press are in the British Museum, dated 1705-24. General Auchmuty, after the capture of Monte Video, founded a paper called the *Southern Star* in 1806, which lasted only three months. In 1826 Mr. Love founded at Buenos Ayres a weekly called the *British Packet*, which died in 1858. A well-known weekly paper called the *Panama Star*, was founded by Archibald Boyd in 1849, which still flourishes. The first daily paper in the English language which appeared in Spanish America was the *Buenos Ayres Standard*, founded by the author of this Dictionary, 1st May 1861, which is now the best known journal of South America. The press of Argentina in 1886 was as follows:—

|              | Dailies | Weeklies, &c. | Total |
|--------------|---------|---------------|-------|
| Buenos Ayres | 25      | 57            | 82    |
| Provinces    | 13      | 101           | 114   |
| Total        | 38      | 158           | 196   |

There are 4 English, 3 French, 3 Italian, 2 German, and 184 Spanish newspapers, which issue 3,600,000 copies monthly.

## INDIA

In 1880 there were 644 newspapers, of which forty were in English, the rest in Bengali, Marathi, and other native tongues. In 1886 there were published 8900 works, of which nine-tenths were in native languages.

## PRICES

The earliest table of prices is that fixed by the Emperor Diocletian, A.D. 303, for the whole Roman Empire, viz. :—

*Prices in English Pence and English Measure*

| <i>Wines, &amp;c.</i> | <i>Per Pint</i> | <i>Meat, &amp;c.</i>       | <i>Per Lb.</i> | <i>Game</i>              | <i>Per Head</i> |
|-----------------------|-----------------|----------------------------|----------------|--------------------------|-----------------|
| Falernian . . .       | 15              | Beef . . .                 | 4              | Grouse . . .             | 15              |
| Sorrento . . .        | 15              | Mutton . . .               | 4              | Dove . . .               | 12              |
| Sabine . . .          | 15              | Lamb . . .                 | 6              | Pigeon . . .             | 18              |
| Ordinary . . .        | 10              | Pork . . .                 | 6              | Wood do. . .             | 15              |
| Inferior . . .        | 8               | Ham . . .                  | 10             | Partridge . . .          | 24              |
| Rustic . . .          | 4               | Sausages . . .             | 4              | Duck . . .               | 30              |
| Vinegar . . .         | 3               | Venison . . .              | 7              | Rabbit . . .             | 30              |
| Beer . . .            | 2               | Boar . . .                 | 9              | Fowl . . .               | 45              |
| Small do. . .         | 1               | Sea-fish . . .             | 14             | Goose . . .              | 75              |
| Oil, 1st . . .        | 20              | River-fish . . .           | 7              | Fat do. . .              | 150             |
| „ and . . .           | 12              | Salted „ . . .             | 4              | Pheasant . . .           | 80              |
| „ 3rd . . .           | 6               | Snails, dozen . . .        | 1              | Hare . . .               | 110             |
| <i>Groceries</i>      | <i>Per Lb.</i>  | <i>Vegetables, &amp;c.</i> | <i>Per 20</i>  | <i>Clothing, &amp;c.</i> | <i>Pence</i>    |
| Tallow . . .          | 3               | Apples . . .               | 2              | Socks . . .              | 3               |
| Cheese . . .          | 7               | Cherries . . .             | 1              | Tunic . . .              | 12              |
| Butter . . .          | 9               | Almonds . . .              | 1              | Breeches . . .           | 15              |
| Lard . . .            | 9               | Walnuts . . .              | 1              | Cloak . . .              | 30              |
| Honey . . .           | 12              | Chestnuts . . .            | 1              | Boots . . .              | 100             |
| Beans . . .           | 5               | Onions . . .               | 4              | Shoes . . .              | 120             |
| Peas . . .            | 3               | Turnips . . .              | 8              | Slippers . . .           | 50              |
| Lentils . . .         | 5               | Cucumbers . . .            | 8              | Clogs . . .              | 40              |
| 20 eggs . . .         | 15              | Lettuce . . .              | 15             | Saddle . . .             | 400             |
| 20 oysters . . .      | 15              | Cauliflowers . . .         | 15             | Bridle . . .             | 80              |
| 20 figs . . .         | 2               | Melons . . .               | 30             | Whip . . .               | 12              |
| 20 roses . . .        | 1               | Artichokes . . .           | 30             | Bath . . .               | 2               |

According to Landrin and Roswag, the quantity of wheat that could be bought at various epochs for an ounce of silver, say 4s. of present money, was as follows :—

| Period            | Lbs. of Wheat for 4s. | Price per Ton |
|-------------------|-----------------------|---------------|
| B.C. 600 . . .    | 430                   | £ 1 1 6       |
| „ 300 . . .       | 360                   | 1 5 0         |
| „ 200 . . .       | 346                   | 1 6 0         |
| „ 50 . . .        | 330                   | 1 7 0         |
| A.D. 50-300 . . . | 324                   | 1 7 6         |
| „ 301-500 . . .   | 320                   | 1 8 0         |
| „ 501-800 . . .   | 314                   | 1 8 6         |
| „ 801-1400 . . .  | 307                   | 1 9 0         |
| „ 1401-1500 . . . | 314                   | 1 8 6         |
| „ 1501-1600 . . . | 250                   | 1 16 0        |
| „ 1601-1650 . . . | 200                   | 2 4 6         |
| „ 1651-1700 . . . | 154                   | 2 18 0        |
| „ 1701-1750 . . . | 124                   | 3 12 0        |
| „ 1751-1800 . . . | 75                    | 6 0 0         |
| „ 1801-1850 . . . | 37                    | 12 0 0        |
| „ 1851-1880 . . . | 34                    | 13 5 0        |

From the above it would appear that from the time of Alexander the Great down to that of Columbus the price of wheat averaged 28s. per ton; but the discovery of America, in 1492, was followed by such an influx of gold and silver into Europe that prices of all commodities rose in succeeding centuries, and the price of wheat from 1751 to 1800 averaged four times as much as in the time of Columbus.

The tables of Sir Morton Eden and Marquis Garnier from 1401 to 1756, with continuation to the present date, show the price of wheat reduced to English money as follows :—

| Period          | England, per Ton |        |         | Year of Price |        | France, per Ton |        |         | Year of Price |        |
|-----------------|------------------|--------|---------|---------------|--------|-----------------|--------|---------|---------------|--------|
|                 | Highest          | Lowest | Average | Highest       | Lowest | Highest         | Lowest | Average | Highest       | Lowest |
| 1401-10 . . .   | £ 2 15           | £ 0 13 | £ 1 8   | 1401          | 1404   | £ 3 18          | £ 2 7  | £ 3 2   | 1410          | 1406   |
| 1411-20 . . .   | 3 3              | 1 0    | 1 18    | 1416          | 1411   | 2 10            | 1 3    | 1 17    | 1411          | 1413   |
| 1421-30 . . .   | 2 2              | 1 0    | 1 10    | 1429          | 1427   | 9 1             | 1 0    | 4 1     | 1430          | 1428   |
| 1431-40 . . .   | 6 13             | 1 2    | 2 15    | 1434          | 1437   | 13 4            | 1 15   | 6 15    | 1437          | 1435   |
| 1441-50 . . .   | 1 13             | 1 0    | 1 7     | 1442          | 1450   | 5 14            | 0 14   | 2 1     | 1443          | 1448   |
| 1451-60 . . .   | 1 15             | 0 11   | 1 5     | 1451          | 1454   | 2 7             | 0 19   | 1 15    | 1457          | 1452   |
| 1461-70 . . .   | 1 13             | 0 18   | 1 6     | 1464          | 1463   | 2 12            | 0 12   | 1 4     | 1466          | 1464   |
| 1471-80 . . .   | ...              | ...    | 2 0     | ...           | ...    | 1 18            | 1 0    | 1 8     | 1478          | 1472   |
| 1481-90 . . .   | 4 2              | 0 18   | 1 12    | 1486          | 1489   | 3 18            | 1 7    | 2 7     | 1482          | 1489   |
| 1491-1500 . . . | 5 0              | 0 18   | 1 12    | 1497          | 1495   | 2 5             | 0 18   | 1 10    | 1499          | 1495   |
| 1501-10 . . .   | 1 15             | 0 18   | 1 9     | 1501          | 1509   | 2 12            | 0 15   | 1 15    | 1501          | 1510   |
| 1511-20 . . .   | 4 13             | 1 10   | 2 8     | 1512          | 1515   | 5 14            | 0 16   | 2 5     | 1515          | 1511   |
| 1521-30 . . .   | 5 17             | 1 7    | 3 10    | 1521          | 1530   | 6 17            | 1 10   | 3 19    | 1521          | 1526   |
| 1531-40 . . .   | 4 7              | 1 18   | 3 5     | 1538          | 1534   | 8 14            | 2 11   | 4 15    | 1539          | 1534   |
| 1541-50 . . .   | 6 7              | 1 13   | 4 5     | 1544          | 1548   | 4 12            | 2 15   | 3 16    | 1544          | 1541   |
| 1551-60 . . .   | 6 17             | 2 8    | 3 13    | 1556          | 1555   | 7 19            | 4 6    | 4 6     | 1556          | 1558   |
| 1561-70 . . .   | 5 3              | 3 7    | 4 4     | 1561          | 1568   | 11 3            | 4 19   | 7 15    | 1563          | 1564   |
| 1571-80 . . .   | 8 4              | 4 0    | 5 10    | 1573          | 1576   | 18 13           | 5 7    | 9 5     | 1574          | 1577   |
| 1581-90 . . .   | 8 0              | 3 11   | 5 7     | 1586          | 1588   | 12 12           | 5 12   | 7 17    | 1590          | 1581   |
| 1591-1600 . . . | 15 9             | 4 3    | 9 10    | 1597          | 1592   | 31 19           | 7 10   | 17 6    | 1591          | 1600   |
| 1601-10 . . .   | 12 13            | 6 1    | 8 0     | 1608          | 1604   | 10 15           | 5 14   | 7 6     | 1608          | 1602   |
| 1611-20 . . .   | 10 16            | 6 2    | 8 15    | 1617          | 1620   | 12 17           | 5 17   | 7 6     | 1618          | 1620   |
| 1621-30 . . .   | 13 1             | 6 5    | 9 15    | 1622          | 1628   | 14 19           | 6 15   | 9 11    | 1626          | 1624   |
| 1631-40 . . .   | 15 2             | 9 10   | 11 10   | 1631          | 1639   | 17 16           | 7 4    | 9 18    | 1631          | 1639   |
| 1641-50 . . .   | 18 18            | 7 16   | 13 5    | 1648          | 1644   | 19 18           | 7 0    | 11 10   | 1650          | 1646   |
| 1651-60 . . .   | 13 15            | 5 12   | 10 5    | 1651          | 1654   | 19 5            | 7 13   | 11 11   | 1651          | 1657   |
| 1661-70 . . .   | 16 5             | 6 7    | 10 10   | 1662          | 1666   | 20 2            | 5 19   | 11 17   | 1662          | 1668   |
| 1671-80 . . .   | 15 5             | 7 15   | 10 8    | 1674          | 1676   | 12 7            | 5 18   | 8 14    | 1679          | 1673   |
| 1681-90 . . .   | 10 1             | 5 15   | 8 5     | 1681          | 1688   | 12 1            | 5 5    | 8 7     | 1685          | 1688   |
| 1691-1700 . . . | 14 19            | 7 10   | 12 0    | 1698          | 1691   | 24 5            | 6 11   | 13 3    | 1694          | 1691   |
| 1701-10 . . .   | 17 0             | 5 12   | 9 5     | 1709          | 1706   | 22 0            | 4 7    | 9 19    | 1709          | 1707   |
| 1711-20 . . .   | 11 15            | 7 15   | 9 10    | 1711          | 1719   | 16 4            | 3 11   | 8 10    | 1714          | 1718   |
| 1721-30 . . .   | 12 5             | 7 6    | 9 2     | 1728          | 1723   | 14 8            | 5 1    | 7 15    | 1725          | 1728   |
| 1731-40 . . .   | 12 1             | 5 15   | 8 1     | 1740          | 1742   | 10 18           | 4 2    | 6 8     | 1740          | 1733   |
| 1741-50 . . .   | 8 5              | 5 9    | 7 5     | 1746          | 1743   | 10 1            | 4 8    | 7 2     | 1741          | 1744   |
| 1751-60 . . .   | 14 5             | 7 10   | 9 10    | 1757          | 1755   | 9 15            | 4 7    | 6 12    | 1758          | 1759   |

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| Period          | England, per Ton |        |         | Years of Price |        | France, per Ton |        |         | Years of Price |        |
|-----------------|------------------|--------|---------|----------------|--------|-----------------|--------|---------|----------------|--------|
|                 | Highest          | Lowest | Average | Highest        | Lowest | Highest         | Lowest | Average | Highest        | Lowest |
| 1761-70 . . .   | £ 5              | £ 6    | £ 5     | 1767           | 1761   | £ 5             | £ 5    | £ 5     | 1770           | 1763   |
| 1771-80 . . .   | 15 1             | 6 6    | 10 12   | 1774           | 1779   | 10 15           | 5 8    | 7 5     | 1771           | 1780   |
| 1781-90 . . .   | 13 11            | 8 13   | 11 9    | 1790           | 1786   | 10 12           | 7 6    | 8 13    | 1789           | 1781   |
| 1791-1800 . . . | 13 14            | 10 0   | 12 0    | 1800           | 1792   | 12 14           | 7 16   | 9 5     | 1800           | 1799   |
| 1801-10 . . .   | 28 9             | 10 15  | 15 18   | 1801           | 1803   | 11 16           | 9 8    | 10 12   | 1803           | 1809   |
| 1811-20 . . .   | 29 18            | 14 14  | 21 0    | 1812           | 1815   | 14 5            | 8 12   | 11 12   | 1817           | 1814   |
| 1821-30 . . .   | 31 13            | 16 8   | 21 18   | 1825           | 1822   | 21 0            | 10 5   | 14 7    | 1829           | 1822   |
| 1831-40 . . .   | 17 2             | 11 3   | 14 17   | 1839           | 1835   | 13 2            | 9 0    | 10 13   | 1839           | 1834   |
| 1841-50 . . .   | 17 13            | 9 17   | 14 4    | 1847           | 1850   | 12 17           | 8 17   | 11 1    | 1847           | 1850   |
| 1851-60 . . .   | 17 5             | 10 1   | 13 7    | 1855           | 1851   | 16 17           | 8 6    | 11 9    | 1855           | 1851   |
| 1861-70 . . .   | 18 14            | 9 13   | 13 17   | 1867           | 1864   | 17 0            | 8 13   | 13 0    | 1867           | 1865   |
| 1871-80 . . .   | 16 2             | 10 1   | 13 0    | 1873           | 1879   | 15 10           | 9 11   | 12 10   | 1871           | 1875   |
| 1881-89 . . .   | 14 14            | 11 0   | 11 17   | 1881           | 1889   | 14 18           | 11 5   | 13 3    | 1881           | 1885   |
|                 | 11 7             | 7 14   | 9 5     |                |        | 12 18           | 9 15   | 10 15   |                |        |

The average prices of wheat in periods in England, France, Italy, Russia, and United States were as follows, per ton :—

| Period          | England | France | Russia | Italy | United States | Average |
|-----------------|---------|--------|--------|-------|---------------|---------|
| 1771-80 . . .   | £ 5     | £ 5    | £ 5    | £ 5   | £ 5           | £ 5     |
| 1781-90 . . .   | 11 10   | 8 15   | ...    | 8 5   | ...           | 9 10    |
| 1791-1800 . . . | 12 0    | 9 5    | ...    | 8 16  | ...           | 10 0    |
| 1801-10 . . .   | 16 0    | 10 10  | ...    | 11 5  | ...           | 12 12   |
| 1811-15 . . .   | 21 0    | 11 10  | ...    | 13 0  | ...           | 15 3    |
| 1816-20 . . .   | 23 10   | 14 0   | ...    | 14 0  | ...           | 17 3    |
| 1821-25 . . .   | 20 5    | 14 15  | 9 5    | 12 4  | 12 0          | 13 12   |
| 1826-30 . . .   | 14 5    | 9 10   | 4 10   | 5 8   | 7 12          | 8 5     |
| 1831-35 . . .   | 15 10   | 11 10  | 6 0    | 8 14  | 7 11          | 9 18    |
| 1836-40 . . .   | 13 5    | 10 10  | 6 5    | 7 14  | 8 8           | 9 4     |
| 1841-45 . . .   | 15 5    | 11 10  | 6 10   | 8 7   | 9 16          | 10 6    |
| 1846-50 . . .   | 13 15   | 11 5   | 7 10   | 8 3   | 7 4           | 9 12    |
| 1851-55 . . .   | 13 0    | 11 15  | 8 5    | 10 5  | 9 4           | 10 10   |
|                 | 14 0    | 13 5   | 11 0   | 12 6  | 9 12          | 12 1    |

In 1831 was published the following table of average

prices of wheat in various countries during sixty years, per ton :—

| Period        | Great Britain | France | Germany | Russia | Austria | United States | General Average |
|---------------|---------------|--------|---------|--------|---------|---------------|-----------------|
| 1821-30 . . . | £ 5           | £ 5    | £ 5     | £ 5    | £ 5     | £ 5           | £ 5             |
| 1831-40 . . . | 15 0          | 10 10  | 8 3     | 7 17   | 6 10    | 10 0          | 10 2            |
| 1841-50 . . . | 14 6          | 11 0   | 7 14    | 7 7    | 5 17    | 11 7          | 9 12            |
| 1851-60 . . . | 13 7          | 11 10  | 9 7     | 7 0    | 7 10    | 9 14          | 9 15            |
| 1861-70 . . . | 13 17         | 13 0   | 11 13   | 10 16  | 11 7    | 13 3          | 12 6            |
| 1871-80 . . . | 13 0          | 12 10  | 11 7    | 11 7   | 13 0    | 12 10         | 12 6            |
|               | 11 17         | 13 3   | 13 13   | 11 3   | 11 13   | 10 16         | 12 1            |

\* The price of wheat in 1846, the year of the Irish famine, was as follows in various parts of the world, per ton :—

|                   | £ s.  |                      | £ s.  |
|-------------------|-------|----------------------|-------|
| Alexandria . . .  | 5 16  | Edinburgh . . .      | 14 10 |
| Amsterdam . . .   | 20 6  | Genoa . . .          | 13 18 |
| Ancona . . .      | 9 18  | London . . .         | 15 14 |
| Bilbao . . .      | 11 0  | Malaga . . .         | 13 7  |
| Brussels . . .    | 15 8  | Milan . . .          | 13 7  |
| Christiania . . . | 15 2  | New York . . .       | 9 18  |
| Copenhagen . . .  | 11 12 | Odessa . . .         | 8 2   |
| Dantzic . . .     | 13 7  | St. Petersburg . . . | 10 8  |
| Dublin . . .      | 19 14 | Trieste . . .        | 11 0  |

Commendatore Bodio gives the following prices of wheat per ton in ten different markets, from 1869 to 1884 :—

| Year                   | London | Paris | Berlin | Brussels | Amsterdam | Rome  | Vienna | Buda-Pesth | Algiers | New York |
|------------------------|--------|-------|--------|----------|-----------|-------|--------|------------|---------|----------|
| 1869 . . .             | £ 5    | £ 5   | £ 5    | £ 5      | £ 5       | £ 5   | £ 5    | £ 5        | £ 5     | £ 5      |
| 1870 . . .             | 11 8   | 10 18 | 10 0   | 11 8     | 11 10     | 9 18  | 8 6    | ...        | 10 2    | 10 8     |
| 1871 . . .             | 11 4   | 12 4  | 9 18   | 11 18    | 11 18     | 10 12 | 9 5    | ...        | 10 9    | 9 6      |
| 1872 . . .             | 12 16  | 14 15 | 10 15  | 15 0     | 13 4      | 11 18 | 10 18  | 10 0       | 11 18   | 12 6     |
| 1873 . . .             | 12 15  | 12 7  | 11 18  | 13 8     | 12 17     | 12 1  | 11 12  | 10 18      | 11 10   | 12 2     |
| 1874 . . .             | 13 6   | 14 4  | 12 10  | 14 7     | 14 1      | 13 1  | 13 0   | 13 5       | 12 16   | 12 12    |
| 1875 . . .             | 12 18  | 13 3  | 11 12  | 13 16    | 11 12     | 13 8  | 10 6   | 11 15      | 12 6    | 11 7     |
| 1876 . . .             | 10 10  | 9 18  | 9 12   | 10 18    | 10 17     | 10 8  | 7 12   | 8 14       | 9 14    | 9 14     |
| 1877 . . .             | 10 19  | 11 0  | 10 6   | 11 10    | 12 3      | 10 18 | 7 19   | 9 1        | 9 12    | 9 19     |
| 1878 . . .             | 12 12  | 12 16 | 11 7   | 13 4     | 14 16     | 12 10 | 8 16   | 10 0       | 12 6    | 11 18    |
| 1879 . . .             | 12 6   | 12 10 | 9 14   | 11 10    | 11 12     | 11 15 | 8 0    | 8 8        | 12 3    | 9 7      |
| 1880 . . .             | 11 10  | 11 12 | 9 12   | 11 0     | 10 11     | 11 10 | 8 8    | 9 6        | 10 2    | 9 6      |
| 1881 . . .             | 12 6   | 12 5  | 10 16  | 11 12    | 10 12     | 12 1  | 9 2    | 10 12      | 10 10   | 10 0     |
| 1882 . . .             | 10 18  | 12 1  | 10 15  | 11 11    | 10 15     | 10 12 | 9 3    | 10 18      | 11 16   | 10 4     |
| 1883 . . .             | 10 12  | 10 18 | 10 3   | 10 12    | 9 12      | 10 4  | 8 3    | 9 9        | 10 7    | 8 16     |
| 1884 . . .             | 10 1   | 10 6  | 8 16   | 9 18     | 9 8       | 9 10  | 7 8    | 8 10       | 10 4    | 9 1      |
| average 16 years . . . | 9 1    | 9 5   | 8 16   | 8 17     | 8 0       | 8 18  | 6 10   | 7 12       | 8 12    | 7 10     |
| 1889 . . .             | 11 11  | 11 18 | 10 8   | 11 18    | 11 8      | 11 4  | 8 12   | 9 18       | 10 18   | 10 5     |
|                        | 6 18   | 9 6   | 9 6    | ...      | 6 12      | ...   | ...    | ...        | ...     | 6 12     |

The highest average of prices for sixteen years was at Paris, namely £11, 18s.; the lowest at Vienna, namely £8, 12s. The highest price for a year was at Brussels, £15 in 1871; the lowest at Vienna, £6, 10s. in 1884. The greatest variation of price was at Vienna, falling from £13 in 1873 to half that sum in 1884; the least variation was at Berlin.

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Mr. Newmarch gives the following table of prices at Melbourne during the gold fever:—

|                 | 1852  | 1853  | 1854  | 1855  | 1856  | 1857-58 |
|-----------------|-------|-------|-------|-------|-------|---------|
|                 | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Barley, bushel. | 4 0   | 12 0  | 9 6   | 6 0   | ...   | 8 0     |
| Beef, lb.       | 0 5   | 0 6   | 0 7   | 0 6   | 0 5   | 0 6     |
| Beer, hhd.      | 160 0 | 160 0 | 200 0 | 200 0 | 182 0 | 180 0   |
| Brandy, gallon  | 12 3  | 13 0  | 10 3  | 12 0  | 13 9  | 12 2    |
| Bricks, 1000    | 120 0 | 235 0 | 175 0 | 80 0  | 65 0  | 135 0   |
| Candles, lb.    | 2 3   | 2 3   | 1 10  | 1 7   | 1 7   | 1 10    |
| Coffee, cwt.    | 70 0  | 76 0  | 56 0  | 51 0  | 90 0  | 69 0    |
| Ducks, pair     | 9 0   | 15 0  | 24 0  | 20 0  | 18 0  | 17 0    |
| Flour, cwt.     | 33 0  | 30 0  | 33 0  | 41 0  | 27 0  | 33 0    |
| Goose           | 7 6   | 18 0  | 23 0  | 20 0  | 19 0  | 17 6    |
| Hay, cwt.       | 16 0  | 29 0  | 30 0  | 15 0  | 8 0   | 19 6    |
| Hens, pair      | 8 6   | 15 0  | 14 0  | 15 0  | 15 0  | 13 6    |
| Oats, bushel    | 5 9   | 8 6   | 10 3  | 8 6   | ...   | 8 3     |
| Ox              | 120 0 | 165 0 | 220 0 | 220 0 | 195 0 | 184 0   |
| Potatoes, cwt.  | 14 6  | 21 6  | 23 0  | 10 6  | 10 0  | 16 0    |
| Rice, cwt.      | 9 0   | 11 6  | 16 0  | 15 6  | 14 6  | 13 6    |
| Sheep           | 5 6   | 13 0  | 22 6  | 18 6  | 18 6  | 15 6    |
| Sugar, cwt.     | 21 3  | 19 6  | 23 0  | 28 0  | ...   | 23 0    |
| Tea, chest      | 63 0  | 96 0  | 102 0 | 83 0  | 82 0  | 85 0    |
| Tobacco, lb.    | 2 2   | 2 0   | 2 2   | 2 0   | ...   | 2 1     |
| Wheat, bushel   | 8 6   | 9 0   | 14 3  | 15 6  | 8 2   | 11 1    |
| Wine, gallon    | 3 4   | 3 4   | 3 9   | 4 2   | 3 4   | 3 7     |

He also gives the prices of food at San Francisco under similar circumstances in 1854 as follows:—

|             | s. d. | s. d.          | s. d. |
|-------------|-------|----------------|-------|
| Beef, lb.   | 1 7   | Duck           | 4 2   |
| Butter, lb. | 4 2   | Hen            | 11 0  |
| Eggs, doz.  | 5 3   | Cabbage        | 1 0   |
|             |       | Cauliflower    | 2 0   |
|             |       | Milk, quart    | 1 0   |
|             |       | Potatoes, cwt. | 13 0  |

Neumann Spallart ascertained the prices of all kinds of grain in 1884 in the principal countries of the world to be as follows:—

|               | Per Ton |      |        |      |       |
|---------------|---------|------|--------|------|-------|
|               | Wheat   | Rye  | Barley | Oats | Maize |
|               | £ s.    | £ s. | £ s.   | £ s. | £ s.  |
| England       | 8 2     | ...  | 8 1    | 7 5  | 5 14  |
| Russia        | 4 16    | 4 6  | 3 19   | 3 8  | ...   |
| France        | 7 16    | 7 0  | 7 3    | 7 10 | 7 12  |
| Germany       | 7 16    | 7 0  | 7 0    | 6 1  | ...   |
| Italy         | 8 11    | 5 17 | 6 13   | 4 17 | 6 7   |
| Austria       | 4 10    | 3 19 | 3 15   | 3 8  | 3 10  |
| Hungary       | 3 12    | 3 10 | 2 17   | 2 13 | 3 3   |
| Denmark       | 7 7     | 6 14 | 7 0    | 6 15 | ...   |
| Holland       | 8 11    | 6 14 | 6 9    | 6 6  | ...   |
| United States | 5 2     | 4 10 | 5 0    | 4 8  | 3 3   |
| Average       | 6 12    | 5 8  | 5 14   | 5 6  | 5 6   |

The prices of various commodities in different countries in 1888 were as follows:—

|                    | G. Britain | France | Germany | Austria | Sweden | Norway | Belgium | Switzerland | U. States |
|--------------------|------------|--------|---------|---------|--------|--------|---------|-------------|-----------|
|                    | £ s.       | £ s.   | £ s.    | £ s.    | £ s.   | £ s.   | £ s.    | £ s.        | £ s.      |
| Bacon, ton         | 44 15      | ...    | ...     | ...     | ...    | 40 0   | ...     | ...         | 39 0      |
| Barley             | 5 14       | 7 0    | 6 11    | 7 10    | 5 2    | 5 6    | 6 18    | 9 6         | 6 16      |
| Butter             | 107 0      | ...    | ...     | 53 0    | 67 0   | 61 0   | 105 0   | 70 0        | 85 0      |
| Cheese             | 47 0       | ...    | ...     | 55 0    | 56 0   | 63 0   | 61 0    | 70 0        | 47 0      |
| Coffee             | 75 0       | ...    | 82 0    | 102 0   | 91 0   | 72 0   | 65 0    | 84 0        | 61 0      |
| Fish               | 24 7       | ...    | 7 0     | ...     | 19 0   | ...    | ...     | ...         | 22 0      |
| Lard               | 41 2       | ...    | ...     | ...     | 33 0   | ...    | 28 0    | ...         | 36 0      |
| Maize              | 5 3        | 7 0    | ...     | 5 0     | 6 10   | 5 19   | ...     | ...         | 4 11      |
| Oats               | 4 18       | 7 10   | 7 10    | 4 18    | 4 19   | 4 16   | 5 18    | 6 12        | 6 13      |
| Pork               | 37 10      | 58 0   | 44 0    | 38 10   | 39 0   | ...    | ...     | ...         | 35 0      |
| Potatoes           | 6 14       | 2 16   | 1 14    | 3 15    | 2 16   | ...    | 3 11    | 3 2         | 3 14      |
| Raisins            | 30 7       | ...    | ...     | 17 10   | 33 0   | 21 0   | 28 0    | 18 5        | 19 0      |
| Rice               | 7 9        | ...    | 10 5    | 16 0    | 11 10  | 10 15  | ...     | 13 10       | 8 8       |
| Spirits, 100 gals. | 8 3        | ...    | ...     | ...     | ...    | ...    | 11 13   | 8 11        | 15 0      |
| Sugar, ton         | 17 11      | ...    | 30 17   | 29 0    | 21 0   | 23 0   | 21 0    | 20 10       | 29 0      |
| Tea                | 102 0      | ...    | ...     | 268 0   | 168 0  | 118 0  | 280 0   | 198 0       | 73 0      |
| Tobacco            | 70 0       | ...    | 56 0    | 90 0    | ...    | 59 0   | 65 0    | 47 0        | 39 0      |
| Wheat              | 7 14       | 10 0   | 9 8     | 6 17    | 8 4    | 7 18   | 7 18    | 9 1         | 6 10      |
| Wine, 100 gals.    | 36 10      | ...    | ...     | 18 15   | ...    | ...    | 16 7    | 5 11        | 14 2      |

## GREAT BRITAIN

The prices of various commodities during the last 690 years, according to Arthur Young, Shuckburgh, and other writers, were as follows:—

|               | Nominal Price |         |         |         |         |         |         |
|---------------|---------------|---------|---------|---------|---------|---------|---------|
|               | 1201-99       | 1300-99 | 1400-99 | 1500-99 | 1600-99 | 1700-99 | 1800-99 |
|               | £ s. d.       | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Ox            | 0 13 0        | 0 16 0  | 1 0 0   | 1 11 0  | 5 0 0   | 8 0 0   | 14 0 0  |
| Sheep         | 0 1 0         | 0 1 6   | 0 2 0   | 0 3 0   | 0 7 0   | 0 18 0  | 1 5 0   |
| Pig           | 0 2 0         | 0 3 0   | 0 3 0   | 0 4 0   | 0 8 0   | 1 2 0   | 1 10 0  |
| Goose         | 0 0 3         | 0 0 4   | 0 0 6   | 0 0 8   | 0 1 0   | 0 2 0   | 0 4 0   |
| Rabbit        | 0 0 2         | 0 0 2   | 0 0 3   | 0 0 3   | 0 0 6   | 0 0 8   | 0 1 0   |
| Hen           | 0 0 1         | 0 0 2   | 0 0 3   | 0 0 4   | 0 0 8   | 0 1 0   | 0 1 6   |
| Horse         | ...           | ...     | 2 0 0   | 3 0 0   | 5 0 0   | 15 0 0  | 30 0 0  |
| Pigeons, doz. | 0 0 3         | 0 0 4   | 0 0 6   | 0 0 9   | 0 1 0   | 0 1 6   | 0 3 0   |
| Eggs, "       | 0 0 1         | 0 0 2   | 0 0 3   | 0 0 3   | 0 0 4   | 0 0 8   | 0 1 0   |
| Butter, lb.   | ...           | 0 0 1   | 0 0 1   | 0 0 2   | 0 0 4   | 0 0 5   | 0 1 0   |
| Beef, 8 lbs.  | 0 0 2         | 0 0 4   | 0 0 5   | 0 0 6   | 0 2 0   | 0 3 0   | 0 7 0   |
| Wheat, ton    | ...           | 1 10 0  | 1 10 0  | 4 0 0   | 10 10 0 | 12 10 0 | 14 0 0  |
| Wine, gallon  | 0 1 0         | 0 1 0   | 0 1 0   | 0 3 0   | 0 5 0   | 0 16 0  | 0 16 0  |
| Beer, "       | 0 0 1         | 0 0 2   | 0 0 2   | 0 0 3   | 0 0 4   | 0 0 8   | 0 1 6   |



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## Prices According to Weight of Silver

|                        | 1201-99 | 1300-99 | 1400-99 | 1500-99 | 1600-99 | 1700-99 | 1800-85 |
|------------------------|---------|---------|---------|---------|---------|---------|---------|
|                        | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Ox . . . . .           | 2 3 0   | 2 5 0   | 2 2 0   | 2 0 0   | 5 6 0   | 8 10 0  | 14 0 0  |
| Sheep . . . . .        | 0 3 0   | 0 4 6   | 0 4 0   | 0 4 0   | 0 8 0   | 0 19 0  | 1 5 0   |
| Pig . . . . .          | 0 6 0   | 0 9 0   | 0 6 0   | 0 6 0   | 0 9 0   | 1 3 0   | 1 10 0  |
| Goose . . . . .        | 0 0 9   | 0 1 0   | 0 1 0   | 0 0 11  | 0 1 0   | 0 2 1   | 0 4 0   |
| Rabbit . . . . .       | 0 0 6   | 0 0 6   | 0 0 6   | 0 0 4   | 0 0 6   | 0 0 8   | 0 1 6   |
| Hen . . . . .          | 0 0 3   | 0 0 6   | 0 0 6   | 0 0 5   | 0 0 9   | 0 1 0   | 0 1 6   |
| Horse . . . . .        | ...     | ...     | 4 4 0   | 4 0 0   | 5 6 0   | 15 15 0 | 30 0 0  |
| Pigeons, doz. . . . .  | 0 0 9   | 0 1 0   | 0 1 0   | 0 1 0   | 0 1 1   | 0 1 6   | 0 3 0   |
| Eggs, " . . . . .      | 0 0 3   | 0 0 6   | 0 0 6   | 0 0 4   | 0 0 4   | 0 0 8   | 0 1 0   |
| Butter, lb. . . . .    | ...     | 0 0 3   | 0 0 2   | 0 0 3   | 0 0 4   | 0 0 5   | 0 1 0   |
| Beef, 8 lbs. . . . .   | 0 0 6   | 0 1 0   | 0 0 10  | 0 0 8   | 0 2 1   | 0 3 2   | 0 7 0   |
| Wheat, ton . . . . .   | ...     | 4 0 0   | 3 0 0   | 5 5 0   | 11 5 0  | 13 5 0  | 14 0 0  |
| Wine, gallon . . . . . | 0 3 0   | 0 3 0   | 0 2 0   | 0 4 0   | 0 6 0   | 0 17 0  | 0 16 0  |
| Beer . . . . .         | 0 0 3   | 0 0 5   | 0 0 4   | 0 0 4   | 0 0 4   | 0 0 8   | 0 1 6   |

The following tables of prices from 1782 to 1859 are from Tooke's *History of Prices*:-

|                          | 1782  | 1783  | 1784  | 1785  | 1786  | 1787  | 1788  | 1789  | 1790  | 1782-90 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                          | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . . . .     | 70 0  | 66 0  | 65 0  | 69 0  | 78 0  | 91 0  | 92 0  | 95 0  | 78 0  | 78 0    |
| Copper, " . . . . .      | 85 0  | 85 0  | 85 0  | 80 0  | 82 0  | 81 0  | 82 0  | 82 0  | 84 0  | 83 0    |
| Cotton, " . . . . .      | 330 0 | 285 0 | 205 0 | 203 0 | 252 0 | 242 0 | 225 0 | 185 0 | 170 0 | 233 0   |
| Flax, " . . . . .        | 43 0  | 46 0  | 44 0  | 44 0  | 45 0  | 43 0  | 44 0  | 46 0  | 46 0  | 44 6    |
| Hemp, " . . . . .        | 34 0  | 32 0  | 28 0  | 23 0  | 25 0  | 36 0  | 36 0  | 28 0  | 27 0  | 30 0    |
| Hops, " . . . . .        | 85 0  | 150 0 | 95 0  | 98 0  | 75 0  | 140 0 | 260 0 | 140 0 | 90 0  | 126 0   |
| Indigo, lb. . . . .      | 5 0   | 5 6   | 4 0   | 4 0   | 3 6   | 4 6   | 4 0   | 6 0   | 3 0   | 4 4     |
| Iron, cwt. . . . .       | 6 9   | 5 9   | 4 9   | 4 9   | 4 9   | 4 6   | 5 0   | 5 0   | 5 0   | 5 1     |
| Oil, gallon . . . . .    | 3 6   | 3 8   | 3 10  | 3 10  | 3 8   | 3 2   | 3 1   | 3 5   | 3 4   | 3 6     |
| Pepper, cwt. . . . .     | 205 0 | 195 0 | 170 0 | 140 0 | 122 0 | 130 0 | 121 0 | 130 0 | 140 0 | 150 2   |
| Rice, " . . . . .        | 26 0  | 28 0  | 24 0  | 16 0  | 19 0  | 18 0  | 17 0  | 17 0  | 16 0  | 20 1    |
| Rum, gallon . . . . .    | 4 7   | 3 1   | 3 5   | 2 11  | 2 6   | 2 9   | 3 4   | 2 9   | 3 4   | 3 3     |
| Silk, lb. . . . .        | 19 0  | 19 0  | 19 0  | 22 0  | 31 0  | 31 0  | 26 0  | 20 0  | 20 0  | 23 0    |
| Sugar, cwt. . . . .      | 45 0  | 34 0  | 32 0  | 32 0  | 38 0  | 36 0  | 38 0  | 39 0  | 42 0  | 37 6    |
| Tea, lb. . . . .         | 5 0   | 4 9   | 5 1   | 4 1   | 4 9   | 4 0   | 4 6   | 3 9   | 3 7   | 4 4     |
| Timber, load . . . . .   | 68 0  | 51 0  | 42 0  | 40 0  | 37 0  | 33 0  | 33 0  | 29 0  | 37 0  | 41 0    |
| Tin, cwt. . . . .        | 83 0  | 83 0  | 83 0  | 85 0  | 85 0  | 85 0  | 81 0  | 74 0  | 77 0  | 82 0    |
| Tobacco, cwt. . . . .    | 140 0 | 65 0  | 50 0  | 37 0  | 33 0  | 36 0  | 33 0  | 33 0  | 33 0  | 51 0    |
| Wheat, quarter . . . . . | 54 0  | 54 0  | 54 0  | 48 0  | 42 0  | 46 0  | 49 0  | 56 0  | 56 0  | 51 0    |
| Wool, lb. . . . .        | 3 4   | 3 6   | 3 5   | 3 5   | 3 3   | 3 3   | 3 7   | 3 7   | 3 7   | 3 5     |

|                          | 1791  | 1792  | 1793  | 1794  | 1795  | 1796  | 1797  | 1798  | 1799  | 1800  | 1791-1800 |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|
|                          | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.     |
| Coffee, cwt. . . . .     | 78 0  | 90 0  | 83 0  | 80 0  | 95 0  | 110 0 | 118 0 | 139 0 | 141 0 | 117 0 | 105 0     |
| Copper, " . . . . .      | 87 0  | 96 0  | 110 0 | 109 0 | 109 0 | 115 0 | 120 0 | 120 0 | 130 0 | 150 0 | 114 0     |
| Cotton, " . . . . .      | 195 0 | 233 0 | 225 0 | 186 0 | 176 0 | 230 0 | 270 0 | 305 0 | 330 0 | 270 0 | 242 0     |
| Flax, " . . . . .        | 38 0  | 34 0  | 35 0  | 35 0  | 47 0  | 55 0  | 51 0  | 52 0  | 61 0  | 67 0  | 47 0      |
| Hemp, " . . . . .        | 23 0  | 25 0  | 26 0  | 28 0  | 39 0  | 55 0  | 45 0  | 37 0  | 41 0  | 64 0  | 38 4      |
| Hops, " . . . . .        | 110 0 | 78 0  | 143 0 | 151 0 | 95 0  | 80 0  | 135 0 | 135 0 | 295 0 | 297 0 | 152 0     |
| Indigo, lb. . . . .      | 6 6   | 7 9   | 5 9   | 5 6   | 5 9   | 5 6   | 4 1   | 6 10  | 7 0   | 6 3   | 6 1       |
| Iron, cwt. . . . .       | 6 3   | 6 3   | 6 3   | 6 6   | 6 6   | 6 6   | 6 6   | 6 6   | 6 6   | 7 0   | 6 6       |
| Oil, gallon . . . . .    | 3 2   | 3 5   | 4 2   | 4 7   | 4 8   | 4 9   | 5 0   | 5 6   | 5 11  | 5 2   | 4 7       |
| Pepper, cwt. . . . .     | 160 0 | 190 0 | 130 0 | 128 0 | 130 0 | 127 0 | 128 0 | 122 0 | 168 0 | 170 0 | 145 4     |
| Rice, " . . . . .        | 16 0  | 17 0  | 17 0  | 39 0  | 31 0  | 17 0  | 17 0  | 28 0  | 39 0  | 38 0  | 26 0      |
| Rum, gallon . . . . .    | 3 9   | 4 1   | 4 8   | 3 7   | 6 0   | 7 9   | 6 3   | 6 3   | 4 3   | 6 0   | 5 4       |
| Silk, lb. . . . .        | 21 0  | 22 0  | 18 0  | 17 0  | 18 0  | 20 0  | 20 0  | 24 0  | 25 0  | 24 0  | 21 0      |
| Sugar, cwt. . . . .      | 56 0  | 58 0  | 57 0  | 50 0  | 59 0  | 69 0  | 64 0  | 71 0  | 58 0  | 51 0  | 59 4      |
| Tea, lb. . . . .         | 3 10  | 4 0   | 3 9   | 3 4   | 3 9   | 3 8   | 3 4   | 3 5   | 3 1   | 3 3   | 3 8       |
| Timber, load . . . . .   | 52 0  | 46 0  | 46 0  | 51 0  | 58 0  | 56 0  | 62 0  | 58 0  | 84 0  | 115 0 | 63 0      |
| Tin, cwt. . . . .        | 82 0  | 98 0  | 104 0 | 102 0 | 100 0 | 102 0 | 103 0 | 100 0 | 103 0 | 107 0 | 100 1     |
| Tobacco, cwt. . . . .    | 30 0  | 32 0  | 35 0  | 33 0  | 51 0  | 59 0  | 85 0  | 112 0 | 88 0  | 58 0  | 58 4      |
| Wheat, quarter . . . . . | 49 0  | 47 0  | 50 0  | 54 0  | 82 0  | 80 0  | 62 0  | 54 0  | 76 0  | 127 0 | 68 0      |
| Wool, lb. . . . .        | 3 9   | 4 2   | 4 2   | 3 9   | 3 9   | 4 0   | 4 1   | 4 1   | 4 6   | 4 8   | 4 1       |

|                      | 1801  | 1802  | 1803  | 1804  | 1805  | 1806  | 1807  | 1808  | 1809  | 1810  | 1801-10 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                      | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . . . . | 95 0  | 78 0  | 108 0 | 133 0 | 145 0 | 115 0 | 100 0 | 88 0  | 93 0  | 93 0  | 105 0   |
| Copper, " . . . . .  | 160 0 | 145 0 | 135 0 | 153 0 | 182 0 | 191 0 | 155 0 | 174 0 | 160 0 | 160 0 | 161 6   |
| Cotton, " . . . . .  | 260 0 | 234 0 | 112 0 | 130 0 | 130 0 | 129 0 | 112 0 | 177 0 | 130 0 | 132 0 | 155 0   |
| Flax, " . . . . .    | 68 0  | 71 0  | 81 0  | 82 0  | 76 0  | 68 0  | 72 0  | 109 0 | 120 0 | 84 0  | 83 0    |
| Hemp, " . . . . .    | 65 0  | 41 0  | 53 0  | 50 0  | 53 0  | 55 0  | 62 0  | 93 0  | 95 0  | 66 0  | 63 6    |

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|                   | 1801  | 1802  | 1803  | 1804  | 1805  | 1806  | 1807  | 1808  | 1809  | 1810  | 1811-10 |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                   | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Hops, cwt. . . .  | 185 0 | 164 0 | 160 0 | 95 0  | 110 0 | 120 0 | 119 0 | 100 0 | 98 0  | 108 0 | 136 0   |
| Indigo, lb. . . . | 6 10  | 7 6   | 8 0   | 7 9   | 8 3   | 9 6   | 7 0   | 6 3   | 6 4   | 7 0   | 7 6     |
| Iron, cwt. . . .  | 7 3   | 7 3   | 7 3   | 8 0   | 8 0   | 8 0   | 8 0   | 8 0   | 8 0   | 8 0   | 7 9     |
| Oil, gallon . . . | 5 1   | 4 10  | 5 1   | 5 2   | 6 0   | 5 10  | 5 7   | 6 5   | 5 10  | 5 2   | 5 6     |
| Pepper, cwt. . .  | 140 0 | 138 0 | 121 0 | 95 0  | 93 0  | 77 0  | 75 0  | 85 0  | 102 0 | 95 0  | 102 0   |
| Rice, . . . . .   | 38 0  | 35 0  | 34 0  | 35 0  | 38 0  | 36 0  | 30 0  | 49 0  | 49 0  | 28 0  | 37 3    |
| Rum, gallon . .   | 6 3   | 5 1   | 5 3   | 4 7   | 4 11  | 3 11  | 3 11  | 5 2   | 5 3   | 5 7   | 5 0     |
| Silk, lb. . . . . | 23 0  | 25 0  | 22 0  | 23 0  | 25 0  | 30 0  | 29 0  | 32 0  | 32 0  | 41 0  | 28 3    |
| Sugar, cwt. . . . | 54 0  | 39 0  | 45 0  | 56 0  | 53 0  | 43 0  | 34 0  | 40 0  | 43 0  | 48 0  | 45 6    |
| Tea, lb. . . . .  | 3 3   | 3 4   | 3 1   | 3 1   | 3 4   | 3 0   | 3 3   | 3 4   | 3 5   | 3 5   | 3 4     |
| Timber, load . .  | 102 0 | 69 0  | 97 0  | 70 0  | 70 0  | 101 0 | 125 0 | 235 0 | 260 0 | 200 0 | 133 0   |
| Tin, cwt. . . . . | 111 0 | 114 0 | 116 0 | 116 0 | 118 0 | 126 0 | 128 0 | 119 0 | 124 0 | 151 0 | 122 0   |
| Tobacco, cwt. . . | 54 0  | 47 0  | 49 0  | 58 0  | 54 0  | 56 0  | 56 0  | 128 0 | 126 0 | 74 0  | 70 0    |
| Wheat, quarter .  | 128 0 | 67 0  | 60 0  | 69 6  | 88 0  | 88 0  | 78 0  | 85 0  | 106 0 | 112 0 | 88 0    |
| Wool, lb. . . . . | 5 6   | 6 0   | 6 2   | 6 8   | 6 8   | 6 8   | 6 8   | 8 6   | 19 0  | 10 6  | 8 3     |

The above prices were in Bank of England notes, but the values in gold were as follows :—

| Gold               | 1801  | 1802  | 1803  | 1804  | 1805  | 1806  | 1807  | 1808  | 1809  | 1810  | 1811-10 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                    | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . . . | 87 0  | 73 0  | 105 0 | 129 0 | 140 0 | 112 0 | 97 0  | 85 6  | 85 0  | 81 0  | 99 6    |
| Copper, . . . . .  | 147 0 | 135 0 | 131 0 | 148 0 | 176 0 | 185 0 | 150 0 | 160 0 | 145 0 | 140 0 | 152 6   |
| Cotton, . . . . .  | 240 0 | 218 0 | 109 0 | 126 0 | 126 0 | 125 0 | 109 0 | 172 0 | 118 0 | 116 0 | 146 0   |
| Flax, . . . . .    | 63 0  | 66 0  | 78 0  | 79 6  | 74 0  | 66 0  | 70 0  | 106 0 | 109 0 | 73 0  | 78 6    |
| Hemp, . . . . .    | 60 0  | 38 0  | 51 0  | 48 6  | 51 6  | 53 6  | 60 0  | 90 0  | 86 0  | 58 0  | 59 9    |
| Hops, . . . . .    | 170 0 | 153 0 | 155 0 | 92 0  | 107 0 | 116 0 | 115 0 | 97 0  | 89 0  | 94 0  | 119 0   |
| Indigo, lb. . . .  | 6 3   | 7 0   | 7 8   | 7 5   | 7 11  | 9 2   | 6 9   | 6 0   | 5 9   | 6 2   | 7 0     |
| Iron, cwt. . . . . | 6 8   | 6 9   | 7 0   | 7 8   | 7 8   | 7 8   | 7 8   | 7 8   | 7 4   | 7 0   | 7 4     |
| Oil, gallon . . .  | 4 8   | 4 6   | 4 10  | 5 0   | 5 9   | 5 8   | 5 5   | 6 2   | 5 4   | 4 6   | 5 3     |
| Pepper, cwt. . .   | 129 0 | 128 0 | 117 0 | 92 0  | 90 0  | 75 0  | 73 0  | 82 6  | 93 0  | 83 0  | 96 4    |
| Rice, . . . . .    | 35 0  | 32 0  | 33 0  | 34 0  | 37 0  | 35 0  | 29 0  | 47 6  | 44 6  | 25 0  | 35 3    |
| Rum, gallon . .    | 5 9   | 4 9   | 5 1   | 4 5   | 4 9   | 3 9   | 3 9   | 5 0   | 4 10  | 5 0   | 4 9     |
| Silk, lb. . . . .  | 21 0  | 23 0  | 21 6  | 22 3  | 24 3  | 29 0  | 28 0  | 31 0  | 29 0  | 36 0  | 26 6    |
| Sugar, cwt. . . .  | 50 0  | 36 0  | 43 6  | 54 6  | 51 6  | 41 6  | 33 0  | 38 6  | 39 0  | 42 0  | 43 2    |
| Tea, lb. . . . .   | 3 0   | 3 1   | 3 0   | 3 0   | 3 2   | 2 11  | 3 2   | 3 3   | 3 2   | 3 0   | 3 1     |
| Timber, load . .   | 94 0  | 64 0  | 94 0  | 68 0  | 68 0  | 98 0  | 121 0 | 228 0 | 237 0 | 175 0 | 124 6   |
| Tin, cwt. . . . .  | 102 0 | 106 0 | 112 0 | 112 0 | 114 0 | 122 0 | 124 0 | 115 0 | 113 0 | 132 0 | 115 3   |
| Tobacco, cwt. . .  | 50 0  | 44 0  | 47 6  | 55 4  | 52 6  | 54 6  | 54 6  | 124 0 | 115 0 | 65 0  | 66 4    |
| Wheat, quarter .   | 118 0 | 62 0  | 58 0  | 67 6  | 85 6  | 85 6  | 76 0  | 82 6  | 96 0  | 98 0  | 83 0    |
| Wool, lb. . . . .  | 5 6   | 5 7   | 5 11  | 6 5   | 6 5   | 6 5   | 6 5   | 8 2   | 17 0  | 9 3   | 7 8     |

| Notes              | 1811  | 1812  | 1813  | 1814  | 1815  | 1816  | 1817  | 1818  | 1819  | 1820  | 1811-20 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                    | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . . . | 50 0  | 45 0  | 75 0  | 87 0  | 78 0  | 65 0  | 75 0  | 115 0 | 113 0 | 109 0 | 81 3    |
| Copper, . . . . .  | 148 0 | 138 0 | 133 0 | 130 0 | 130 0 | 108 0 | 119 0 | 123 0 | 133 0 | 115 0 | 128 0   |
| Cotton, . . . . .  | 97 0  | 116 0 | 196 0 | 242 0 | 177 0 | 160 0 | 186 0 | 177 0 | 140 0 | 102 0 | 159 0   |
| Flax, . . . . .    | 88 0  | 102 0 | 89 0  | 76 0  | 73 0  | 56 0  | 61 0  | 68 0  | 56 0  | 52 0  | 72 0    |
| Hemp, . . . . .    | 77 0  | 92 0  | 80 0  | 57 0  | 42 0  | 33 0  | 33 0  | 38 0  | 35 0  | 33 0  | 52 0    |
| Hops, . . . . .    | 146 0 | 200 0 | 310 0 | 170 0 | 220 0 | 240 0 | 490 0 | 370 0 | 128 0 | 91 0  | 236 6   |
| Indigo, lb. . . .  | 9 0   | 10 3  | 12 9  | 13 6  | 10 6  | 9 10  | 10 0  | 8 7   | 8 0   | 7 3   | 10 1    |
| Iron, cwt. . . . . | 8 0   | 8 0   | 8 0   | 8 0   | 8 0   | 8 0   | 8 0   | 8 0   | 8 11  | 8 5   | 8 2     |
| Oil, gallon . . .  | 5 5   | 7 2   | 7 6   | 6 2   | 6 2   | 6 0   | 6 11  | 6 6   | 6 2   | 5 0   | 6 4     |
| Pepper, cwt. . .   | 71 0  | 77 0  | 112 0 | 154 0 | 97 0  | 77 0  | 79 0  | 85 0  | 70 0  | 61 0  | 88 4    |
| Rice, . . . . .    | 32 0  | 61 0  | 66 0  | 43 0  | 34 0  | 39 0  | 43 0  | 47 0  | 32 0  | 37 0  | 43 6    |
| Rum, gallon . .    | 5 3   | 5 4   | 6 9   | 6 3   | 4 9   | 3 10  | 4 1   | 4 5   | 3 3   | 3 10  | 4 10    |
| Silk, lb. . . . .  | 43 0  | 31 0  | 25 0  | 21 0  | 20 1  | 17 0  | 22 0  | 24 0  | 23 0  | 22 0  | 24 10   |
| Sugar, cwt. . . .  | 40 0  | 45 0  | 63 0  | 76 0  | 67 0  | 52 0  | 49 0  | 51 0  | 43 0  | 36 0  | 52 3    |
| Tea, lb. . . . .   | 3 4   | 3 4   | 3 4   | 3 7   | 3 3   | 3 3   | 3 2   | 2 11  | 2 11  | 3 0   | 3 3     |
| Timber, load . .   | 225 0 | 185 0 | 145 0 | 122 0 | 88 0  | 60 0  | 63 0  | 70 0  | 60 0  | 55 0  | 107 4   |
| Tin, cwt. . . . .  | 165 0 | 135 0 | 140 0 | 170 0 | 144 0 | 119 0 | 100 0 | 95 0  | 79 0  | 79 0  | 122 6   |
| Tobacco, cwt. . .  | 56 0  | 48 0  | 140 0 | 305 0 | 177 0 | 117 0 | 88 0  | 93 0  | 74 0  | 65 0  | 116 4   |
| Wheat, quarter .   | 108 0 | 118 0 | 120 0 | 85 0  | 76 0  | 82 0  | 116 0 | 98 0  | 78 0  | 76 0  | 95 6    |
| Wool, lb. . . . .  | 8 3   | 9 3   | 8 9   | 8 0   | 7 0   | 6 6   | 6 6   | 6 6   | 5 4   | 4 0   | 7 0     |

The prices in the above decade as above given were in paper-money ; the gold value was as follows :—

| Gold               | 1811  | 1812  | 1813  | 1814  | 1815  | 1816  | 1817  | 1818  | 1819  | 1820  | 1811-20 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                    | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . . . | 42 0  | 36 0  | 56 0  | 70 0  | 65 0  | 62 0  | 73 6  | 112 0 | 109 0 | 109 0 | 73 6    |
| Copper, . . . . .  | 123 0 | 110 0 | 100 0 | 104 0 | 108 0 | 104 0 | 116 6 | 119 0 | 128 0 | 115 0 | 118 0   |
| Cotton, . . . . .  | 81 0  | 92 0  | 146 0 | 194 0 | 148 0 | 154 0 | 186 0 | 172 0 | 134 0 | 102 0 | 141 0   |

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| Gold              | 1811  | 1812  | 1813  | 1814  | 1815  | 1816  | 1817  | 1818  | 1819  | 1820  | 1811-20 |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                   | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Flax, cwt. . . .  | 73 0  | 82 0  | 67 0  | 61 0  | 61 0  | 54 0  | 59 6  | 66 0  | 54 0  | 52 0  | 63 0    |
| Hemp, " . . . .   | 64 0  | 74 0  | 60 0  | 45 0  | 35 0  | 31 6  | 32 4  | 37 0  | 33 6  | 33 0  | 44 6    |
| Hops, " . . . .   | 122 0 | 160 0 | 232 0 | 136 0 | 183 0 | 230 0 | 480 0 | 359 0 | 123 0 | 91 0  | 212 0   |
| Indigo, lb. . . . | 7 6   | 8 1   | 9 6   | 10 8  | 8 9   | 9 5   | 9 9   | 8 4   | 7 8   | 7 3   | 8 8     |
| Iron, cwt. . . .  | 6 8   | 6 4   | 6 0   | 6 4   | 6 8   | 7 8   | 7 10  | 7 9   | 8 7   | 8 5   | 7 3     |
| Oil, gallon . . . | 4 6   | 5 8   | 5 7   | 4 10  | 5 2   | 5 9   | 6 9   | 6 4   | 5 11  | 5 0   | 5 8     |
| Pepper, cwt. . .  | 59 0  | 62 0  | 84 0  | 123 0 | 81 0  | 74 0  | 77 0  | 82 6  | 67 0  | 61 0  | 77 0    |
| Rice, " . . . .   | 27 0  | 49 0  | 49 0  | 34 0  | 28 0  | 37 6  | 42 0  | 45 6  | 31 0  | 37 0  | 38 0    |
| Rum, gallon . .   | 4 5   | 4 3   | 5 1   | 5 0   | 4 0   | 3 8   | 4 0   | 4 3   | 3 1   | 3 10  | 4 3     |
| Silk, lb. . . . . | 36 0  | 25 0  | 18 6  | 17 0  | 16 8  | 16 3  | 21 6  | 23 3  | 22 0  | 22 0  | 22 0    |
| Sugar, cwt. . . . | 33 0  | 36 0  | 47 0  | 61 0  | 56 0  | 50 0  | 48 0  | 49 6  | 41 0  | 36 0  | 45 8    |
| Tea, lb. . . . .  | 2 9   | 2 8   | 2 6   | 2 10  | 2 9   | 3 1   | 3 1   | 2 10  | 2 10  | 3 0   | 2 10    |
| Timber, load . .  | 188 0 | 148 0 | 109 0 | 98 0  | 73 0  | 57 6  | 61 6  | 68 0  | 57 6  | 55 0  | 91 6    |
| Tin, cwt. . . . . | 138 0 | 108 0 | 105 0 | 136 0 | 120 0 | 114 0 | 98 0  | 92 0  | 76 0  | 79 0  | 106 5   |
| Tobacco, cwt. .   | 47 0  | 38 0  | 105 0 | 244 0 | 147 0 | 112 0 | 86 0  | 90 0  | 71 0  | 65 0  | 100 6   |
| Wheat, quarter .  | 90 0  | 94 0  | 90 0  | 68 0  | 63 0  | 78 6  | 113 6 | 95 0  | 75 0  | 76 0  | 84 4    |
| Wool, lb. . . . . | 7 0   | 7 4   | 6 7   | 6 4   | 5 10  | 6 3   | 6 4   | 6 4   | 5 2   | 4 0   | 6 1     |

In 1820 gold and paper money were of equal value.

|                   | 1821  | 1822  | 1823  | 1824  | 1825  | 1826  | 1827  | 1828  | 1829  | 1830  | 1821-30 |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                   | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . .  | 102 0 | 94 0  | 80 0  | 64 0  | 63 0  | 52 0  | 46 0  | 41 0  | 36 0  | 34 0  | 61 3    |
| Copper, " . . .   | 99 0  | 101 0 | 105 0 | 105 0 | 100 0 | 115 0 | 115 0 | 110 0 | 97 0  | 89 0  | 103 6   |
| Cotton, " . . .   | 84 0  | 83 0  | 80 0  | 75 0  | 120 0 | 77 0  | 58 0  | 57 0  | 57 0  | 60 0  | 75 0    |
| Flax, " . . . .   | 50 0  | 48 0  | 54 0  | 46 0  | 46 0  | 37 0  | 37 0  | 35 0  | 36 0  | 42 0  | 43 0    |
| Hemp, " . . . .   | 34 0  | 35 0  | 33 0  | 36 0  | 42 0  | 41 0  | 41 0  | 39 0  | 42 0  | 41 0  | 38 6    |
| Hops, " . . . .   | 86 0  | 86 0  | 105 0 | 242 0 | 260 0 | 250 0 | 112 0 | 107 0 | 165 0 | 228 0 | 164 0   |
| Indigo, lb. . .   | 9 0   | 10 0  | 9 6   | 10 1  | 13 0  | 11 0  | 11 10 | 10 4  | 8 6   | 8 9   | 10 3    |
| Iron, cwt. . . .  | 6 10  | 6 6   | 6 3   | 8 6   | 10 10 | 8 3   | 7 3   | 6 6   | 5 9   | 5 2   | 7 3     |
| Oil, gallon . .   | 4 2   | 3 9   | 3 9   | 3 9   | 3 7   | 3 4   | 3 10  | 3 5   | 3 6   | 3 11  | 3 8     |
| Pepper, cwt. . .  | 66 0  | 67 0  | 60 0  | 52 0  | 65 0  | 51 0  | 38 0  | 33 0  | 33 0  | 36 0  | 50 1    |
| Rice, " . . . .   | 33 0  | 33 0  | 38 0  | 34 0  | 37 0  | 35 0  | 39 0  | 36 0  | 35 0  | 34 0  | 35 6    |
| Rum, gallon . .   | 2 10  | 2 5   | 2 6   | 2 3   | 2 9   | 3 5   | 3 10  | 4 0   | 3 6   | 2 10  | 3 0     |
| Silk, lb. . . . . | 20 0  | 21 0  | 19 0  | 18 0  | 22 0  | 16 0  | 20 0  | 21 0  | 15 0  | 14 0  | 18 6    |
| Sugar, cwt. . . . | 32 0  | 31 0  | 32 0  | 32 0  | 37 0  | 35 0  | 34 0  | 35 0  | 28 0  | 23 0  | 32 0    |
| Tea, lb. . . . .  | 3 0   | 3 2   | 3 2   | 3 2   | 3 2   | 2 10  | 2 10  | 2 8   | 2 9   | 2 9   | 3 0     |
| Timber, load . .  | 60 0  | 50 0  | 52 0  | 51 0  | 58 0  | 48 0  | 46 0  | 42 0  | 46 0  | 41 0  | 49 6    |
| Tin, cwt. . . . . | 79 0  | 89 0  | 101 0 | 89 0  | 100 0 | 86 0  | 81 0  | 76 0  | 79 0  | 77 0  | 85 6    |
| Tobacco, cwt. .   | 48 0  | 55 0  | 50 0  | 47 0  | 56 0  | 56 0  | 48 0  | 38 0  | 47 0  | 48 0  | 49 4    |
| Wheat, quarter .  | 71 0  | 53 0  | 57 0  | 72 0  | 84 0  | 73 0  | 58 6  | 60 6  | 66 0  | 64 0  | 66 0    |
| Wool, lb. . . . . | 3 6   | 4 0   | 4 2   | 3 8   | 3 10  | 3 6   | 3 0   | 2 9   | 2 6   | 2 4   | 3 4     |

|                   | 1831  | 1832  | 1833  | 1834  | 1835  | 1836  | 1837  | 1838  | 1839  | 1840  | 1831-40 |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                   | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . .  | 56 0  | 76 0  | 78 0  | 68 0  | 75 0  | 81 0  | 81 0  | 78 0  | 90 0  | 86 0  | 77 0    |
| Copper, " . . .   | 87 0  | 91 0  | 98 0  | 99 0  | 94 0  | 105 0 | 92 0  | 90 0  | 94 0  | 98 0  | 95 0    |
| Cotton, " . . .   | 58 0  | 58 0  | 80 0  | 79 0  | 95 0  | 93 0  | 84 0  | 63 0  | 70 0  | 56 0  | 73 6    |
| Flax, " . . . .   | 48 0  | 47 0  | 39 0  | 48 0  | 55 0  | 46 0  | 40 0  | 37 0  | 41 0  | 39 0  | 44 0    |
| Hemp, " . . . .   | 40 0  | 32 0  | 26 0  | 25 0  | 25 0  | 29 0  | 31 0  | 35 0  | 41 0  | 38 0  | 32 3    |
| Hops, " . . . .   | 197 0 | 165 0 | 167 0 | 161 0 | 132 0 | 140 0 | 132 0 | 130 0 | 110 0 | ...   | 148 3   |
| Indigo, lb. . .   | 6 6   | 5 5   | 6 5   | 6 6   | 6 1   | 6 7   | 7 3   | 7 6   | 8 1   | 6 1   | 6 8     |
| Iron, cwt. . . .  | 5 0   | 5 2   | 5 6   | 5 3   | 5 3   | 7 2   | 5 6   | 6 1   | 6 0   | 9 2   | 6 0     |
| Oil, gallon . .   | 3 5   | 3 8   | 3 11  | 4 0   | 4 9   | 4 10  | 4 2   | 4 7   | 4 9   | 5 2   | 4 4     |
| Pepper, cwt. . .  | 37 0  | 36 0  | 36 0  | 38 0  | 42 0  | 43 0  | 35 0  | 38 0  | 39 0  | 40 0  | 38 6    |
| Rice, " . . . .   | 34 0  | 37 0  | 35 0  | 32 0  | 31 0  | 31 0  | 32 0  | 36 0  | 41 0  | ...   | 34 6    |
| Rum, gallon . .   | 2 9   | 2 10  | 3 0   | 3 1   | 3 2   | 3 10  | 4 1   | 4 3   | 5 4   | 5 1   | 3 9     |
| Silk, lb. . . . . | 15 0  | 14 0  | 18 0  | 18 0  | 20 0  | 23 0  | 19 0  | 21 0  | 24 0  | 25 0  | 19 8    |
| Sugar, cwt. . . . | 24 0  | 27 0  | 28 0  | 32 0  | 34 0  | 42 0  | 35 0  | 37 0  | 38 0  | 47 0  | 34 6    |
| Tea, lb. . . . .  | 2 9   | 2 7   | 2 6   | 2 10  | 2 4   | 2 0   | 1 9   | 2 2   | 1 10  | 2 8   | 2 4     |
| Timber, load . .  | 51 0  | 46 0  | 49 0  | 49 0  | 49 0  | 55 0  | 54 0  | 52 0  | ...   | 106 0 | 55 6    |
| Tin, cwt. . . . . | 77 0  | 76 0  | 75 0  | 78 0  | 85 0  | 116 0 | 90 0  | 90 0  | 85 0  | 82 0  | 85 0    |
| Tobacco, cwt. .   | 37 0  | 37 0  | 41 0  | 47 0  | 51 0  | 61 0  | 52 0  | 55 0  | 78 0  | 65 0  | 52 6    |
| Wheat, quarter .  | 66 0  | 59 0  | 53 0  | 46 0  | 39 0  | 49 6  | 56 0  | 65 0  | 71 0  | 66 0  | 57 0    |
| Wool, lb. . . . . | 2 8   | 2 6   | 2 7   | 3 3   | 2 9   | 3 0   | 2 8   | 2 5   | 2 7   | 2 4   | 2 7     |

|                  | 1841  | 1842  | 1843  | 1844  | 1845  | 1846  | 1847  | 1848  | 1849  | 1850  | 1841-50 |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                  | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt. . . | 99 0  | 93 0  | 83 0  | 81 0  | 72 0  | 70 0  | 70 0  | 74 0  | 60 0  | 65 0  | 76 6    |
| Copper, " . . .  | 98 0  | 91 0  | 84 0  | 84 0  | 88 0  | 91 0  | 93 0  | 89 0  | 84 0  | 86 0  | 89 0    |
| Cotton, " . . .  | 60 0  | 47 0  | 45 0  | 47 0  | 38 0  | 43 0  | 61 0  | 47 0  | 48 0  | 65 0  | 50 3    |
| Flax, " . . . .  | 39 0  | ...   | ...   | 34 0  | ...   | ...   | ...   | 43 0  | 37 0  | 40 0  | 39 0    |

|                | 1841  | 1842  | 1843  | 1844  | 1845  | 1846  | 1847  | 1848  | 1849  | 1850  | 1841-50 |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Hemp, cwt.     | 38 0  | 34 0  | 30 0  | 30 0  | 29 0  | 33 0  | 39 0  | 32 0  | 30 0  | 31 0  | 32 6    |
| Indigo, lb.    | 5 6   | 4 9   | 5 0   | 4 0   | 4 2   | 3 10  | 3 10  | 3 0   | 3 4   | 4 2   | 4 3     |
| Iron, cwt.     | 7 6   | 6 2   | 4 10  | 5 6   | 8 9   | 9 6   | 9 10  | 7 9   | 6 5   | 5 9   | 7 3     |
| Oil, gallon    | 6 2   | 5 4   | 4 1   | 3 10  | 3 6   | 3 6   | 4 2   | 3 8   | 3 5   | 3 7   | 4 1     |
| Pepper, cwt.   | 37 0  | 36 0  | 37 0  | 33 0  | 30 0  | 30 0  | 28 0  | 28 0  | 28 0  | 34 0  | 32 0    |
| Rum, gallon    | 4 6   | 4 1   | ...   | 2 8   | 2 7   | 2 10  | 4 2   | 3 4   | 2 6   | 2 5   | 3 3     |
| Silk, lb.      | 21 0  | 20 0  | 19 0  | 20 0  | 18 0  | 16 0  | 14 0  | 14 0  | 16 0  | 18 0  | 17 6    |
| Sugar, cwt.    | 43 0  | 37 0  | 33 0  | 33 0  | 34 0  | 35 0  | 28 0  | 23 0  | 26 0  | 28 0  | 32 0    |
| Tea, lb.       | 2 5   | 2 2   | 1 7   | 1 8   | 1 7   | 1 6   | 1 11  | 1 2   | 1 3   | 1 3   | 1 8     |
| Timber, load   | 104 0 | 95 0  | 89 0  | 83 0  | 83 0  | 85 0  | 85 0  | 75 0  | 68 0  | 63 0  | 83 0    |
| Tin, cwt.      | 82 0  | 72 0  | 65 0  | 73 0  | 87 0  | 99 0  | 93 0  | 80 0  | 82 0  | 78 0  | 81 0    |
| Tobacco, cwt.  | 47 0  | 38 0  | 36 0  | 34 0  | 32 0  | 36 0  | 37 0  | 38 0  | 42 0  | 65 0  | 40 6    |
| Wheat, quarter | 64 0  | 57 0  | 50 0  | 51 0  | 51 0  | 55 0  | 70 0  | 51 0  | 44 0  | 40 0  | 53 3    |
| Wool, lb.      | 2 3   | 2 3   | 2 3   | 2 1   | 2 5   | 2 0   | 1 10  | 1 9   | 1 5   | 1 5   | 2 0     |

|                | 1851  | 1852  | 1853  | 1854  | 1855  | 1856  | 1857  | 1858  | 1859  | 1851-59 |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Coffee, cwt.   | 68 0  | 58 0  | 68 0  | 68 0  | 67 0  | 67 0  | 74 0  | 56 0  | 64 0  | 65 6    |
| Copper, "      | 86 0  | 95 0  | 112 0 | 126 0 | 126 0 | 117 0 | 117 0 | 107 0 | 107 0 | 110 6   |
| Cotton, "      | 61 0  | 54 0  | 53 0  | 52 0  | 52 0  | 58 0  | 75 0  | 57 0  | 65 0  | 58 6    |
| Flax, "        | 40 0  | 48 0  | 49 0  | 47 0  | 56 0  | 53 0  | 57 0  | 57 0  | 57 0  | 51 6    |
| Hemp, "        | 31 0  | 34 0  | 38 0  | 56 0  | 51 0  | 38 0  | 35 0  | 29 0  | 29 0  | 38 0    |
| Indigo, lb.    | 4 4   | 4 4   | 4 9   | 4 9   | 4 3   | 4 3   | 4 8   | 6 3   | 4 6   | 4 8     |
| Iron, cwt.     | 5 8   | 6 4   | 9 6   | 10 0  | 8 6   | 9 0   | 8 3   | 7 3   | 7 0   | 8 0     |
| Oil, gallon    | 3 2   | 4 0   | 5 2   | 4 7   | 4 6   | 4 2   | 4 7   | 4 0   | 3 11  | 4 3     |
| Pepper, cwt.   | 28 0  | 32 0  | 37 0  | 42 0  | 42 0  | 50 0  | ...   | ...   | ...   | 38 6    |
| Butter, "      | 76 0  | 74 0  | 92 0  | 101 0 | 103 0 | 107 0 | 100 0 | 110 0 | 105 0 | 96 6    |
| Rum, gallon    | 2 5   | 2 2   | 3 2   | 3 10  | 3 11  | 3 6   | 4 8   | 3 10  | 3 2   | 3 4     |
| Silk, lb.      | 18 0  | 17 0  | 19 0  | 14 0  | 14 0  | 17 0  | 23 0  | 18 0  | 16 0  | 17 4    |
| Sugar, cwt.    | 27 0  | 24 0  | 25 0  | 25 0  | 35 0  | 36 0  | 42 0  | 25 0  | 24 0  | 29 3    |
| Tea, lb.       | 1 2   | 1 1   | 1 5   | 1 4   | 1 6   | 1 6   | 1 3   | 1 1   | 0 11  | 1 3     |
| Timber, load   | 63 0  | 61 0  | 78 0  | 83 0  | 80 0  | 73 0  | 69 0  | 71 0  | 63 0  | 71 3    |
| Tin, cwt.      | 84 0  | 91 0  | 113 0 | 124 0 | 117 0 | 133 0 | 143 0 | 109 0 | 124 0 | 115 0   |
| Tobacco, cwt.  | 102 0 | 56 0  | 65 0  | 65 0  | 70 0  | 71 0  | 90 0  | 82 0  | 70 0  | 74 6    |
| Wheat, quarter | 39 0  | 41 0  | 53 0  | 72 0  | 75 0  | 69 0  | 56 0  | 44 0  | 44 0  | 55 0    |
| Wool, lb.      | 1 5   | 1 5   | 1 5   | 1 4   | 1 7   | 2 0   | 1 8   | 1 2   | 1 3   | 1 6     |

## PRICES OF BRITISH IMPORTS AND EXPORTS, 1854-88.

There are ninety-five principal articles of British commerce, and these attained their highest and lowest prices in the years stated below:—

| Years   | Highest | Lowest | Years           | Highest | Lowest |
|---------|---------|--------|-----------------|---------|--------|
| 1854-55 | 12      | 11     | Brought forward | 75      | 25     |
| 1856-57 | 19      | 0      | 1874-75         | 6       | 0      |
| 1858-59 | 1       | 2      | 1876-77         | 2       | 0      |
| 1860-61 | 1       | 0      | 1878-79         | 2       | 7      |
| 1862-63 | 3       | 4      | 1880-81         | 1       | 0      |
| 1864-65 | 12      | 3      | 1882-83         | 3       | 1      |
| 1866-67 | 9       | 1      | 1884-85         | 2       | 7      |
| 1868-69 | 7       | 3      | 1886-87         | 2       | 30     |
| 1870-71 | 2       | 1      | 1888            | 0       | 16     |
| 1872-73 | 9       | 0      | 1889            | 2       | 9      |
| Total   | 75      | 25     | Total           | 95      | 95     |

The highest and lowest prices recorded, and the years in which these prices occurred, are given as follows:—

|              | Highest | Lowest  | Year of Price | Average Price for 36 Years |
|--------------|---------|---------|---------------|----------------------------|
|              | £ s. d. | £ s. d. | Highest       | Lowest                     |
| Bacon, cwt.  | 3 6 0   | 1 15 0  | 1869          | 1862                       |
| Barley, "    | 0 10 2  | 0 5 3   | 1868          | 1887                       |
| Beef, "      | 2 13 0  | 0 9 0   | 1883          | 1863                       |
| Brandy, gall | 0 13 0  | 0 5 1   | 1857          | 1866                       |
| Butter, cwt. | 5 17 0  | 3 8 0   | 1876          | 1854                       |

|                  | Highest | Lowest  | Year of Price | Average Price for 36 Years |
|------------------|---------|---------|---------------|----------------------------|
|                  | £ s. d. | £ s. d. | Highest       | Lowest                     |
| Cheese, cwt.     | 3 4 0   | 2 3 0   | 1866          | 1879                       |
| Cigars, lb.      | 0 14 3  | 0 6 4   | 1882          | 1869                       |
| Cochineal, lb.   | 0 4 1   | 0 1 0   | 1857          | 1884                       |
| Cocoa, cwt.      | 4 13 6  | 1 8 0   | 1879          | 1854                       |
| Coffee, "        | 5 1 0   | 2 3 0   | 1874          | 1858                       |
| Copper ore, cwt. | 1 9 0   | 0 6 10  | 1856          | 1886                       |
| Cotton, cwt.     | 12 15 0 | 2 10 0  | 1864          | 1886                       |
| Eggs (120)       | 0 8 7   | 0 4 7   | 1874          | 1854                       |
| Flax, cwt.       | 3 0 0   | 1 14 0  | 1856          | 1888                       |
| Flour, "         | 1 4 0   | 0 11 1  | 1855          | 1887                       |
| Guano, cwt.      | 0 13 0  | 0 7 0   | 1857          | 1889                       |
| Hemp, "          | 2 14 0  | 1 8 0   | 1854          | 1879                       |
| Hides "          | 4 3 0   | 2 7 0   | 1873          | 1854                       |
| Hops, "          | 9 5 0   | 2 5 0   | 1882          | 1859                       |
| Indigo, lb.      | 0 6 10  | 0 3 6   | 1868          | 1889                       |
| Jute, cwt.       | 1 5 0   | 0 11 3  | 1863          | 1886                       |
| Lard, "          | 3 13 0  | 1 14 0  | 1869          | 1879                       |
| Maize, cwt.      | 0 11 0  | 0 4 9   | 1855          | 1889                       |
| Molasses, cwt.   | 0 18 0  | 0 6 4   | 1857          | 1888                       |
| Nitre, cwt.      | 1 0 0   | 0 9 4   | 1857          | 1889                       |
| Oats, "          | 0 9 6   | 0 4 10  | 1868          | 1888                       |
| Oil, olive, tun  | 67 0    | 35 15 0 | 1868          | 1889                       |
| Oranges, bushel  | 0 13 3  | 0 5 11  | 1862          | 1889                       |
| Pepper, cwt.     | 76 0    | 33 0 0  | 1887          | 1864                       |
| Pork, "          | 3 2 0   | 1 11 4  | 1870          | 1879                       |
| Potatoes "       | 0 8 0   | 0 3 0   | 1889          | 1854                       |
| Raisins "        | 2 8 0   | 1 5 0   | 1856          | 1862                       |
| Rice "           | 0 14 8  | 0 7 6   | 1867          | 1886                       |
| Rum "            | 0 3 8   | 0 1 6   | 1857          | 1886                       |

## PRICES

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## PRICES

|                 | Year of Price |         | Average<br>Price for<br>36 Years |
|-----------------|---------------|---------|----------------------------------|
|                 | Highest       | Lowest  |                                  |
| Saltpetre . . . | £ s. d.       | £ s. d. | £ s. d.                          |
| Seed, clover    | 3 17 0        | 2 0 10  | 1860 1885                        |
| Sheep, each     | 2 9 0         | 1 11 0  | 1878 1888                        |
| Silk, lb. . .   | 1 7 0         | 0 12 3  | 1866 1888                        |
| Sugar, cwt.     | 2 6 0         | 0 15 8  | 1857 1887                        |
| Tallow, ,,      | 3 3 0         | 1 4 0   | 1854 1887                        |
| Tea, ,,         | 9 6 0         | 4 18 0  | 1865 1887                        |
| Tobacco, cwt.   | 7 2 0         | 3 2 0   | 1863 1878                        |
| Wheat, ,,       | 0 16 10       | 0 7 6   | 1854 1886                        |
| Wine, gall.     | 0 14 9        | 0 3 10  | 1856 1864                        |
| Wood, load      | 3 16 0        | 1 18 0  | 1854 1887                        |
| Wool, cwt. .    | 10 4 0        | 4 5 0   | 1857 1886                        |

The highest and lowest prices for exports, and the years in which they occurred, are shown as follows:—

|                   | Year of Price |         | Average<br>Price for<br>36 Years |
|-------------------|---------------|---------|----------------------------------|
|                   | Highest       | Lowest  |                                  |
| Alkali, ton . .   | £ s. d.       | £ s. d. | £ s. d.                          |
| Bags, gross . .   | 12 7 0        | 5 3 0   | 1873 1888                        |
| Beer, barrel . .  | 9 0 0         | 2 6 0   | 1864 1886                        |
| Books, cwt. . .   | 4 8 0         | 3 6 0   | 1874 1884                        |
| Boots, doz. pair  | 15 0 0        | 8 7 0   | 1855 1889                        |
| Brass, cwt. . .   | 3 12 0        | 2 14 0  | 1864 1888                        |
| Butter, ,, . .    | 6 11 0        | 3 15 0  | 1857 1886                        |
| Candles, cwt. .   | 7 0 0         | 4 12 0  | 1884 1884                        |
| Carpet, doz. yds. | 8 13 0        | 2 1 0   | 1857 1888                        |
| Cement, ton, . .  | 2 0 0         | 1 4 0   | 1867 1887                        |
| Cheese, cwt. . .  | 3 16 0        | 1 18 0  | 1856 1888                        |
| Cloth, doz. yds.  | 4 8 0         | 3 16 0  | 1870 1884                        |
| Coal, ton . . .   | 2 1 0         | 1 4 0   | 1884 1884                        |
| Copper, cwt. . .  | 1 1 0         | 0 8 4   | 1873 1887                        |
|                   | 6 0 0         | 2 4 0   | 1857 1886                        |

|                      | Year of Price |         | Average<br>Price for<br>36 Years |
|----------------------|---------------|---------|----------------------------------|
|                      | Highest       | Lowest  |                                  |
| Cordage, cwt. .      | £ s. d.       | £ s. d. | £ s. d.                          |
| Cottons, 100 yds.    | 3 3 0         | 2 1 0   | 1854 1886                        |
| ,, printed, 100 yds. | 2 8 4         | 0 18 0  | 1864 1886                        |
| Firearms, each .     | 2 12 6        | 1 5 0   | 1864 1889                        |
| Flannel, doz. yds.   | 2 1 0         | 0 18 0  | 1875 1884                        |
| Glass, flint, cwt.   | 1 0 0         | 0 11 0  | 1864 1888                        |
| ,, bottles, ton      | 3 13 0        | 2 2 0   | 1855 1885                        |
| Gunpowder, cwt.      | 11 10 0       | 9 5 0   | 1854 1883                        |
| Hats, dozen . .      | 3 12 0        | 2 14 0  | 1859 1868                        |
| Herrings, barrel     | 1 19 0        | 0 19 0  | 1865 1886                        |
| Horses . . .         | 1 15 0        | 1 1 0   | 1881 1887                        |
| Iron, pig, ton . .   | 8 1 0         | 0 35 0  | 1876 1870                        |
| ,, rail, ,, . .      | 6 5 0         | 2 3 0   | 1873 1888                        |
| ,, hoop, ton . .     | 13 5 0        | 4 11 0  | 1873 1887                        |
| ,, wire, ,, . .      | 14 12 0       | 6 1 0   | 1873 1887                        |
| Jute, 100 yards .    | 23 10 0       | 12 10 0 | 1873 1885                        |
| Lead, ton . . .      | 2 10 0        | 0 17 0  | 1854 1886                        |
| Leather, cwt. . .    | 25 0 0        | 12 5 0  | 1856 1885                        |
| Linens, 100 yds.     | 11 5 0        | 6 17 0  | 1866 1879                        |
| ,, printed, ,, .     | 3 11 0        | 2 6 0   | 1864 1888                        |
| Oil-seed, ton . .    | 4 2 6         | 2 9 0   | 1866 1888                        |
| Paper, cwt. . .      | 34 10 0       | 18 7 0  | 1866 1889                        |
| Sailcloth, 100 yds.  | 4 16 0        | 1 13 0  | 1854 1888                        |
| Salt, ton . . .      | 5 17 0        | 4 8 0   | 1874 1888                        |
| Soap, cwt. . .       | 0 19 0        | 0 9 0   | 1873 1863                        |
| Silk, doz. yds. .    | 2 10 0        | 0 19 0  | 1869 1888                        |
| Spirits, gallon .    | 1 8 0         | 0 17 0  | 1887 1889                        |
| Steel bar, ton . .   | 0 7 0         | 0 2 5   | 1889 1865                        |
| Sugar, cwt. . .      | 38 6 0        | 15 7 0  | 1874 1889                        |
| Tin, ,, . . .        | 3 0 0         | 0 13 0  | 1857 1887                        |
| Wool, ,, . . .       | 7 10 0        | 3 6 0   | 1872 1878                        |
| Yarn, cotton, cwt.   | 11 4 0        | 4 9 0   | 1865 1885                        |
| ,, linen, ,, . .     | 13 10 0       | 5 1 0   | 1864 1886                        |
| ,, woollen, ,, .     | 8 8 0         | 5 12 0  | 1864 1885                        |
| Zinc, ton . . .      | 19 10 0       | 10 12 0 | 1866 1888                        |
|                      | 32 0 0        | 13 6 0  | 1857 1885                        |

## British Imports from 1854 to 1860:—

|                    | 1854  | 1855  | 1856  | 1857  | 1858  | 1859  | 1860  | 1854-60 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|---------|
| Bacon, cwt. . .    | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Barley, ,, . .     | 40 0  | 48 0  | 55 0  | 55 0  | 46 0  | 48 0  | 53 0  | 49 0    |
| Beans, ,, . .      | 9 0   | 8 7   | 9 6   | 8 9   | 7 9   | 7 6   | 9 6   | 8 8     |
| Beef, ,, . . .     | 10 2  | 9 7   | 8 2   | 9 0   | 8 4   | 8 3   | 9 9   | 8 6     |
| Brandy, gallon     | 38 0  | 41 6  | 37 6  | 51 0  | 39 0  | 41 0  | 31 4  | 40 0    |
| Butter, cwt. . .   | 8 4   | 9 9   | 10 2  | 12 10 | 7 7   | 7 0   | 9 6   | 9 4     |
| Cheese, ,, . .     | 68 6  | 70 0  | 72 6  | 80 0  | 73 6  | 71 0  | 84 8  | 74 6    |
| Cigars, lb. . .    | 51 9  | 52 10 | 53 0  | 47 3  | 45 3  | 51 0  | 56 10 | 51 6    |
| Cochineal, lb. .   | 10 6  | 11 6  | 11 0  | 11 5  | 11 1  | 11 0  | 11 7  | 11 3    |
| Cocoa, cwt. . .    | 4 0   | 3 11  | 3 10  | 4 1   | 3 10  | 3 8   | 3 4   | 3 10    |
| Coffee, ,, . .     | 32 0  | 40 0  | 50 0  | 80 0  | 50 0  | 50 0  | 62 0  | 52 0    |
| Copper ore, cwt.   | 45 6  | 46 0  | 46 9  | 48 8  | 42 6  | 50 9  | 58 6  | 48 6    |
| Cotton, ,, . .     | 24 0  | 21 6  | 23 0  | 17 0  | 18 10 | 19 4  | 18 10 | 20 6    |
| Eggs (120)         | 53 7  | 55 5  | 60 8  | 73 9  | 67 0  | 65 10 | 60 4  | 62 4    |
| Flax, cwt. . .     | 4 6   | 5 8   | 5 8   | 6 0   | 5 5   | 5 5   | 7 0   | 5 8     |
| Flour, cwt. . .    | 51 3  | 51 0  | 44 0  | 35 8  | 46 3  | 52 4  | 50 3  | 47 0    |
| Guano, ,, . .      | 21 6  | 24 0  | 20 0  | 17 0  | 15 0  | 14 0  | 16 4  | 18 6    |
| Hams, ,, . . .     | 11 0  | 11 4  | 11 6  | 13 0  | 12 6  | 12 0  | 12 0  | 11 10   |
| Hemp, ,, . . .     | 60 0  | 66 0  | 69 6  | 68 9  | 59 0  | 56 7  | 68 9  | 64 0    |
| Hides, dry, cwt.   | 59 2  | 43 0  | 35 0  | 32 2  | 28 8  | 27 10 | 30 0  | 36 6    |
| ,, wet, ,, . .     | 56 0  | 67 8  | 86 4  | 95 9  | 65 2  | 74 5  | 75 6  | 74 6    |
| Indigo, lb. . .    | 49 0  | 56 0  | 74 8  | 80 6  | 63 0  | 75 3  | 72 6  | 67 6    |
| Lard, cwt. . .     | 4 2   | 5 0   | 5 6   | 6 0   | 6 5   | 5 8   | 6 0   | 5 6     |
| Linseed, cwt. .    | 51 6  | 52 6  | 62 3  | 66 9  | 55 0  | 56 7  | 59 3  | 57 6    |
| Maize, ,, . .      | 15 6  | 16 0  | 12 6  | 14 0  | 12 8  | 11 0  | 12 1  | 13 6    |
| Molasses, ,, .     | 10 3  | 11 0  | 8 0   | 8 10  | 7 10  | 7 0   | 8 4   | 8 8     |
| Nitre, ,, . . .    | 11 0  | 13 8  | 15 6  | 19 4  | 9 9   | 10 0  | 12 3  | 13 2    |
| Oats, ,, . . .     | 17 3  | 16 6  | 17 0  | 20 0  | 16 0  | 15 0  | 13 6  | 16 6    |
| Oil, olive, gallon | 8 6   | 8 10  | 8 6   | 8 3   | 7 8   | 7 4   | 8 0   | 8 2     |
| ,, palm, cwt.      | 4 6   | 4 4   | 4 1   | 4 3   | 3 9   | 4 0   | 4 8   | 4 3     |
| Oranges, bushel    | 46 0  | 43 6  | 43 0  | 43 9  | 38 10 | 45 1  | 44 8  | 43 6    |
|                    | 9 3   | 10 10 | 13 0  | 12 10 | 11 5  | 11 9  | 10 6  | 11 6    |

## PRICES

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|                             | 1854  | 1855  | 1856  | 1857  | 1858  | 1859  | 1860  | 1861-60 |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|---------|
|                             | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Peas, cwt. . . . .          | 11 8  | 12 0  | 10 8  | 9 7   | 10 2  | 9 4   | 10 0  | 10 6    |
| Pepper, cwt. . . . .        | 47 0  | 49 0  | 47 0  | 46 0  | 45 0  | 42 0  | 42 0  | 45 6    |
| Pork, . . . . .             | 45 0  | 44 6  | 45 6  | 47 6  | 41 4  | 41 4  | 43 5  | 44 0    |
| Potatoes, „ . . . .         | 3 0   | 3 6   | 3 6   | 3 8   | 3 10  | 3 2   | 4 6   | 3 7     |
| Raisins, „ . . . .          | 32 6  | 33 0  | 47 8  | 44 8  | 27 3  | 37 2  | 33 10 | 36 6    |
| Rice, . . . . .             | 14 0  | 14 6  | 10 6  | 11 3  | 8 10  | 10 9  | 13 0  | 11 10   |
| Rum, gallon . . . . .       | 3 8   | 3 4   | 3 2   | 3 8   | 3 2   | 3 2   | 3 0   | 3 4     |
| Saltpetre, cwt. . . . .     | 27 6  | 28 8  | 35 0  | 39 8  | 38 8  | 37 4  | 40 4  | 35 4    |
| Seeds, clover, cwt. . . . . | 52 3  | 68 0  | 77 4  | 71 6  | 57 8  | 67 10 | 62 3  | 65 3    |
| Sheep, each . . . . .       | 30 0  | 35 6  | 37 0  | 48 6  | 46 0  | 42 4  | 43 0  | 40 4    |
| Silk, lb. . . . .           | 21 6  | 22 9  | 32 6  | 35 10 | 28 0  | 32 0  | 34 7  | 29 6    |
| Sugar raw, cwt. . . . .     | 26 0  | 30 0  | 33 0  | 42 6  | 33 0  | 30 4  | 31 3  | 32 4    |
| „ refined, cwt. . . . .     | 29 0  | 34 3  | 36 0  | 45 8  | 39 7  | 36 4  | 34 3  | 36 6    |
| Tallow, cwt. . . . .        | 63 0  | 57 0  | 52 6  | 53 9  | 49 0  | 54 9  | 56 2  | 55 2    |
| Tea . . . . .               | 145 0 | 140 0 | 135 0 | 164 0 | 154 0 | 173 0 | 173 0 | 155 0   |
| Tobacco, „ . . . .          | 51 0  | 58 0  | 82 0  | 88 0  | 70 0  | 61 0  | 58 0  | 67 0    |
| Wheat . . . . .             | 16 6  | 15 0  | 15 3  | 12 10 | 10 7  | 10 7  | 13 8  | 13 6    |
| Wine, gallon . . . . .      | 12 4  | 13 4  | 14 9  | 12 4  | 10 4  | 8 6   | 6 1   | 11 2    |
| Wood, load . . . . .        | 76 0  | 73 0  | 62 0  | 60 9  | 54 0  | 58 4  | 63 0  | 64 0    |
| „ staves, load . . . . .    | 140 0 | 148 0 | 120 0 | 128 0 | 105 0 | 96 0  | 120 0 | 122 6   |
| Wool, cwt. . . . .          | 168 0 | 172 0 | 196 0 | 210 0 | 191 0 | 192 0 | 205 0 | 191 0   |

British imports from 1861 to 1870:—

|                              | 1861  | 1862  | 1863  | 1864  | 1865  | 1866  | 1867  | 1868  | 1869  | 1870  | 1861-70 |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                              | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Bacon, cwt. . . . .          | 48 2  | 35 1  | 37 0  | 39 9  | 54 10 | 54 2  | 51 8  | 55 5  | 65 6  | 62 2  | 50 6    |
| Barley, „ . . . .            | 9 4   | 8 8   | 8 6   | 8 0   | 6 6   | 8 10  | 10 0  | 10 2  | 8 4   | 7 9   | 8 8     |
| Beans, „ . . . .             | 8 8   | 7 6   | 7 6   | 7 7   | ...   | 9 7   | ...   | ...   | ...   | ...   | 8 2     |
| Beef, „ . . . .              | 32 6  | 35 7  | 28 8  | 29 9  | 33 0  | 45 3  | 50 5  | 44 10 | 36 2  | 42 9  | 38 0    |
| Brandy, gallon . . . . .     | 9 1   | 9 1   | 7 6   | 6 3   | 5 5   | 5 1   | 5 8   | 6 5   | 6 4   | 5 5   | 6 6     |
| Butter, cwt. . . . .         | 90 4  | 86 0  | 81 0  | 101 0 | 105 2 | 97 0  | 103 0 | 116 0 | 110 0 | 117 0 | 101 0   |
| Cheese, „ . . . .            | 45 10 | 42 1  | 48 3  | 52 0  | 58 6  | 66 8  | 56 0  | 59 0  | 63 0  | 63 0  | 55 6    |
| Cigars, lb. . . . .          | 13 0  | 13 0  | 13 0  | 12 4  | 12 0  | 12 0  | 7 10  | 7 9   | 6 4   | 8 2   | 10 6    |
| Cochineal, lb. . . . .       | 2 8   | 2 8   | 3 1   | 3 2   | 3 4   | 3 6   | 3 0   | 2 11  | 2 6   | 2 2   | 2 11    |
| Cocoa, cwt. . . . .          | 58 0  | 54 0  | 46 8  | 46 0  | 42 6  | 60 6  | 65 0  | 55 0  | 55 0  | 56 6  | 54 0    |
| Coffee, „ . . . .            | 55 6  | 66 4  | 69 2  | 66 0  | 63 6  | 56 2  | 71 0  | 63 0  | 63 0  | 61 6  | 63 6    |
| Copper ore, cwt. . . . .     | 17 8  | 17 2  | 16 8  | 16 8  | 18 2  | 16 6  | 11 9  | 12 6  | 11 5  | 11 10 | 15 0    |
| Cotton, cwt. . . . .         | 72 5  | 141 0 | 206 0 | 255 0 | 176 0 | 151 0 | 92 0  | 93 0  | 104 0 | 90 0  | 138 0   |
| Eggs (120) . . . . .         | 6 5   | 6 1   | 6 1   | 6 0   | 6 1   | 6 0   | 6 0   | 6 4   | 6 2   | 6 2   | 6 2     |
| Fish, cwt. . . . .           | ...   | ...   | ...   | ...   | 21 3  | 24 10 | 22 1  | 20 5  | 20 0  | 20 0  | 21 6    |
| Flax, „ . . . .              | 48 5  | 56 0  | 53 7  | 53 3  | 52 0  | 55 4  | 59 0  | 57 8  | 56 6  | 51 10 | 54 4    |
| Flour, „ . . . .             | 15 5  | 14 4  | 12 8  | 11 10 | 12 6  | 15 0  | 19 6  | 18 4  | 14 0  | 14 1  | 14 9    |
| Glass, „ . . . .             | ...   | ...   | ...   | ...   | 16 0  | 16 0  | 16 0  | 16 0  | 14 0  | 14 0  | 15 4    |
| Guano, cwt. . . . .          | 12 0  | 12 7  | 12 4  | 12 0  | 12 0  | 12 0  | 11 0  | 11 2  | 12 6  | 12 5  | 12 0    |
| Hams, „ . . . .              | 47 0  | 35 5  | 33 2  | 43 5  | 51 4  | 57 4  | 51 4  | 59 7  | 68 9  | 66 7  | 51 6    |
| Hemp, „ . . . .              | 30 7  | 35 6  | 40 5  | 33 2  | 31 1  | 31 1  | 37 6  | 39 3  | 37 3  | 37 8  | 35 4    |
| Hides, dry, cwt. . . . .     | 71 7  | 70 0  | 69 4  | 74 0  | 74 0  | 69 0  | 64 0  | 70 0  | 69 6  | 70 6  | 70 3    |
| „ wet, „ . . . .             | 60 4  | 58 4  | 51 4  | 54 4  | 48 3  | 48 9  | ...   | ...   | ...   | ...   | 53 9    |
| Indigo, lb. . . . .          | 6 8   | 6 6   | 5 0   | 5 6   | 5 7   | 5 7   | 6 0   | 6 8   | 6 6   | 6 2   | 6 0     |
| Jute, cwt. . . . .           | ...   | ...   | 25 0  | ...   | 16 9  | 18 2  | 17 9  | 17 8  | 17 4  | 19 6  | 19 0    |
| Lard, „ . . . .              | 53 0  | 42 1  | 38 3  | 44 6  | 63 4  | 69 0  | 51 0  | 64 0  | 72 7  | 66 9  | 56 6    |
| Linseed, cwt. . . . .        | 13 2  | 14 0  | 15 0  | 13 2  | 13 6  | 15 0  | 15 0  | 13 6  | 13 4  | 13 6  | 14 0    |
| Maize, „ . . . .             | 7 10  | 7 0   | 6 9   | 7 2   | 6 11  | 6 9   | 9 0   | 8 5   | 6 9   | 6 11  | 7 5     |
| Molasses, „ . . . .          | 9 11  | 9 5   | 9 2   | 13 3  | 12 1  | 13 3  | 14 0  | 12 3  | 12 8  | 9 6   | 11 6    |
| Nitre, „ . . . .             | 13 0  | 13 7  | 14 3  | 15 3  | 13 0  | 11 6  | 11 0  | 13 0  | 15 6  | 15 6  | 13 8    |
| Oats, „ . . . .              | 8 1   | 8 2   | 6 10  | 6 6   | 7 2   | 8 2   | 9 2   | 9 6   | 8 4   | 8 0   | 8 0     |
| Oil, olive, gallon . . . . . | 4 8   | 4 6   | 4 8   | 4 8   | 4 2   | 4 6   | 5 0   | 5 4   | 4 2   | 4 2   | 4 7     |
| „ palm, cwt. . . . .         | 42 8  | 39 10 | 35 10 | 33 7  | 36 4  | 40 2  | 38 7  | 39 5  | 38 10 | 36 6  | 38 0    |
| Oranges, bushel . . . . .    | 11 3  | 13 3  | 12 6  | 12 1  | 12 1  | 12 1  | 10 2  | 9 7   | 9 6   | 6 8   | 10 10   |
| Paper, cwt. . . . .          | ...   | ...   | ...   | ...   | 51 4  | 51 4  | 51 4  | 51 4  | 51 4  | 51 4  | 51 4    |
| Pepper, cwt. . . . .         | 40 0  | 37 0  | 34 6  | 33 0  | 33 0  | 34 0  | 32 6  | 33 0  | 42 0  | 48 0  | 36 9    |
| Petroleum, gallon . . . . .  | ...   | ...   | ...   | ...   | 3 0   | 1 10  | 1 4   | 1 6   | 1 8   | 1 7   | 1 10    |
| Pork, cwt. . . . .           | 45 3  | 33 0  | 31 5  | 39 3  | 41 6  | 50 0  | 46 8  | 50 6  | 60 4  | 62 3  | 46 0    |
| Potatoes, cwt. . . . .       | 5 4   | 4 1   | 3 5   | 3 4   | 3 7   | 4 4   | 5 9   | 4 9   | 4 9   | 6 4   | 4 7     |
| Rags, „ . . . .              | ...   | ...   | ...   | ...   | 20 6  | 21 9  | 19 0  | 18 0  | 17 3  | 17 4  | 19 0    |
| Raisins, „ . . . .           | 28 6  | 25 0  | 27 3  | 30 0  | 32 4  | 28 2  | 28 9  | 32 10 | 35 8  | 32 6  | 30 0    |
| Rice, „ . . . .              | 12 8  | 11 10 | 11 11 | 11 2  | 12 4  | 13 1  | 14 8  | 12 4  | 10 8  | 10 7  | 12 1    |
| Rum, gallon . . . . .        | 2 7   | 2 2   | 2 0   | 2 3   | 2 8   | 2 6   | 2 0   | 2 3   | 2 4   | 2 4   | 2 4     |
| Saltpetre, cwt. . . . .      | 32 6  | 34 8  | 36 9  | 32 6  | 24 9  | 20 6  | 18 6  | 20 5  | 22 1  | 26 0  | 26 9    |
| Seeds, clover, cwt. . . . .  | 53 0  | 53 0  | 52 9  | 54 4  | 67 5  | 64 3  | 55 0  | 54 0  | 54 8  | 56 5  | 56 6    |
| Sheep, each . . . . .        | 45 0  | 42 7  | 35 0  | 36 8  | 50 0  | 50 0  | 35 0  | 31 0  | 34 0  | 34 0  | 39 6    |
| Sheep-skins, each . . . . .  | ...   | ...   | ...   | ...   | 1 0   | 1 2   | 1 3   | 1 1   | 1 1   | 1 3   | 1 2     |
| Silk, lb. . . . .            | 28 3  | 27 5  | 25 4  | 27 11 | 28 11 | 29 4  | 25 9  | 24 9  | 24 6  | 26 0  | 26 9    |
| Sugar, raw, cwt. . . . .     | 30 10 | 28 0  | 26 2  | 33 1  | 27 1  | 27 3  | 21 10 | 22 7  | 24 6  | 22 6  | 26 4    |

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|                     | 1861  | 1862  | 1863  | 1864  | 1865  | 1866  | 1867  | 1868  | 1869  | 1870  | 1861-70 |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                     | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Sugar refined, cwt. | 35 0  | 34 0  | 34 5  | 35 9  | 31 4  | 31 1  | 31 6  | 31 8  | 33 3  | 32 0  | 33 0    |
| Sulphur, cwt.       | ...   | ...   | ...   | ...   | 7 4   | 6 10  | 6 6   | 6 9   | 7 8   | 7 3   | 7 0     |
| Tallow, ..          | 50 9  | 45 9  | 42 4  | 41 0  | 48 3  | 44 9  | 44 0  | 48 0  | 45 4  | 43 4  | 45 3    |
| Tea, ..             | 159 0 | 190 0 | 172 0 | 168 0 | 196 0 | 196 0 | 176 0 | 180 0 | 166 0 | 160 0 | 176 0   |
| Tobacco, ..         | 108 0 | 140 0 | 142 0 | 132 0 | 126 0 | 88 0  | 70 0  | 80 0  | 80 0  | 82 0  | 105 0   |
| Wheat, ..           | 13 6  | 11 10 | 9 9   | 9 1   | 9 4   | 11 7  | 14 5  | 13 6  | 10 4  | 10 6  | 11 6    |
| Wine, gallon        | 7 3   | 4 8   | 4 4   | 3 10  | 4 2   | 7 5   | 6 3   | 6 5   | 6 2   | 5 5   | 5 7     |
| Wood, load          | 66 0  | 66 0  | 66 0  | 72 0  | 65 0  | 54 0  | 58 0  | 60 0  | 65 0  | 65 0  | 63 6    |
| .. staves           | 126 0 | 152 0 | 149 0 | 146 0 | 161 0 | 192 0 | 194 0 | 191 0 | 178 0 | 184 0 | 167 0   |
| Wool, cwt.          | 180 0 | 180 0 | 174 0 | 201 0 | 180 0 | 193 0 | 152 0 | 133 0 | 127 0 | 134 0 | 165 0   |
| Yeast, ..           | ...   | ...   | ...   | ...   | 40 6  | 41 0  | 41 6  | 40 0  | 41 0  | 44 6  | 41 6    |

British imports from 1871 to 1880 :—

|                     | 1871  | 1872  | 1873  | 1874  | 1875  | 1876  | 1877  | 1878  | 1879  | 1880  | 1871-80 |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                     | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Bacon, cwt.         | 49 3  | 41 0  | 40 10 | 45 9  | 52 4  | 53 5  | 47 10 | 38 7  | 34 4  | 40 0  | 44 6    |
| Barley, ..          | 8 0   | 8 3   | 8 8   | 9 4   | 8 5   | 7 8   | 8 4   | 7 10  | 8 4   | 8 6   | 8 4     |
| Beef, ..            | 42 1  | 36 9  | 40 0  | 40 0  | 42 2  | 45 8  | 49 9  | 48 5  | 47 9  | 47 8  | 44 0    |
| Brandy, gallon      | 7 3   | 7 6   | 7 4   | 8 8   | 7 9   | 6 7   | 8 6   | 8 0   | 8 6   | 8 10  | 7 11    |
| Butter, cwt.        | 104 0 | 106 0 | 109 0 | 112 0 | 116 0 | 117 0 | 117 0 | 111 0 | 102 0 | 105 0 | 110 0   |
| Cheese, ..          | 55 0  | 57 0  | 60 0  | 60 6  | 58 0  | 55 6  | 58 0  | 50 4  | 43 0  | 57 0  | 55 6    |
| Cigars, lb.         | 13 0  | 14 2  | 13 9  | 13 9  | 13 9  | 14 3  | 12 3  | 12 9  | 12 0  | 13 9  | 13 4    |
| Cochineal, lb.      | 2 4   | 2 4   | 2 4   | 2 2   | 2 2   | 2 0   | 2 3   | 2 1   | 2 4   | 2 8   | 2 3     |
| Cocoa, cwt.         | 51 0  | 70 0  | 70 0  | 67 0  | 61 0  | 62 0  | 73 0  | 86 0  | 93 6  | 82 0  | 71 6    |
| Coffee, ..          | 63 0  | 71 0  | 88 0  | 101 0 | 95 0  | 94 0  | 97 0  | 93 0  | 88 0  | 89 0  | 88 0    |
| Copper ore, cwt.    | 13 8  | 17 3  | 16 6  | 14 10 | 13 9  | 12 4  | 10 1  | 8 8   | 8 8   | 9 4   | 12 6    |
| Cotton, cwt.        | 70 0  | 85 0  | 80 0  | 72 6  | 69 0  | 60 6  | 58 6  | 56 0  | 55 0  | 59 0  | 66 6    |
| Eggs (120)          | 7 7   | 8 0   | 8 7   | 8 7   | 8 4   | 8 4   | 8 0   | 7 8   | 7 2   | 7 2   | 8 0     |
| Fish, cwt.          | 23 6  | 25 7  | 28 0  | 29 8  | 30 2  | 30 3  | 30 7  | 31 0  | 28 6  | 24 10 | 28 3    |
| Flax, ..            | 47 0  | 52 3  | 50 0  | 48 9  | 53 0  | 55 3  | 49 3  | 48 0  | 45 3  | 46 2  | 49 6    |
| Flour, ..           | 17 6  | 18 8  | 18 10 | 18 3  | 15 9  | 15 10 | 18 6  | 17 4  | 15 10 | 16 6  | 17 3    |
| Glass, ..           | 15 0  | 17 3  | 18 9  | 17 6  | 16 9  | 15 9  | 14 7  | 13 8  | 14 2  | 14 4  | 15 9    |
| Guano, ..           | 12 0  | 10 2  | 11 5  | 12 0  | 11 4  | 11 6  | 10 10 | 10 2  | 9 2   | 10 0  | 10 10   |
| Hams, ..            | 60 0  | 52 0  | 55 0  | 55 0  | 59 6  | 59 9  | 54 5  | 48 0  | 43 9  | 46 6  | 53 6    |
| Hemp, ..            | 36 5  | 37 9  | 37 1  | 35 5  | 33 6  | 33 4  | 33 3  | 30 9  | 28 6  | 28 6  | 33 6    |
| Hides, ..           | 70 0  | 80 0  | 83 0  | 73 0  | 70 0  | 63 0  | 62 0  | 59 0  | 58 0  | 62 0  | 68 0    |
| Hops, ..            | 80 0  | 100 0 | 98 0  | 127 0 | 93 0  | 91 0  | 94 0  | 75 0  | 93 0  | 92 0  | 94 4    |
| Indigo, lb.         | 5 0   | 5 1   | 5 0   | 4 6   | 4 10  | 4 3   | 4 10  | 4 4   | 4 2   | 5 3   | 4 9     |
| Jute, cwt.          | 21 8  | 19 6  | 15 8  | 16 8  | 15 0  | 14 8  | 16 0  | 15 3  | 13 8  | 17 4  | 16 6    |
| Leather, cwt.       | ...   | ...   | ...   | 182 0 | 167 0 | 168 0 | 158 0 | 146 0 | 170 0 | 168 0 | 166 0   |
| Lard, ..            | 55 0  | 45 0  | 44 0  | 47 0  | 60 0  | 56 0  | 50 0  | 39 0  | 33 9  | 40 0  | 47 0    |
| Linseed, ..         | 14 0  | 15 0  | 14 3  | 14 0  | 13 0  | 12 5  | 13 3  | 12 4  | 12 4  | 13 0  | 13 4    |
| Maize, ..           | 7 8   | 7 1   | 7 6   | 8 6   | 8 0   | 6 4   | 6 6   | 6 1   | 5 5   | 6 0   | 7 0     |
| Molasses, ..        | 9 10  | 10 1  | 9 5   | 10 9  | 11 0  | 9 4   | 9 6   | 8 8   | 7 5   | 8 2   | 9 4     |
| Nitre, ..           | 15 6  | 15 4  | 14 8  | 12 0  | 12 0  | 11 6  | 13 6  | 14 10 | 14 0  | 15 4  | 14 0    |
| Oats, ..            | 7 8   | 7 3   | 8 0   | 9 0   | 8 9   | 8 3   | 7 9   | 7 2   | 6 8   | 7 2   | 7 10    |
| Oil, olive, gallon  | 3 10  | 4 0   | 3 6   | 3 6   | 3 6   | 3 7   | 3 9   | 4 0   | 3 7   | 3 7   | 3 7     |
| .. palm, cwt.       | 34 9  | 35 10 | 33 8  | 33 7  | 33 4  | 34 9  | 35 7  | 34 9  | 30 6  | 29 5  | 33 7    |
| Opium, lb.          | ...   | ...   | ...   | 22 1  | 21 0  | 19 8  | 19 3  | 15 6  | 15 2  | 17 10 | 18 9    |
| Oranges, bushel     | 8 5   | 9 8   | 9 9   | 9 8   | 9 4   | 8 5   | 8 9   | 8 3   | 7 8   | 8 0   | 8 6     |
| Paper, cwt.         | 51 3  | 56 4  | 60 10 | 53 0  | 48 0  | 48 8  | 50 0  | 49 6  | 37 5  | 36 7  | 49 4    |
| Pepper, ..          | 50 6  | 61 0  | 70 0  | 65 0  | 50 6  | 40 0  | 40 0  | 34 5  | 34 8  | 42 0  | 46 9    |
| Petroleum, gallon   | 1 4   | 1 5   | 1 2   | 0 11  | 0 10  | 1 2   | 1 1   | 0 10  | 0 8   | 0 8   | 1 0     |
| Pork, cwt.          | 46 10 | 41 0  | 44 5  | 43 8  | 44 3  | 42 10 | 40 0  | 33 10 | 31 4  | 33 5  | 40 3    |
| Potatoes, cwt.      | 5 4   | 5 5   | 5 8   | 5 3   | 4 6   | 5 9   | 5 10  | 5 6   | 5 9   | 5 10  | 5 6     |
| Rags, cwt.          | 16 6  | 16 9  | 17 8  | 17 0  | 17 4  | 16 6  | 15 0  | 15 2  | 15 4  | 15 3  | 16 4    |
| Raisins, cwt.       | 33 2  | 37 3  | 35 3  | 36 3  | 37 9  | 36 3  | 34 3  | 31 8  | 34 4  | 36 10 | 35 3    |
| Rice, ..            | 10 2  | 10 0  | 9 10  | 10 4  | 9 0   | 9 0   | 10 6  | 10 6  | 10 2  | 9 6   | 9 11    |
| Rum, gallon         | 2 0   | 2 0   | 2 2   | 2 3   | 2 4   | 2 1   | 2 0   | 1 10  | 1 8   | 1 9   | 2 0     |
| Saltpetre, cwt.     | 25 5  | 26 1  | 26 4  | 22 10 | 20 4  | 18 3  | 22 3  | 21 0  | 19 0  | 22 2  | 22 5    |
| Seeds, clover, cwt. | 54 6  | 51 4  | 47 9  | 46 0  | 47 0  | 51 9  | 51 10 | 47 6  | 43 9  | 43 3  | 48 6    |
| Sheep, each         | 39 0  | 41 0  | 43 0  | 42 0  | 44 0  | 43 0  | 48 0  | 49 0  | 48 0  | 48 0  | 44 6    |
| Sheep-skin, each    | 2 2   | 2 10  | 3 2   | 2 9   | 2 10  | 2 7   | 2 6   | 2 6   | 2 6   | 2 10  | 2 8     |
| Silk, lb.           | 21 7  | 21 5  | 21 0  | 16 9  | 15 4  | 19 2  | 20 0  | 17 8  | 17 5  | 17 0  | 18 9    |
| Sugar, raw, cwt.    | 25 1  | 26 2  | 24 0  | 22 5  | 21 2  | 21 0  | 25 9  | 21 6  | 20 3  | 21 9  | 22 9    |
| .. refined, cwt.    | 36 2  | 36 4  | 33 10 | 30 9  | 30 4  | 29 6  | 33 9  | 29 3  | 27 4  | 29 3  | 31 8    |
| Sulphur, cwt.       | 6 6   | 6 9   | 6 7   | 6 9   | 6 10  | 6 5   | 5 10  | 5 6   | 5 0   | 5 5   | 6 2     |
| Tallow, ..          | 42 0  | 42 10 | 41 3  | 40 4  | 42 4  | 42 9  | 42 0  | 39 4  | 35 10 | 35 2  | 40 5    |
| Tea, ..             | 152 0 | 155 0 | 154 0 | 157 0 | 155 0 | 152 0 | 148 0 | 142 0 | 135 0 | 125 0 | 147 6   |
| Tobacco, ..         | 75 0  | 77 0  | 72 0  | 77 0  | 80 0  | 77 0  | 75 0  | 62 0  | 67 0  | 65 0  | 72 9    |
| Wheat, ..           | 11 10 | 12 5  | 13 0  | 12 2  | 10 7  | 10 5  | 12 6  | 11 0  | 10 6  | 11 1  | 11 6    |
| Wine, gallon        | 7 9   | 7 10  | 7 8   | 7 6   | 7 4   | 7 0   | 7 4   | 7 3   | 7 1   | 7 5   | 7 5     |
| Wood, load          | 56 0  | 58 0  | 65 0  | 65 0  | 57 0  | 58 0  | 56 0  | 49 0  | 42 0  | 50 0  | 55 7    |
| .. staves           | 144 0 | 188 0 | 199 0 | 149 0 | 133 0 | 133 0 | 133 0 | 98 0  | 97 0  | 91 0  | 136 6   |
| Wool, cwt.          | 124 0 | 135 0 | 137 0 | 137 0 | 144 0 | 134 0 | 133 0 | 129 0 | 125 0 | 126 0 | 132 6   |
| Yeast, ..           | 50 0  | 50 0  | 51 0  | 52 0  | 49 0  | 49 0  | 49 0  | 52 0  | 52 0  | 52 0  | 50 6    |

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British imports from 1881 to 1889:—

|                             | 1881  | 1882  | 1883  | 1884  | 1885  | 1886  | 1887  | 1888  | 1889  | 1890-91 |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                             | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d. | s. d.   |
| Bacon, cwt. . . . .         | 45 10 | 53 0  | 53 0  | 49 3  | 40 6  | 37 9  | 42 2  | 44 9  | 41 6  | 45 8    |
| Barley, „ . . . .           | 8 4   | 7 2   | 7 0   | 6 6   | 5 10  | 5 9   | 5 3   | 5 8   | 5 8   | 6 5     |
| Beef, „ . . . .             | 49 10 | 51 7  | 52 10 | 51 4  | 49 0  | 43 8  | 41 5  | 42 8  | 41 2  | 47 0    |
| Brandy, gallon . . . .      | 9 0   | 9 0   | 9 2   | 9 0   | 9 0   | 9 1   | 9 4   | 9 2   | 9 2   | 9 1     |
| Butter, cwt. . . . .        | 106 0 | 105 0 | 101 0 | 101 0 | 110 0 | 105 0 | 106 0 | 107 0 | 106 0 | 105 0   |
| Cheese, „ . . . .           | 57 0  | 56 0  | 54 0  | 52 0  | 44 0  | 45 0  | 49 0  | 47 0  | 47 0  | 50 0    |
| Chinchona, lb. . . . .      | 2 6   | 2 3   | 2 2   | 1 6   | 1 2   | 1 0   | 1 0   | 0 8   | 0 7   | 1 5     |
| Cigars, „ . . . .           | 14 0  | 14 3  | 12 5  | 11 0  | 12 3  | 11 0  | 10 5  | 9 9   | 11 5  | 11 9    |
| Cochineal, „ . . . .        | 2 1   | 1 9   | 1 3   | 1 0   | 1 1   | 1 2   | 1 1   | 1 2   | 1 1   | 1 4     |
| Cocoa, cwt. . . . .         | 76 0  | 70 0  | 74 0  | 77 0  | 73 0  | 74 0  | 70 0  | 68 0  | 73 4  | 73 3    |
| Coffee, „ . . . .           | 78 0  | 76 0  | 70 0  | 66 0  | 64 0  | 65 0  | 81 0  | 75 0  | 83 0  | 73 3    |
| Copper ore, cwt. . . . .    | 7 10  | 9 9   | 10 4  | 11 1  | 7 0   | 6 10  | 7 0   | 8 8   | 7 8   | 8 7     |
| Cotton, cwt. . . . .        | 58 0  | 58 6  | 58 0  | 57 0  | 57 0  | 50 0  | 50 0  | 52 0  | 53 0  | 55 0    |
| Eggs (120) . . . . .        | 7 4   | 7 0   | 7 0   | 7 0   | 7 0   | 6 8   | 6 10  | 6 7   | 6 8   | 6 11    |
| Fish, cwt. . . . .          | 30 6  | 33 7  | 35 6  | 30 8  | 26 3  | 25 9  | 24 4  | 26 0  | 28 6  | 28 6    |
| Flax, „ . . . .             | 41 0  | 39 0  | 40 0  | 40 9  | 41 7  | 41 6  | 36 4  | 34 0  | 36 0  | 39 0    |
| Flour, „ . . . .            | 16 3  | 16 4  | 15 2  | 13 6  | 12 2  | 11 2  | 11 1  | 11 3  | 11 8  | 13 4    |
| Glass, „ . . . .            | 14 7  | 15 9  | 15 8  | 13 10 | 13 8  | 12 6  | 12 2  | 12 0  | 11 6  | 13 6    |
| Guano, cwt. . . . .         | 9 9   | 8 8   | 9 9   | 9 1   | 9 8   | 7 10  | 8 3   | 8 0   | 7 0   | 8 8     |
| Hams, „ . . . .             | 49 0  | 55 6  | 60 6  | 59 0  | 51 0  | 47 0  | 52 0  | 53 0  | 51 0  | 53 3    |
| Hemp, „ . . . .             | 30 0  | 32 8  | 33 6  | 31 3  | 30 8  | 28 5  | 29 3  | 31 0  | 35 0  | 31 6    |
| Hides, „ . . . .            | 64 0  | 63 0  | 64 0  | 64 0  | 63 0  | 59 0  | 54 0  | 52 0  | 50 0  | 59 0    |
| Hops, „ . . . .             | 94 0  | 185 0 | 168 0 | 126 0 | 75 0  | 58 0  | 59 0  | 74 0  | 72 0  | 101 0   |
| Indigo, lb. . . . .         | 5 2   | 5 0   | 4 4   | 4 3   | 4 0   | 4 0   | 3 10  | 3 10  | 3 6   | 4 2     |
| Jute, cwt. . . . .          | 16 2  | 14 6  | 12 3  | 15 0  | 11 4  | 11 3  | 11 3  | 12 5  | 14 2  | 13 2    |
| Lard, „ . . . .             | 51 0  | 56 0  | 53 0  | 44 0  | 37 0  | 34 6  | 35 4  | 42 0  | 36 6  | 43 0    |
| Leather, cwt. . . . .       | 162 0 | 156 0 | 164 0 | 157 0 | 159 0 | 158 0 | 147 0 | 144 0 | 141 0 | 154 0   |
| Linseed, „ . . . .          | 12 0  | 10 8  | 10 3  | 10 6  | 10 7  | 10 2  | 9 2   | 9 5   | 10 0  | 10 4    |
| Maize, „ . . . .            | 6 3   | 7 2   | 6 6   | 5 10  | 5 4   | 4 10  | 4 10  | 5 5   | 4 9   | 5 7     |
| Molasses, „ . . . .         | 9 3   | 8 9   | 8 4   | 7 2   | 7 0   | 6 5   | 6 8   | 6 4   | 7 4   | 7 6     |
| Nitre, „ . . . .            | 14 8  | 13 3  | 11 5  | 9 8   | 9 10  | 10 0  | 9 7   | 9 7   | 9 5   | 10 10   |
| Oats, „ . . . .             | 7 4   | 6 9   | 6 8   | 6 6   | 6 6   | 5 10  | 4 9   | 4 10  | 5 6   | 6 1     |
| Oil, olive, gallon . . . .  | 3 2   | 3 2   | 3 0   | 3 3   | 3 2   | 3 0   | 2 10  | 2 10  | 2 10  | 3 0     |
| „ palm, cwt. . . . .        | 29 0  | 30 6  | 35 1  | 33 6  | 26 10 | 20 10 | 19 6  | 19 10 | 21 2  | 26 4    |
| Opium, lb. . . . .          | 15 8  | 14 8  | 14 6  | 13 10 | 12 10 | 11 10 | 13 0  | 12 5  | 12 2  | 13 4    |
| Oranges, bushel . . . .     | 7 8   | 7 10  | 7 8   | 7 2   | 6 10  | 6 9   | 6 5   | 6 0   | 5 11  | 6 10    |
| Paper, cwt. . . . .         | 36 0  | 35 3  | 33 0  | 30 6  | 30 0  | 31 2  | 30 3  | 28 0  | 27 0  | 31 6    |
| Pepper, „ . . . .           | 51 0  | 53 0  | 60 0  | 66 0  | 68 0  | 68 0  | 76 0  | 72 0  | 65 0  | 64 3    |
| Petroleum, gallon . . . .   | 0 8   | 0 7   | 0 7   | 0 8   | 0 7   | 0 7   | 0 7   | 0 7   | 0 6   | 0 7     |
| Pork, cwt. . . . .          | 35 9  | 40 0  | 40 5  | 36 9  | 36 0  | 34 0  | 36 0  | 37 7  | 35 1  | 37 0    |
| Potatoes, cwt. . . . .      | 5 5   | 6 8   | 6 2   | 6 9   | 6 4   | 5 10  | 7 0   | 6 9   | 8 0   | 6 7     |
| Rags, „ . . . .             | 14 10 | 14 4  | 14 0  | 13 6  | 13 2  | 12 6  | 12 2  | 11 4  | 10 0  | 13 0    |
| Raisins, „ . . . .          | 36 6  | 37 6  | 36 0  | 34 2  | 32 8  | 33 0  | 31 4  | 30 4  | 31 9  | 33 9    |
| Rice, „ . . . .             | 8 8   | 8 0   | 8 3   | 8 2   | 7 10  | 7 6   | 7 6   | 7 6   | 8 2   | 8 0     |
| Rum, gallon . . . . .       | 2 0   | 2 0   | 1 10  | 1 9   | 1 7   | 1 6   | 1 7   | 1 8   | 1 8   | 1 9     |
| Saltpetre, cwt. . . . .     | 22 9  | 21 9  | 20 0  | 18 4  | 16 10 | 17 9  | 17 3  | 17 0  | 17 6  | 18 7    |
| Seeds, clover, cwt. . . . . | 44 3  | 42 8  | 47 6  | 45 3  | 46 8  | 40 10 | 41 2  | 41 3  | 41 0  | 43 2    |
| Sheep, each, . . . . .      | 47 0  | 46 0  | 45 0  | 45 0  | 43 0  | 39 0  | 34 0  | 36 0  | 35 0  | 41 0    |
| Sheepskin, each . . . . .   | 2 6   | 2 8   | 2 6   | 2 7   | 2 5   | 2 1   | 2 2   | 2 2   | 2 2   | 2 5     |
| Silk, lb. . . . .           | 17 0  | 16 6  | 16 3  | 14 9  | 14 0  | 13 9  | 13 8  | 12 3  | 14 0  | 14 8    |
| Sugar raw, cwt. . . . .     | 21 9  | 21 1  | 20 1  | 15 6  | 14 0  | 13 0  | 12 2  | 13 6  | 15 6  | 16 4    |
| „ refined, cwt. . . . .     | 29 0  | 28 8  | 27 3  | 20 10 | 18 2  | 16 8  | 15 8  | 17 6  | 19 8  | 21 6    |
| Sulphur, „ . . . .          | 6 0   | 6 2   | 5 6   | 5 2   | 5 0   | 5 0   | 4 9   | 4 6   | 4 4   | 5 1     |
| Tallow, „ . . . .           | 35 3  | 40 4  | 40 6  | 37 9  | 31 4  | 25 8  | 24 0  | 25 0  | 26 6  | 31 10   |
| Tea, „ . . . .              | 120 0 | 118 0 | 117 0 | 110 0 | 112 0 | 110 0 | 98 0  | 102 0 | 101 0 | 110 0   |
| Tobacco, „ . . . .          | 63 1  | 72 0  | 72 0  | 74 0  | 74 0  | 68 0  | 68 0  | 70 0  | 65 0  | 69 6    |
| Wheat, „ . . . .            | 11 0  | 10 8  | 9 10  | 8 5   | 7 10  | 7 6   | 7 8   | 7 8   | 7 8   | 8 8     |
| Wine, gallon . . . . .      | 7 0   | 7 0   | 7 0   | 7 0   | 7 0   | 7 0   | 7 1   | 7 4   | 7 5   | 7 1     |
| Wood, load . . . . .        | 51 0  | 52 0  | 52 0  | 48 0  | 48 0  | 43 0  | 38 0  | 41 0  | 47 0  | 46 6    |
| „ staves, load . . . . .    | 99 0  | 104 0 | 91 0  | 82 0  | 86 0  | 81 0  | 82 0  | 82 0  | 82 0  | 88 0    |
| Wool, cwt. . . . .          | 129 0 | 114 0 | 113 0 | 113 0 | 93 0  | 85 0  | 94 0  | 91 0  | 91 0  | 102 6   |
| Yeast, „ . . . .            | 52 0  | 53 0  | 56 0  | 55 0  | 56 0  | 55 0  | 54 0  | 55 0  | 55 0  | 54 6    |

Prices of British exports:—

|                             | 1854-60 | 1865  | 1866  | 1867 | 1868 | 1869 | 1870  | 1865-70 |
|-----------------------------|---------|-------|-------|------|------|------|-------|---------|
|                             | £ s.    | £ s.  | £ s.  | £ s. | £ s. | £ s. | £ s.  | £ s.    |
| Alkali, ton . . . . .       | 9 14    | 8 15  | 10 15 | 10 5 | 8 11 | 7 17 | 7 14  | 9 0     |
| Bags, gross . . . . .       | 6 12    | 7 7   | 6 6   | 5 8  | 4 16 | 4 16 | 4 9   | 5 11    |
| Beer, barrel . . . . .      | 3 9     | 3 13  | 3 13  | 3 14 | 3 15 | 3 16 | 3 12  | 3 14    |
| Books, cwt. . . . .         | 14 0    | 12 19 | 12 8  | 12 5 | 11 3 | 11 8 | 11 13 | 12 0    |
| Boots, dozen pair . . . . . | 3 0     | 3 7   | 3 8   | 3 10 | 3 14 | 3 1  | 3 2   | 3 7     |
| Brass, cwt. . . . .         | 6 0     | 5 5   | 5 9   | 4 13 | 4 17 | 4 14 | 4 6   | 4 18    |



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|                                     | 1854-60  | 1865     | 1866     | 1867      | 1868     | 1869     | 1870      | 1865-70  |
|-------------------------------------|----------|----------|----------|-----------|----------|----------|-----------|----------|
| Butter, cwt. . . . .                | £ s. 5 0 | £ s. 5 4 | £ s. 5 8 | £ s. 4 17 | £ s. 5 2 | £ s. 5 6 | £ s. 5 10 | £ s. 5 5 |
| Candles, . . . . .                  | 5 16     | 4 18     | 5 3      | 5 8       | 5 8      | 5 6      | 4 18      | 5 4      |
| Carpet, 12 yards . . . . .          | 1 11     | 1 16     | 1 18     | 2 0       | 1 16     | 1 16     | 1 16      | 1 17     |
| Cement, ton . . . . .               | 2 17     | 2 11     | 2 12     | 2 10      | 2 9      | 2 9      | 2 9       | 2 10     |
| Cheese, cwt. . . . .                | 4 1      | 4 2      | 4 7      | 4 6       | 4 2      | 4 6      | 4 8       | 4 5      |
| Cloth, 12 yards . . . . .           | 1 7      | 1 18     | 1 19     | 2 1       | 1 17     | 1 16     | 1 15      | 1 17     |
| Coal, ton . . . . .                 | 0 19     | 0 10     | 0 10     | 0 10      | 0 10     | 0 10     | 0 10      | 0 10     |
| Copper, cwt. . . . .                | 5 10     | 4 9      | 4 10     | 4 1       | 4 1      | 4 0      | 3 15      | 4 3      |
| Cordage, . . . . .                  | 2 15     | 2 9      | 2 15     | 2 17      | 2 17     | 2 17     | 2 16      | 2 15     |
| Cottons, plain, 100 yards . . . . . | 1 5      | 2 2      | 2 2      | 1 14      | 1 11     | 1 12     | 1 10      | 1 15     |
| .. printed, . . . . .               | 1 14     | 2 8      | 2 9      | 2 4       | 2 0      | 2 1      | 2 0       | 2 4      |
| Firearms, each . . . . .            | 1 5      | 1 9      | 1 7      | 1 10      | 1 13     | 1 4      | 1 15      | 1 10     |
| Flannel, 12 yards . . . . .         | 0 16     | 1 0      | 0 19     | 0 19      | 0 18     | 0 18     | 0 17      | 0 18     |
| Glass, flint, cwt. . . . .          | 3 4      | 3 1      | 2 15     | 2 14      | 2 12     | 2 13     | 2 14      | 2 15     |
| .. bottles, ton . . . . .           | 10 16    | 10 0     | 10 3     | 10 0      | 9 19     | 9 18     | 10 0      | 10 0     |
| Gunpowder, cwt. . . . .             | 3 10     | 3 1      | 3 0      | 2 18      | 2 13     | 2 14     | 2 15      | 2 17     |
| Hats, dozen . . . . .               | 1 18     | 1 10     | 1 17     | 1 18      | 1 14     | 1 11     | 1 11      | 1 15     |
| Herrings, barrel . . . . .          | 1 5      | 1 8      | 1 8      | 1 8       | 1 8      | 1 9      | 1 5       | 1 8      |
| Horses, each . . . . .              | 58 0     | 42 0     | 41 0     | 43 0      | 49 0     | 61 0     | 35 0      | 45 0     |
| Iron pig, ton . . . . .             | 3 7      | 2 18     | 3 2      | 2 18      | 2 17     | 2 18     | 2 19      | 2 19     |
| .. rails, . . . . .                 | 8 6      | 8 4      | 8 8      | 8 7       | 8 0      | 8 3      | 8 5       | 8 4      |
| .. hoops, ton . . . . .             | 13 2     | 10 5     | 10 0     | 9 12      | 8 18     | 9 0      | 9 6       | 9 10     |
| .. wire, . . . . .                  | 20 0     | 19 12    | 20 11    | 19 14     | 19 7     | 18 16    | 18 15     | 19 9     |
| Jute, 100 yards . . . . .           | 2 4      | 2 0      | 1 17     | 1 14      | 1 13     | 1 10     | 1 10      | 1 14     |
| Lead, ton . . . . .                 | 24 0     | 21 1     | 21 15    | 21 1      | 20 3     | 20 3     | 19 16     | 20 14    |
| Leather, cwt. . . . .               | 8 16     | 9 12     | 11 5     | 9 11      | 9 0      | 8 8      | 8 4       | 9 7      |
| Linens, plain, 100 yards . . . . .  | 2 18     | 3 7      | 3 9      | 3 5       | 3 3      | 2 19     | 3 0       | 3 5      |
| .. printed, . . . . .               | 3 3      | 3 17     | 4 2      | 4 1       | 3 18     | 3 15     | 3 8       | 3 18     |
| Oil-seed, ton . . . . .             | 30 5     | 30 5     | 34 16    | 34 9      | 31 5     | 28 0     | 28 12     | 31 5     |
| Paper, cwt. . . . .                 | 4 8      | 3 4      | 3 2      | 2 18      | 2 19     | 2 16     | 3 0       | 3 0      |
| Sailcloth, 100 yards . . . . .      | 5 0      | 5 6      | 5 6      | 5 7       | 5 12     | 5 18     | 5 5       | 5 8      |
| Salt, ton . . . . .                 | 0 11     | 0 9      | 0 12     | 0 12      | 0 12     | 0 10     | 0 10      | 0 11     |
| Soap, cwt. . . . .                  | 1 6      | 1 6      | 1 7      | 1 6       | 1 6      | 1 8      | 1 8       | 1 7      |
| Silks, 12 yards . . . . .           | 1 18     | 2 6      | 2 8      | 2 9       | 2 7      | 2 7      | 2 6       | 2 7      |
| Spirits, hhd. . . . .               | 11 16    | 7 12     | 8 3      | 8 0       | 7 16     | 8 0      | 8 0       | 7 18     |
| Steel, ton . . . . .                | 35 0     | 32 15    | 32 14    | 32 12     | 32 4     | 31 0     | 31 12     | 32 3     |
| Sugar, cwt. . . . .                 | 2 13     | 1 10     | 1 10     | 1 11      | 1 15     | 1 16     | 1 12      | 1 12     |
| Tin, . . . . .                      | 6 0      | 4 16     | 4 9      | 4 11      | 4 14     | 5 16     | 6 5       | 5 2      |
| Wool, . . . . .                     | 7 8      | 11 4     | 10 4     | 9 15      | 8 12     | 8 6      | 7 3       | 9 4      |
| Worsted stuffs, 12 yards . . . . .  | 0 10     | 0 14     | 0 14     | 0 14      | 0 14     | 0 15     | 0 14      | 0 14     |
| Yarn, cotton, cwt. . . . .          | 5 12     | 11 4     | 11 1     | 9 16      | 9 8      | 9 6      | 8 17      | 9 19     |
| .. linen, . . . . .                 | 6 1      | 7 12     | 7 18     | 8 0       | 7 17     | 7 10     | 6 14      | 7 12     |
| .. woollen, . . . . .               | 14 0     | 18 12    | 19 1     | 17 4      | 16 5     | 16 13    | 15 12     | 17 5     |
| Zinc, ton . . . . .                 | 28 0     | 21 4     | 24 0     | 22 0      | 21 16    | 20 10    | 19 5      | 21 9     |

British exports from 1871 to 1880;—

|                                 | 1871     | 1872      | 1873      | 1874      | 1875     | 1876     | 1877      | 1878     | 1879     | 1880      | 1871-80   |
|---------------------------------|----------|-----------|-----------|-----------|----------|----------|-----------|----------|----------|-----------|-----------|
| Alkali, ton . . . . .           | £ s. 8 7 | £ s. 11 3 | £ s. 12 6 | £ s. 10 9 | £ s. 9 3 | £ s. 8 3 | £ s. 7 15 | £ s. 7 0 | £ s. 6 7 | £ s. 6 19 | £ s. 8 15 |
| Bags, gross . . . . .           | 5 0      | 5 6       | 5 3       | 4 9       | 4 2      | 3 12     | 3 14      | 3 12     | 3 8      | 3 9       | 4 4       |
| Beer, barrel . . . . .          | 3 17     | 4 0       | 4 3       | 4 8       | 4 3      | 3 19     | 4 3       | 4 6      | 4 5      | 4 5       | 4 3       |
| Books, cwt. . . . .             | 11 11    | 10 17     | 10 18     | 10 15     | 10 14    | 10 15    | 10 13     | 10 7     | 10 0     | 10 0      | 10 11     |
| Boots, dozen pair . . . . .     | 3 0      | 2 18      | 3 5       | 3 7       | 3 6      | 3 3      | 3 1       | 3 1      | 3 1      | 3 1       | 3 2       |
| Brass, cwt. . . . .             | 4 10     | 5 9       | 6 0       | 6 6       | 5 9      | 5 4      | 4 16      | 4 3      | 3 18     | 4 5       | 5 0       |
| Butter, . . . . .               | 5 16     | 5 12      | 5 18      | 6 2       | 6 2      | 6 5      | 6 13      | 6 12     | 6 8      | 6 8       | 6 4       |
| Candles, cwt. . . . .           | 3 13     | 3 14      | 3 15      | 3 17      | 3 15     | 3 12     | 3 11      | 3 11     | 3 3      | 3 3       | 3 11      |
| Carpet, 12 yards . . . . .      | 1 16     | 1 19      | 1 19      | 1 19      | 1 17     | 1 15     | 1 12      | 1 10     | 1 9      | 1 9       | 1 14      |
| Cement, ton . . . . .           | 2 9      | 2 9       | 3 0       | 3 0       | 2 12     | 2 11     | 2 12      | 2 11     | 2 10     | 2 10      | 2 12      |
| Cheese, cwt. . . . .            | 4 6      | 4 5       | 4 6       | 4 7       | 4 3      | 4 1      | 4 3       | 4 0      | 3 17     | 4 5       | 4 3       |
| Cloth, 12 yards . . . . .       | 1 18     | 2 1       | 2 1       | 2 0       | 1 19     | 1 18     | 1 16      | 1 15     | 1 12     | 1 12      | 1 17      |
| Coal, ton . . . . .             | 0 10     | 0 16      | 1 1       | 0 17      | 0 13     | 0 11     | 0 10      | 0 9      | 0 9      | 0 9       | 0 12      |
| Copper ingot, cwt. . . . .      | 3 16     | 4 16      | 4 14      | 4 8       | 4 8      | 4 3      | 3 16      | 3 10     | 3 3      | 3 8       | 4 0       |
| Cordage, cwt. . . . .           | 2 16     | 2 18      | 3 0       | 2 16      | 2 15     | 2 15     | 2 15      | 2 13     | 2 6      | 2 10      | 2 14      |
| Cottons, 100 yards . . . . .    | 1 8      | 1 9       | 1 9       | 1 7       | 1 6      | 1 4      | 1 4       | 1 3      | 1 2      | 1 3       | 1 5       |
| .. printed, 100 yards . . . . . | 1 19     | 2 1       | 2 0       | 1 19      | 2 0      | 1 17     | 1 16      | 1 15     | 1 13     | 1 11      | 1 17      |
| Firearms, each . . . . .        | 1 19     | 1 4       | 1 9       | 1 12      | 2 1      | 1 7      | 1 1       | 1 1      | 0 19     | 1 3       | 1 7       |
| Flannel, 12 yards . . . . .     | 0 18     | 0 18      | 0 18      | 1 0       | 0 18     | 0 18     | 0 18      | 0 17     | 0 17     | 0 16      | 0 18      |
| Flour, ton . . . . .            | 16 10    | 17 10     | 19 0      | 18 3      | 14 18    | 14 19    | 17 9      | 15 5     | 14 1     | 13 17     | 16 3      |
| Glass, flint, cwt. . . . .      | 2 8      | 2 13      | 2 18      | 3 0       | 3 0      | 2 19     | 2 16      | 2 12     | 2 12     | 2 2       | 2 14      |
| .. bottles, ton . . . . .       | 9 14     | 9 16      | 10 4      | 10 8      | 11 2     | 11 3     | 11 0      | 10 14    | 10 4     | 10 2      | 10 9      |
| Gunpowder, cwt. . . . .         | 2 14     | 2 15      | 2 19      | 3 2       | 2 19     | 2 16     | 2 14      | 2 14     | 2 17     | 2 16      | 2 17      |
| Hats, dozen . . . . .           | 1 10     | 1 9       | 1 9       | 1 10      | 1 8      | 1 6      | 1 5       | 1 4      | 1 3      | 1 2       | 1 6       |
| Herrings, barrel . . . . .      | 1 7      | 1 8       | 1 8       | 1 8       | 1 8      | 1 14     | 1 13      | 1 8      | 1 13     | 1 7       | 1 9       |
| Horses, each . . . . .          | 38 0     | 53 0      | 63 0      | 67 0      | 77 0     | 81 0     | 74 0      | 69 0     | 59 0     | 61 0      | 64 0      |
| Iron, bar, ton . . . . .        | 8 7      | 11 12     | 13 2      | 11 16     | 9 18     | 8 11     | 7 15      | 7 3      | 6 13     | 7 16      | 9 5       |

## PRICES

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|                      | 1871  | 1872  | 1873  | 1874  | 1875  | 1876  | 1877  | 1878  | 1879  | 1880  | 1871-80 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Iron, cast, ton      | 14 15 | 17 14 | 19 8  | 19 19 | 18 2  | 16 11 | 14 7  | 14 0  | 13 3  | 13 15 | 16 4    |
| „ galvan., ton       | 20 12 | 26 2  | 26 19 | 25 11 | 24 9  | 22 16 | 20 7  | 18 18 | 16 16 | 18 7  | 22 2    |
| „ hoop, „            | 9 8   | 13 0  | 14 12 | 13 6  | 11 3  | 9 12  | 8 11  | 7 17  | 7 4   | 8 9   | 10 7    |
| „ old, „             | 4 16  | 6 2   | 6 12  | 5 14  | 4 15  | 4 5   | 4 6   | 3 17  | 3 8   | 4 16  | 4 17    |
| „ plates, „          | 11 16 | 15 11 | 18 0  | 17 8  | 15 4  | 14 6  | 12 16 | 11 16 | 9 7   | 10 13 | 13 14   |
| „ pig, „             | 3 1   | 5 1   | 6 5   | 4 15  | 3 13  | 3 2   | 2 17  | 2 14  | 2 12  | 3 4   | 3 14    |
| „ rail, „            | 8 5   | 10 16 | 13 5  | 12 6  | 10 0  | 8 18  | 7 15  | 7 10  | 6 4   | 7 6   | 9 5     |
| „ wire, „            | 17 0  | 20 1  | 23 10 | 21 0  | 18 10 | 16 8  | 14 14 | 14 9  | 13 8  | 13 18 | 17 6    |
| Jute, 100 yards      | 1 13  | 1 15  | 1 13  | 1 10  | 1 8   | 1 6   | 1 7   | 1 6   | 1 4   | 1 5   | 1 9     |
| Lead, ton            | 19 5  | 20 9  | 23 15 | 22 12 | 23 3  | 22 11 | 21 10 | 18 15 | 15 8  | 17 8  | 20 10   |
| Leather, cwt.        | 8 3   | 8 16  | 9 0   | 8 18  | 8 18  | 8 2   | 8 2   | 7 6   | 6 17  | 7 17  | 8 4     |
| Linens, 100 yards    | 3 2   | 3 2   | 3 3   | 3 5   | 3 3   | 3 0   | 2 18  | 3 0   | 2 19  | 3 2   | 3 4     |
| „ printed, 100 yards | 3 7   | 3 3   | 3 3   | 3 4   | 3 8   | 3 8   | 3 5   | 3 1   | 3 1   | 3 0   | 3 4     |
| Oil-seed, ton        | 28 10 | 30 5  | 28 0  | 25 13 | 24 0  | 23 10 | 25 15 | 24 15 | 24 4  | 24 10 | 25 10   |
| Paper, cwt.          | 2 19  | 2 18  | 3 1   | 3 2   | 2 19  | 3 0   | 2 16  | 2 13  | 2 9   | 2 7   | 2 17    |
| Sailcloth, 100 yards | 5 8   | 5 19  | 5 16  | 6 0   | 6 0   | 6 0   | 5 14  | 5 8   | 4 18  | 5 3   | 5 13    |
| Salt, ton            | 0 10  | 0 14  | 0 19  | 0 16  | 0 15  | 0 12  | 0 11  | 0 12  | 0 12  | 0 11  | 0 13    |
| Silk, 12 yards       | 2 0   | 1 18  | 2 2   | 2 0   | 1 17  | 1 19  | 1 18  | 2 0   | 2 1   | 1 19  | 1 19    |
| Soap, cwt.           | 1 7   | 1 6   | 1 6   | 1 5   | 1 5   | 1 5   | 1 4   | 1 4   | 1 2   | 1 2   | 1 5     |
| Spirits, hhd.        | 7 18  | 7 18  | 7 18  | 7 18  | 15 15 | 15 6  | 15 8  | 17 3  | 16 16 | 16 12 | 15 17   |
| Steel bars, ton      | 30 12 | 32 18 | 37 2  | 38 6  | 36 6  | 34 3  | 33 11 | 31 19 | 27 18 | 28 5  | 33 2    |
| Sugar, cwt.          | 1 12  | 1 12  | 1 10  | 1 7   | 1 4   | 1 3   | 1 8   | 1 4   | 1 2   | 1 3   | 1 7     |
| Thread, 12 lbs.      | ...   | ...   | ...   | 2 2   | 2 4   | 2 4   | 1 19  | 1 18  | 1 18  | 1 18  | 2 0     |
| Tin, cwt.            | 6 14  | 7 9   | 6 17  | 5 5   | 4 12  | 3 19  | 3 14  | 3 6   | 3 12  | 4 10  | 5 0     |
| Tinplates, ton       | 24 5  | 32 5  | 32 15 | 30 4  | 26 13 | 21 16 | 19 10 | 17 12 | 17 16 | 20 10 | 24 7    |
| Wheat, „             | 13 2  | 12 16 | 13 9  | 13 7  | 11 5  | 10 11 | 13 0  | 10 14 | 9 17  | 10 6  | 11 17   |
| Wool, cwt.           | 7 14  | 9 6   | 9 17  | 10 4  | 9 16  | 8 12  | 8 5   | 9 6   | 6 13  | 7 12  | 8 15    |
| Yarn, cotton, cwt.   | 8 14  | 8 16  | 8 6   | 7 8   | 6 16  | 6 3   | 5 19  | 5 18  | 5 15  | 6 3   | 7 0     |
| „ jute, „            | 2 2   | 2 6   | 1 17  | 1 15  | 1 12  | 1 10  | 1 13  | 1 13  | 1 13  | 1 11  | 2 15    |
| „ linen, „           | 6 15  | 8 12  | 8 13  | 7 1   | 7 8   | 7 5   | 7 9   | 7 6   | 6 13  | 6 13  | 7 8     |
| „ woollen, „         | 15 10 | 17 5  | 17 7  | 17 13 | 17 17 | 15 17 | 14 16 | 14 0  | 12 10 | 14 0  | 15 13   |
| Zinc, ton            | 17 18 | 20 3  | 24 18 | 24 18 | 23 16 | 23 0  | 20 14 | 18 0  | 15 3  | 16 15 | 20 10   |

British exports from 1881 to 1889 :—

|                      | 1881  | 1882  | 1883  | 1884  | 1885  | 1886  | 1887  | 1888  | 1889  | 1881-89 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Alkali, ton          | 6 3   | 6 3   | 6 2   | 6 7   | 5 18  | 5 15  | 5 13  | 5 3   | 5 5   | 5 16    |
| Bags, gross          | 3 6   | 3 5   | 3 2   | 2 18  | 2 12  | 2 6   | 2 8   | 2 13  | 3 0   | 2 17    |
| Beer, barrel         | 4 2   | 4 5   | 4 0   | 3 16  | 3 15  | 3 15  | 3 16  | 3 16  | 3 15  | 3 18    |
| Books, cwt.          | 10 0  | 9 12  | 9 11  | 9 9   | 9 13  | 9 2   | 8 16  | 8 14  | 8 7   | 9 5     |
| Boots, dozen pair    | 2 17  | 2 19  | 3 0   | 3 0   | 2 18  | 2 18  | 2 18  | 2 14  | 2 14  | 2 18    |
| Brass, cwt.          | 4 3   | 4 9   | 4 9   | 4 5   | 4 0   | 3 15  | 3 15  | 4 18  | 4 10  | 4 5     |
| Butter, „            | 6 4   | 6 19  | 7 0   | 7 0   | 6 2   | 5 13  | 5 13  | 5 14  | 5 15  | 6 3     |
| Candles, „           | 3 1   | 3 1   | 3 2   | 3 2   | 2 17  | 2 10  | 2 3   | 2 1   | 2 1   | 1 6     |
| Carpet, 12 yards     | 1 9   | 1 8   | 1 8   | 1 6   | 1 6   | 1 5   | 1 4   | 1 5   | 1 5   | 1 6     |
| Cement, ton          | 2 7   | 2 7   | 2 6   | 2 5   | 2 4   | 2 0   | 1 19  | 1 18  | 1 19  | 2 3     |
| Cheese, cwt.         | 4 3   | 4 1   | 4 4   | 4 4   | 4 2   | 3 19  | 3 19  | 3 19  | 3 17  | 4 5     |
| Cloth, 12 yards      | 1 13  | 1 14  | 1 18  | 2 1   | 2 0   | 1 19  | 2 0   | 1 19  | 2 1   | 1 18    |
| Coal, ton            | 0 9   | 0 9   | 0 9   | 0 9   | 0 9   | 0 8   | 0 8   | 0 8   | 0 10  | 0 8     |
| Copper, ingot, cwt.  | 3 6   | 3 11  | 3 7   | 2 19  | 2 8   | 2 4   | 2 5   | 3 18  | 2 7   | 2 18    |
| Cordage, cwt.        | 2 11  | 2 12  | 2 11  | 2 5   | 2 3   | 2 1   | 2 6   | 2 6   | 2 11  | 2 7     |
| Cottons, 100 yards   | 1 2   | 1 3   | 1 2   | 1 0   | 1 0   | 0 18  | 0 19  | 0 19  | 0 19  | 1 0     |
| „ printed, 100 yards | 1 11  | 1 11  | 1 10  | 1 10  | 1 9   | 1 6   | 1 6   | 1 5   | 1 5   | 1 8     |
| Firearms, each       | 1 5   | 1 8   | 1 7   | 1 6   | 1 10  | 1 17  | 1 15  | 1 12  | 1 8   | 1 10    |
| Flannel, 12 yards    | 0 15  | 0 15  | 0 15  | 0 14  | 0 13  | 0 12  | 0 12  | 0 11  | 0 12  | 0 13    |
| Flour, ton           | 14 1  | 14 15 | 13 10 | 12 5  | 10 8  | 10 5  | 10 8  | 10 5  | 10 16 | 11 27   |
| Glass, flint, cwt.   | 2 2   | 2 7   | 2 5   | 2 7   | 2 3   | 2 8   | 2 9   | 2 4   | 2 5   | 2 6     |
| „ bottles, ton       | 9 18  | 9 11  | 9 5   | 9 6   | 9 11  | 9 8   | 9 9   | 9 8   | 9 9   | 9 9     |
| Gunpowder, cwt.      | 2 18  | 2 17  | 2 15  | 2 15  | 2 16  | 2 16  | 3 0   | 3 0   | 2 18  | 2 17    |
| Hats, dozen          | 1 2   | 1 2   | 1 1   | 1 1   | 1 1   | 0 19  | 0 19  | 0 19  | 1 0   | 1 6     |
| Herrings, barrel     | 1 15  | 1 10  | 1 10  | 1 5   | 1 5   | 1 4   | 1 1   | 1 3   | 1 2   | 1 6     |
| Horses, „            | 62 0  | 63 0  | 56 0  | 58 0  | 60 0  | 56 0  | 58 0  | 66 0  | 69 0  | 61 0    |
| Iron, bar, ton       | 6 17  | 7 7   | 7 1   | 6 11  | 6 3   | 5 13  | 5 10  | 5 11  | 6 9   | 6 10    |
| „ cast, „            | 13 12 | 13 17 | 13 0  | 12 3  | 11 11 | 10 18 | 11 3  | 11 8  | 11 14 | 12 3    |
| „ galvan., „         | 16 11 | 16 7  | 15 4  | 14 6  | 13 8  | 12 2  | 11 15 | 12 15 | 12 13 | 13 16   |
| „ hoops, „           | 7 10  | 7 18  | 7 15  | 7 5   | 6 14  | 6 2   | 6 1   | 6 1   | 6 15  | 7 4     |
| „ old, „             | 3 19  | 3 17  | 3 9   | 3 6   | 3 1   | 2 14  | 2 17  | 2 15  | 2 19  | 3 4     |
| „ plates, „          | 9 15  | 10 5  | 10 2  | 9 8   | 8 3   | 10 6  | 9 1   | 8 13  | 9 4   | 9 8     |
| „ pig, „             | 2 15  | 2 16  | 2 12  | 2 6   | 2 4   | 2 3   | 2 7   | 2 3   | 2 10  | 2 8     |
| „ rail, „            | 6 18  | 6 16  | 6 4   | 5 14  | 5 9   | 5 0   | 4 11  | 4 12  | 4 18  | 5 10    |
| „ wire, „            | 13 6  | 15 7  | 14 16 | 13 2  | 12 10 | 13 17 | 13 12 | 13 9  | 14 18 | 15 13   |
| Jute, 100 yards      | 1 3   | 1 3   | 1 2   | 1 0   | 0 18  | 0 17  | 0 17  | 0 18  | 1 1   | 1 0     |
| Lead, ton            | 15 14 | 15 9  | 14 1  | 12 12 | 12 5  | 13 17 | 13 15 | 15 0  | 14 11 | 14 1    |
| Leather, cwt.        | 8 1   | 8 15  | 9 7   | 9 9   | 9 5   | 8 19  | 8 16  | 8 15  | 9 4   | 8 17    |

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|                      | 1881   | 1882   | 1883   | 1884   | 1885   | 1886   | 1887   | 1888  | 1889  | 1881-89 |
|----------------------|--------|--------|--------|--------|--------|--------|--------|-------|-------|---------|
| Linens, 100 yards    | £ 2 18 | £ 2 17 | £ 2 18 | £ 2 15 | £ 2 13 | £ 2 10 | £ 2 11 | £ 2 6 | £ 2 6 | £ 2 12  |
| " printed, 100 yards | 2 18   | 3 8    | 3 5    | 2 14   | 2 17   | 2 12   | 2 11   | 2 9   | 2 13  | 2 17    |
| Oil-seed, ton        | 24 0   | 22 10  | 20 4   | 20 0   | 20 4   | 18 7   | 21 0   | 20 9  | 21 14 | 20 19   |
| Paper, cwt.          | 2 5    | 2 5    | 2 3    | 2 1    | 1 19   | 1 17   | 1 15   | 1 13  | 1 14  | 1 19    |
| Sailcloth, 100 yards | 5 0    | 5 4    | 4 17   | 4 12   | 4 11   | 4 12   | 4 12   | 4 12  | 4 12  | 4 15    |
| Sair, ton            | 0 12   | 0 12   | 0 13   | 0 13   | 0 15   | 0 15   | 0 13   | 0 11  | 0 16  | 0 13    |
| Silks, 12 yards      | 1 19   | 2 0    | 1 19   | 1 19   | 2 5    | 2 8    | 2 10   | 2 6   | 1 17  | 2 2     |
| Soap, cwt.           | 1 2    | 1 2    | 1 3    | 1 3    | 1 4    | 1 1    | 1 0    | 0 19  | 1 0   | 1 2     |
| Spirits, hhd.        | 17 14  | 18 11  | 18 14  | 19 3   | 19 12  | 21 3   | 21 3   | 21 10 | 22 0  | 19 19   |
| Steel bars, ton      | 27 10  | 27 5   | 25 0   | 23 5   | 22 0   | 18 9   | 18 1   | 16 5  | 15 7  | 21 10   |
| Sugar, cwt.          | 1 4    | 1 3    | 1 1    | 0 18   | 0 15   | 0 14   | 0 13   | 0 15  | 0 16  | 0 16    |
| Thread, 12 lbs.      | 1 16   | 1 17   | 1 19   | 2 0    | 1 18   | 1 16   | 1 15   | 1 15  | 1 17  | 1 17    |
| Tin, cwt.            | 4 16   | 5 5    | 4 19   | 4 5    | 4 9    | 5 0    | 5 10   | 5 16  | 4 16  | 5 0     |
| Tinplates, ton       | 17 2   | 17 10  | 17 9   | 16 9   | 14 17  | 14 3   | 13 11  | 14 3  | 14 0  | 15 9    |
| Wheat, "             | 10 4   | 10 1   | 10 14  | 8 11   | 8 6    | 7 15   | 8 6    | 8 15  | 7 17  | 8 18    |
| Wool, cwt.           | 7 3    | 7 3    | 5 18   | 5 1    | 4 9    | 4 13   | 5 5    | 4 16  | 5 0   | 5 10    |
| Yarn, cotton, cwt.   | 5 10   | 6 1    | 5 14   | 5 14   | 5 8    | 5 1    | 5 1    | 5 2   | 5 3   | 5 8     |
| " jute, "            | 1 16   | 1 9    | 1 8    | 1 6    | 1 0    | 1 0    | 1 2    | 1 3   | 1 7   | 1 5     |
| " linen, "           | 6 10   | 6 8    | 6 13   | 6 10   | 6 13   | 6 12   | 6 8    | 6 15  | 6 15  | 6 11    |
| " woollen, "         | 12 2   | 11 18  | 10 19  | 11 2   | 10 16  | 11 2   | 10 12  | 10 12 | 10 14 | 11 4    |
| Zinc, ton            | 15 3   | 14 13  | 13 18  | 13 12  | 13 6   | 13 11  | 13 1   | 15 14 | 15 13 | 14 7    |

The prices of English grain per ton were :—

| Year | Wheat  | Barley | Oats   | Year | Wheat   | Barley | Oats   |
|------|--------|--------|--------|------|---------|--------|--------|
| 1786 | £ 10 0 | £ 6 5  | £ 4 13 | 1839 | £ 17 14 | £ 9 18 | £ 6 10 |
| 1787 | 10 12  | 5 17   | 4 6    | 1840 | 16 12   | 9 2    | 6 9    |
| 1788 | 11 12  | 4 14   | 4 0    | 1841 | 16 2    | 8 5    | 5 12   |
| 1789 | 13 4   | 5 18   | 4 3    | 1842 | 14 6    | 6 18   | 4 16   |
| 1790 | 13 14  | 6 11   | 4 18   | 1843 | 12 10   | 7 8    | 4 12   |
| 1791 | 12 4   | 6 14   | 4 10   | 1844 | 12 16   | 8 9    | 5 3    |
| 1792 | 10 15  | 6 18   | 4 2    | 1845 | 12 15   | 7 19   | 5 13   |
| 1793 | 12 6   | 7 15   | 5 3    | 1846 | 13 14   | 8 4    | 5 19   |
| 1794 | 13 2   | 7 19   | 5 6    | 1847 | 17 9    | 11 1   | 7 4    |
| 1795 | 18 16  | 9 7    | 6 2    | 1848 | 12 13   | 7 18   | 5 3    |
| 1796 | 19 14  | 8 17   | 5 10   | 1849 | 11 1    | 7 0    | 4 8    |
| 1797 | 13 9   | 6 16   | 4 1    | 1850 | 10 1    | 5 18   | 4 2    |
| 1798 | 12 19  | 7 5    | 4 18   | 1851 | 9 13    | 6 4    | 4 13   |
| 1799 | 17 5   | 9 1    | 6 18   | 1852 | 10 4    | 7 3    | 4 15   |
| 1800 | 28 10  | 14 19  | 9 17   | 1853 | 13 1    | 8 6    | 5 5    |
| 1801 | 29 18  | 17 3   | 9 5    | 1854 | 18 2    | 9 0    | 7 0    |
| 1802 | 17 10  | 8 7    | 5 2    | 1855 | 18 14   | 8 14   | 6 17   |
| 1803 | 14 14  | 6 7    | 5 8    | 1856 | 17 6    | 10 5   | 6 6    |
| 1804 | 15 11  | 7 15   | 6 1    | 1857 | 14 2    | 10 10  | 6 5    |
| 1805 | 22 9   | 11 3   | 7 2    | 1858 | 11 1    | 8 14   | 6 3    |
| 1806 | 19 15  | 9 14   | 6 18   | 1859 | 11 0    | 8 8    | 5 16   |
| 1807 | 18 17  | 9 17   | 7 1    | 1860 | 13 6    | 9 3    | 6 2    |
| 1808 | 20 7   | 10 17  | 8 7    | 1861 | 13 17   | 9 0    | 5 19   |
| 1809 | 24 7   | 11 15  | 7 18   | 1862 | 13 17   | 8 15   | 5 13   |
| 1810 | 26 12  | 12 0   | 7 3    | 1863 | 11 4    | 8 9    | 5 6    |
| 1811 | 23 16  | 10 11  | 6 18   | 1864 | 10 1    | 7 10   | 5 0    |
| 1812 | 31 13  | 16 14  | 11 3   | 1865 | 10 5    | 7 9    | 5 10   |
| 1813 | 18 12  | 9 7    | 6 9    | 1866 | 12 10   | 9 7    | 6 3    |
| 1814 | 18 13  | 8 10   | 6 16   | 1867 | 16 2    | 10 0   | 6 10   |
| 1815 | 19 13  | 8 10   | 6 16   | 1868 | 16 0    | 10 15  | 7 0    |
| 1816 | 24 5   | 12 7   | 8 2    | 1869 | 12 1    | 9 17   | 6 10   |
| 1817 | 21 11  | 13 5   | 8 2    | 1870 | 11 15   | 8 13   | 5 15   |
| 1818 | 18 13  | 11 9   | 7 1    | 1871 | 14 4    | 9 1    | 6 6    |
| 1819 | 16 19  | 8 10   | 6 1    | 1872 | 14 5    | 9 6    | 5 16   |
| 1820 | 14 0   | 6 10   | 7 8    | 1873 | 14 14   | 10 2   | 6 12   |
| 1821 | 11 3   | 5 10   | 7 0    | 1874 | 14 9    | 11 5   | 7 5    |
| 1822 | 13 7   | 9 3    | 5 15   | 1875 | 11 5    | 9 12   | 7 4    |
| 1823 | 16 0   | 9 2    | 6 5    | 1876 | 11 11   | 8 16   | 6 11   |
| 1824 | 17 3   | 10 0   | 6 9    | 1877 | 14 4    | 9 19   | 6 10   |
| 1825 | 14 14  | 8 12   | 6 14   | 1878 | 11 12   | 10 1   | 6 2    |
| 1826 | 14 13  | 9 8    | 7 1    | 1879 | 11 0    | 8 10   | 5 9    |
| 1827 | 15 2   | 8 5    | 5 10   | 1880 | 11 2    | 8 5    | 5 15   |
| 1828 | 16 11  | 8 3    | 5 14   | 1881 | 11 7    | 8 0    | 5 9    |
| 1829 | 16 1   | 8 3    | 6 2    | 1882 | 11 5    | 7 16   | 5 10   |
| 1830 | 16 12  | 9 10   | 6 7    | 1883 | 10 8    | 8 0    | 5 7    |
| 1831 | 14 14  | 8 5    | 5 2    | 1884 | 8 19    | 7 14   | 5 1    |
| 1832 | 13 5   | 6 18   | 4 12   | 1885 | 8 5     | 7 10   | 5 3    |
| 1833 | 11 11  | 7 5    | 5 5    | 1886 | 7 15    | 6 13   | 4 15   |
| 1834 | 9 17   | 7 10   | 5 10   | 1887 | 8 3     | 6 7    | 4 2    |
| 1835 | 12 3   | 8 5    | 5 15   | 1888 | 9 0     | 4 14   | 4 14   |
| 1836 | 14 0   | 7 12   | 5 15   | 1889 | 7 14    | 4 17   | 4 17   |

The preceding table gives the following averages :—

| Years     | Wheat   | Barley | Oats  |
|-----------|---------|--------|-------|
| 1786-90   | £ 11 16 | £ 5 17 | £ 4 8 |
| 1791-1800 | 15 18   | 8 11   | 5 13  |
| 1801-10   | 21 0    | 10 10  | 7 0   |
| 1811-20   | 21 18   | 11 7   | 7 12  |
| 1821-30   | 14 18   | 8 6    | 6 8   |
| 1831-40   | 14 5    | 8 4    | 5 14  |
| 1841-50   | 13 7    | 7 18   | 5 5   |
| 1851-60   | 13 13   | 8 13   | 5 18  |
| 1861-70   | 12 15   | 9 0    | 5 18  |
| 1871-80   | 12 16   | 9 10   | 6 7   |
| 1881-89   | 9 5     | 6 17   | 5 0   |

The prices of meat at Smithfield Market, London, averaged as follows, per ton, from 1835 to date :—

| Year. | £ s.  | Year. | £ s.  | Year.   | £ s.  |
|-------|-------|-------|-------|---------|-------|
| 1835  | 49 10 | 1853  | 56 0  | 1871    | 69 10 |
| 1836  | 53 7  | 1854  | 54 18 | 1872    | 67 5  |
| 1837  | 53 7  | 1855  | 54 18 | 1873    | 75 3  |
| 1838  | 54 10 | 1856  | 58 5  | 1874    | 76 5  |
| 1839  | 52 10 | 1857  | 56 0  | 1875    | 76 5  |
| 1840  | 54 10 | 1858  | 58 5  | 1876    | 74 0  |
| 1841  | 56 10 | 1859  | 58 5  | 1877    | 72 18 |
| 1842  | 55 10 | 1860  | 60 10 | 1878    | 72 18 |
| 1843  | 48 8  | 1861  | 58 5  | 1879    | 71 15 |
| 1844  | 48 8  | 1862  | 58 5  | 1880-81 | 69 10 |
| 1845  | 51 10 | 1863  | 57 3  | 1882    | 75 3  |
| 1846  | 48 8  | 1864  | 65 0  | 1883    | 71 15 |
| 1847  | 53 9  | 1865  | 60 10 | 1884    | 70 12 |
| 1848  | 57 10 | 1866  | 63 18 | 1885    | 61 12 |
| 1849  | 48 8  | 1867  | 58 5  | 1886    | 59 7  |
| 1850  | 47 7  | 1868  | 62 15 | 1887    | 58 5  |
| 1851  | 51 10 | 1869  | 67 5  | 1888    | 59 7  |
| 1852  | 50 7  | 1870  | 67 5  | 1889    | 61 0  |

The prices at Christmas, per stone of 8 lbs. beef, averaged thus :—

| Years   | Pence | Years   | Pence | Years   | Pence |
|---------|-------|---------|-------|---------|-------|
| 1841-42 | 50    | 1857-58 | 49    | 1873-74 | 70    |
| 1843-44 | 50    | 1859-60 | 53    | 1875-76 | 66    |
| 1845-46 | 54    | 1861-62 | 50    | 1877-78 | 63    |
| 1847-48 | 48    | 1863-64 | 54    | 1879-80 | 61    |
| 1849-50 | 44    | 1865-66 | 54    | 1881-82 | 64    |
| 1851-52 | 40    | 1867-68 | 57    | 1883-84 | 61    |
| 1853-54 | 51    | 1869-70 | 57    | 1885-86 | 52    |
| 1855-56 | 50    | 1871-72 | 60    | 1887-89 | 53    |

Tooke and Newmarch give the prices of hay and straw per ton in twenty-three years, thus :—

| Year                   | Hay  | Straw | Year                   | Hay  | Straw |
|------------------------|------|-------|------------------------|------|-------|
|                        | £ s. | £ s.  |                        | £ s. | £ s.  |
| 1834 . . .             | 5 0  | 1 13  | 1846 . . .             | 4 2  | 1 13  |
| 1835 . . .             | 4 19 | 1 18  | 1847 . . .             | 3 14 | 1 15  |
| 1836 . . .             | 4 6  | 1 19  | 1848 . . .             | 3 17 | 1 10  |
| 1837 . . .             | 5 2  | 2 4   | 1849 . . .             | 3 16 | 1 11  |
| 1838 . . .             | 5 7  | 2 0   | 1850 . . .             | 3 13 | 1 8   |
| 1839 . . .             | 5 0  | 2 1   | 1851 . . .             | 3 18 | 1 9   |
| 1840 . . .             | 5 0  | 2 0   | 1852 . . .             | 3 15 | 1 14  |
| 1841 . . .             | 4 17 | 2 2   | 1853 . . .             | 5 3  | 1 16  |
| 1842 . . .             | 4 11 | 2 1   | 1854 . . .             | 4 19 | 1 18  |
| 1843 . . .             | 4 6  | 2 5   | 1855 . . .             | 5 6  | 1 8   |
| 1844 . . .             | 4 12 | 1 11  | 1856 . . .             | 5 13 | 1 10  |
| 1845 . . .             | 5 12 | 2 1   | Average 11 years . . . | 4 7  | 1 14  |
| Average 12 years . . . | 4 18 | 2 0   |                        |      |       |

The prices of raw cotton, yarn, and calico from 1802 to 1888 averaged as follows:—

| Period        | Cotton, Pence per yd. | Yarn, Pence per yd. | Calico, Pence per yd. | Ratio of Price |      |        |
|---------------|-----------------------|---------------------|-----------------------|----------------|------|--------|
|               |                       |                     |                       | Cotton         | Yarn | Calico |
| 1802-10 . . . | 22.2                  | 39                  | 20.5                  | 100            | 100  | 100    |
| 1811-20 . . . | 21.3                  | 33                  | 16.8                  | 96             | 85   | 82     |
| 1821-30 . . . | 8.3                   | 17                  | 8.2                   | 37             | 43   | 40     |
| 1831-40 . . . | 7.9                   | 14                  | 5.2                   | 35             | 35   | 26     |
| 1841-50 . . . | 5.3                   | 13                  | 3.4                   | 24             | 33   | 17     |
| 1851-60 . . . | 5.9                   | 11                  | 2.9                   | 27             | 28   | 14     |
| 1861-70 . . . | 12.8                  | 20                  | 4.2                   | 57             | 51   | 21     |
| 1871-80 . . . | 7.1                   | 15                  | 3.0                   | 32             | 38   | 15     |
| 1881 . . .    | 6.3                   | 12                  | 2.7                   | 28             | 30   | 13     |
| 1888 . . .    | 5.5                   | 11                  | 2.3                   | 25             | 28   | 11     |

The medium prices in various years are taken from the *Economist* as follows:—

|                             | 1845-50 | 1880  | 1881  | 1882   | 1883  | 1884  | 1885  | 1886  | 1887  | 1888  | 1889  | 1890  | 1891-99 |
|-----------------------------|---------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
|                             | £ s.    | £ s.  | £ s.  | £ s.   | £ s.  | £ s.  | £ s.  | £ s.  | £ s.  | £ s.  | £ s.  | £ s.  | £ s.    |
| Beef, ton . . .             | 44 0    | 61 0  | 65 0  | 63 0   | 65 0  | 65 0  | 61 0  | 51 10 | 49 0  | 55 0  | 55 0  | 58 0  | 59 0    |
| Butter, cwt. . .            | 4 2     | 5 17  | 5 19  | 6 7    | 5 18  | 5 12  | 5 0   | 4 5   | 4 10  | 4 8   | 5 0   | ...   | 5 5     |
| Calico, 100 yards . . .     | 1 4     | 1 1   | 1 4   | 1 2    | 1 0   | 1 0   | 1 0   | 1 0   | 1 0   | 1 0   | 1 1   | 1 1   | 1 1     |
| Coal, ton . . .             | ...     | 0 9   | 0 9   | 0 9    | 0 9   | 0 10  | 0 10  | 0 8   | 0 8   | 0 8   | 0 10  | 0 12  | 0 9     |
| Coffee, cwt. . .            | 2 9     | 3 14  | 3 0   | 2 9    | 2 0   | 2 12  | 2 6   | 2 2   | 3 15  | 3 14  | 4 3   | 4 11  | 3 2     |
| Copper, ton . . .           | 88 0    | 71 5  | 66 5  | 75 10  | 70 10 | 62 5  | 53 0  | 44 0  | 43 0  | 78 0  | 62 0  | 56 5  | 61 0    |
| Cotton, cwt. . .            | 2 9     | 2 10  | 3 3   | 3 2    | 2 14  | 2 16  | 2 16  | 2 6   | 2 12  | 2 14  | 2 16  | 2 12  | 2 15    |
| Flax, ton . . .             | 44 0    | 33 0  | 29 0  | 30 0   | 27 10 | 27 0  | 30 0  | 29 10 | 30 5  | 27 0  | 26 0  | 23 0  | 28 0    |
| Hemp, ton . . .             | 32 0    | 25 10 | 23 15 | 26 5   | 23 10 | 29 10 | 29 10 | 28 5  | 28 5  | 20 0  | 24 0  | 26 0  | 26 0    |
| Indigo, cwt. . .            | 21 0    | 43 16 | 42 0  | 39 4   | 37 16 | 33 10 | 33 10 | 33 10 | 28 0  | 27 0  | 26 0  | 25 0  | 32 10   |
| Iron bar, ton . . .         | 8 0     | 7 17  | 5 15  | 6 15   | 6 0   | 5 10  | 6 0   | 5 5   | 5 0   | 5 7   | 7 0   | 8 15  | 6 3     |
| Lead, ton . . .             | 17 10   | 19 12 | 15 5  | 15 7   | 14 10 | 12 5  | 11 5  | 12 12 | 12 10 | 14 10 | 13 7  | 14 6  | 13 12   |
| Leather, cwt. . .           | 8 8     | 11 14 | 11 14 | 11 14  | 11 14 | 11 14 | 12 2  | 11 14 | 11 10 | 11 4  | 11 3  | 11 3  | 11 12   |
| Olive oil, tun . . .        | 44 0    | 46 0  | 42 0  | 40 0   | 36 10 | 40 10 | 40 15 | 40 10 | 36 15 | 36 12 | 34 10 | 37 5  | 38 10   |
| Oil, palm . . .             | 32 0    | 36 15 | 32 0  | 32 5   | 37 10 | 43 10 | 32 0  | 29 0  | 23 0  | 21 0  | 29 0  | 25 15 | 30 10   |
| Petroleum, 40 gallons . . . | ...     | 1 2   | 1 12  | 0 19   | 1 3   | 1 4   | 1 3   | 1 2   | 1 0   | 1 0   | 1 0   | 1 1   | 1 2     |
| Pork, ton . . .             | 50 0    | 58 0  | 73 10 | 58 0   | 58 0  | 54 0  | 44 0  | 38 0  | 42 0  | 38 0  | 45 10 | 46 0  | 49 14   |
| Potatoes, ton . . .         | ...     | 7 5   | 4 5   | 4 5    | 6 0   | 4 0   | 3 10  | 4 10  | 4 10  | 4 10  | 4 15  | 3 0   | 4 10    |
| Rum, 10 gallons . . .       | 1 10    | 1 14  | 1 7   | 1 18   | 1 10  | 1 8   | 1 6   | 1 8   | 1 7   | 1 3   | 1 4   | 1 7   | 1 9     |
| Saltpetre, cwt. . .         | 1 7     | 1 7   | 1 8   | 1 9    | 1 6   | 1 4   | 1 3   | 1 2   | 1 1   | 1 1   | 1 2   | 1 2   | 1 4     |
| Silk, lb. . . .             | 0 12    | 0 16  | 0 15  | 0 16   | 0 14  | 0 13  | 0 10  | 0 11  | 0 15  | 0 13  | 0 13  | 0 13  | 0 13    |
| Steel rails, ton . . .      | ...     | 8 15  | 6 5   | 6 15   | 5 10  | 4 10  | 4 15  | 4 15  | 4 5   | 4 0   | 5 10  | 7 0   | 5 6     |
| Sugar, cwt. . .             | 1 9     | 1 2   | 1 0   | 1 1    | 0 18  | 0 18  | 0 11  | 0 14  | 0 11  | 0 13  | 0 17  | 0 12  | 0 16    |
| Tallow, .. . .              | 2 4     | 2 5   | 1 19  | 2 3    | 2 9   | 2 12  | 2 2   | 1 15  | 1 11  | 1 14  | 1 19  | 1 13  | 2 0     |
| Tea, .. . .                 | 4 6     | 6 1   | 4 4   | 3 14   | 3 5   | 3 18  | 3 6   | 3 18  | 3 5   | 3 14  | 3 1   | 2 13  | 3 10    |
| Timber, load . . .          | 3 16    | 3 17  | 3 7   | 3 10   | 3 10  | 3 10  | 3 0   | 2 15  | 2 17  | 2 15  | 2 18  | 2 12  | 3 3     |
| Tin, ton . . .              | 85 10   | 94 0  | 94 0  | 114 10 | 98 0  | 88 10 | 77 5  | 97 0  | 105 0 | 120 0 | 99 0  | 103 0 | 99 10   |
| Tobacco, cwt. . .           | 2 1     | 3 14  | 3 7   | 4 18   | 5 2   | 4 9   | 4 9   | 4 4   | 4 3   | 4 18  | 4 5   | 4 4   | 4 8     |
| Wheat, ton . . .            | 13 5    | 11 15 | 10 17 | 11 1   | 10 5  | 9 18  | 8 0   | 7 10  | 8 15  | 7 15  | 7 8   | 7 9   | 8 18    |
| Wool, cwt. . .              | 6 1     | 6 15  | 7 4   | 6 10   | 5 12  | 5 17  | 5 4   | 4 18  | 5 7   | 5 0   | 5 4   | 5 12  | 5 12    |
| Yarn, cotton, cwt. . .      | 4 11    | 5 0   | 5 0   | 5 0    | 4 11  | 4 10  | 4 11  | 3 15  | 3 18  | 4 0   | 4 6   | 4 4   | 4 8     |

## FRANCE

Prices of cattle at various dates, according to weight of silver, were in English money of to-day as follows:—

| Period          | Horse | Ox   | Cow  | Sheep | Pig  |
|-----------------|-------|------|------|-------|------|
|                 | £ s.  | £ s. | £ s. | £ s.  | £ s. |
| 1302-20 . . .   | ...   | 2 12 | ...  | 0 4   | 0 8  |
| 1321-70 . . .   | 4 15  | 1 10 | ...  | 0 4   | 0 7  |
| 1371-1420 . . . | ...   | ...  | 0 19 | 0 4   | 0 10 |
| 1421-60 . . .   | 1 14  | 2 3  | 0 11 | 0 5   | 0 6  |
| 1461-1550 . . . | 6 12  | 1 4  | 0 9  | 0 2   | 0 6  |
| 1551-80 . . .   | 6 8   | 2 2  | 1 12 | 0 4   | 0 8  |
| 1581-1600 . . . | ...   | 2 12 | 2 8  | 0 7   | ...  |

Prices of grain and butter per ton were:—

| Period          | Peas | Oats | Rice | Butter |
|-----------------|------|------|------|--------|
|                 | £ s. | £ s. | £ s. | £ s.   |
| 1341-80 . . .   | 6 8  | ...  | 22 0 | ...    |
| 1381-1440 . . . | 3 4  | 1 14 | ...  | 16 10  |
| 1441-1500 . . . | 5 4  | 1 6  | 20 0 | ...    |
| 1501-50 . . .   | 3 12 | 1 12 | ...  | 16 0   |
| 1551-1600 . . . | 2 11 | 2 11 | ...  | 40 0   |

Professor Charles Guyot gives the following scale of prices and wages from the Middle Ages to date, reduced to English money:—

|                 | Land, Acre | Calico, Yard | Cloth, Yard | Workman's Daily Foot | Wages, Daily |       | Wages per Annum |       |
|-----------------|------------|--------------|-------------|----------------------|--------------|-------|-----------------|-------|
|                 |            |              |             |                      | Man          | Woman | Man             | Woman |
| 1401-25 . . .   | 5 3        | ...          | ...         | ...                  | ...          | ...   | ...             | ...   |
| 1520-50 . . .   | 7 10       | ...          | ...         | 3                    | 7            | 4     | ...             | ...   |
| 1551-75 . . .   | 17 0       | ...          | ...         | 3                    | 7            | 4     | ...             | ...   |
| 1576-1600 . . . | 19 10      | ...          | ...         | 4                    | 11           | 6     | ...             | ...   |
| 1601-50 . . .   | 9 0        | 0 10         | 7 6         | 5                    | 9            | 7     | 2 15 1 16       | ...   |
| 1676-1700 . . . | 11 0       | 0 9          | 5 0         | 6                    | 11           | 8     | 2 16 1 16       | ...   |
| 1701-26 . . .   | 16 8       | 0 9          | 5 10        | 5                    | 9            | 7     | 2 16 1 1        | ...   |
| 1751-75 . . .   | 19 0       | 0 8          | 5 10        | 5                    | 8            | 6     | 2 8 2 6         | ...   |
| 1776-1800 . . . | 38 0       | 0 11         | 4 9         | 4                    | 9            | 6     | 3 16 3 4        | ...   |
| 1826-50 . . .   | ...        | 0 10         | 8 0         | 6                    | 14           | 9     | 8 0 5 0         | ...   |
| 1851-71 . . .   | 84 0       | 1 0          | 6 6         | 7                    | 20           | 14    | 12 0 6 0        | ...   |
| 1872-85 . . .   | 70 0       | 1 1          | 6 6         | 9                    | 24           | 16    | 16 0 8 0        | ...   |

# PRICES

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# PRICES

The prices of some other things were as follows :—

|                 | Period |               | Period |
|-----------------|--------|---------------|--------|
| Apples, 1000    | 1361   | Onions, bush. | 1372   |
| Bacon, ton      | 1594   | Oranges, 1000 | 1542   |
| Brass, "        | 1418   | Paper, quire  | 1431   |
| Calico, yard    | 1312   | Partridge     | 1563   |
| Candles, lb.    | 1499   | Peaches, 1000 | 1435   |
| " "             | 1589   | Pears, 100    | 1536   |
| Cheese, ton     | 1542   | Pepper, lb.   | 1450   |
| Chicken         | 1563   | Pheasant      | 1434   |
| Copper, ton     | 1542   | Pigeons, pair | 1440   |
| Cotton, "       | 1320   | Rabbit        | 1563   |
| Cowhide, tanned | 1542   | Salt, bush.   | 1375   |
| Eggs, 100       | 1376   | " "           | 1589   |
| " "             | 1598   | Sheepskin     | 1327   |
| Fagots, 1000    | 1560   | Shoes, pair   | 1564   |
| " "             | 1600   | Slates, 1000  | 1518   |
| Fleece          | 1341   | Steel, ton    | 1307   |
| Gunpowder, cwt. | 1594   | " "           | 1542   |
| Hay, ton        | 1567   | Sugar, lb.    | 1372   |
| Herrings, 1000  | 1426   | " "           | 1598   |
| " "             | 1595   | Thread, lb.   | 1322   |
| Horse-shoe      | 1307   | Tiles, 1000   | 1341   |
| Iron, ton       | 1536   | " "           | 1567   |
| Lead, "         | 1312   | Wax, lb.      | 1434   |
| " "             | 1518   | Wine, gallon  | 1375   |
| Oil, gallon     | 1542   | " Bur-        | 1560   |
| " "             | 1375   | gundy.        | 1577   |
| " "             | 1589   |               |        |

The prices of various kinds of grain, according to Broch, in twenty years ending 1883 were as follows per ton :—

|      | Wheat | Rye   | Barley | Oats |
|------|-------|-------|--------|------|
| 1864 | 10 5  | 7 8   | 6 15   | 4 18 |
| 1865 | 9 11  | 7 0   | 6 9    | 4 17 |
| 1866 | 11 9  | 7 8   | 7 9    | 5 5  |
| 1867 | 15 4  | 9 16  | 8 3    | 6 1  |
| 1868 | 15 8  | 10 14 | 8 18   | 6 9  |
| 1869 | 11 17 | 7 14  | 7 2    | 5 12 |
| 1870 | 11 18 | 9 6   | 7 7    | 5 17 |
| 1871 | 14 12 | 8 17  | 8 5    | 6 8  |
| 1872 | 13 10 | 7 18  | 6 8    | 4 17 |
| 1873 | 14 12 | 9 4   | 7 14   | 5 11 |
| 1874 | 14 7  | 10 1  | 8 15   | 6 12 |
| 1875 | 11 2  | 7 17  | 7 2    | 6 4  |
| 1876 | 12 3  | 8 3   | 7 6    | 6 8  |
| 1877 | 13 13 | 8 18  | 7 14   | 6 1  |
| 1878 | 13 9  | 8 10  | 7 17   | 5 16 |
| 1879 | 12 15 | 8 17  | 7 9    | 5 10 |
| 1880 | 13 7  | 9 6   | 7 11   | 5 16 |
| 1881 | 12 18 | 8 12  | 7 3    | 5 12 |
| 1882 | 12 11 | 8 2   | 7 6    | 5 14 |
| 1883 | 11 4  | 7 10  | 6 14   | 5 7  |

## GERMANY

The average prices of grain at Königsberg, from 1815 to 1886, were as follows, per ton :—

| Years   | Wheat | Rye  | Years   | Wheat | Rye  |
|---------|-------|------|---------|-------|------|
| 1815-16 | 8 4   | 5 10 | 1851-52 | 8 4   | 6 9  |
| 1817-18 | 12 1  | 7 10 | 1853-54 | 11 13 | 8 13 |
| 1819-20 | 6 15  | 4 12 | 1855-56 | 15 4  | 11 4 |
| 1821-22 | 5 5   | 3 11 | 1857-58 | 9 6   | 6 2  |
| 1823-24 | 4 1   | 2 18 | 1859-60 | 9 2   | 5 13 |
| 1825-26 | 3 14  | 2 16 | 1861-62 | 10 7  | 6 15 |
| 1827-28 | 5 12  | 3 16 | 1863-64 | 7 12  | 5 4  |
| 1829-30 | 7 9   | 3 11 | 1865-66 | 8 7   | 5 16 |
| 1831-32 | 7 19  | 5 0  | 1867-68 | 12 13 | 9 5  |
| 1833-34 | 5 7   | 4 4  | 1869-70 | 9 9   | 6 14 |
| 1835-36 | 4 12  | 3 14 | 1871-72 | 11 11 | 7 2  |
| 1837-38 | 5 13  | 4 1  | 1873-74 | 11 17 | 8 2  |
| 1839-40 | 8 6   | 4 4  | 1875-76 | 9 12  | 7 1  |
| 1841-42 | 8 12  | 5 4  | 1877-78 | 10 10 | 6 15 |
| 1843-44 | 6 2   | 4 6  | 1879-80 | 9 19  | 7 10 |
| 1845-46 | 8 6   | 6 17 | 1881-82 | 10 3  | 8 0  |
| 1847-48 | 9 6   | 6 14 | 1883-84 | 8 13  | 6 12 |
| 1849-50 | 6 19  | 3 12 | 1885-86 | 7 16  | 6 5  |

The prices of grain at Hamburg were as follows, per ton :—

| Year | Wheat | Rye  | Barley | Oats |
|------|-------|------|--------|------|
| 1826 | 4 19  | 3 3  | 2 8    | 1 10 |
| 1827 | 6 18  | 6 10 | 4 4    | 4 2  |
| 1828 | 6 8   | 5 11 | 3 6    | 2 2  |
| 1829 | 12 14 | 5 19 | 4 14   | 2 16 |
| 1830 | 7 14  | 4 16 | 3 3    | 2 9  |
| 1831 | 11 10 | 7 7  | 4 14   | 3 1  |
| 1832 | 9 2   | 7 0  | 4 4    | 2 9  |
| 1833 | 6 6   | 5 1  | 3 8    | 2 3  |
| 1834 | 5 14  | 4 13 | 2 17   | 1 18 |
| 1835 | 5 7   | 5 0  | 3 5    | 2 3  |
| 1836 | 5 6   | 4 12 | 3 8    | 1 18 |
| 1837 | 6 18  | 5 12 | 3 18   | 2 14 |
| 1838 | 6 14  | 5 4  | 3 2    | 2 3  |
| 1839 | 13 0  | 7 13 | 4 19   | 3 5  |
| 1840 | 10 6  | 6 0  | 4 17   | 3 2  |
| 1841 | 8 2   | 8 8  | 3 17   | 2 19 |
| 1842 | 11 3  | 7 0  | 3 16   | 2 11 |
| 1843 | 8 7   | 7 0  | 4 1    | 2 16 |

The prices of some articles of food in French cities at various dates were :—

| Year | Bread, Ton | Milk, 10 gallons | Eggs, 10 dozen |
|------|------------|------------------|----------------|
| 1830 | 16 0       | 5 3              | 2 10           |
| 1840 | 9 12       | 5 3              | 4 0            |
| 1850 | 9 4        | 6 5              | 4 5            |
| 1860 | 10 8       | 7 1              | 4 10           |
| 1870 | 12 0       | 7 6              | 5 8            |
| 1880 | 14 8       | 8 4              | 6 0            |
| 1886 | 12 0       | 9 6              | 5 8            |

Prices of cattle and meat at Paris were :—

| Year | Per Head |      |       | Per Ton |        |
|------|----------|------|-------|---------|--------|
|      | Oxen     | Cows | Sheep | Beef    | Mutton |
| 1820 | 9 14     | 6 16 | 0 16  | 44 0    | 52 0   |
| 1830 | 14 4     | 7 12 | 1 0   | 49 0    | 54 0   |
| 1840 | 15 4     | 8 4  | 1 0   | 52 0    | 54 0   |

Prices of rural products in 1888-89 averaged thus :—

|       | Ton   | Bushel | Ton       | Bushel |
|-------|-------|--------|-----------|--------|
| Wheat | 10 10 | 5 3    | Barley    | 6 8    |
| Oats  | 4 16  | 2 5    | Potatoes  | 2 2    |
| Maize | 6 14  | 3 5    | Chestnuts | 3 8    |
| Rye   | 6 12  | 3 4    | Apples    | 3 6    |

Prices of meat were as follows per ton :—

| Year | Beef  | Veal | Mutton | Pork | Average |
|------|-------|------|--------|------|---------|
| 1880 | 64 10 | 68 0 | 71 0   | 67 0 | 67 12   |
| 1884 | 67 0  | 71 0 | 76 0   | 65 0 | 69 15   |
| 1888 | 57 0  | 61 0 | 66 0   | 58 0 | 60 10   |

| Year           | Wheat     | Rye      | Barley   | Oats     |
|----------------|-----------|----------|----------|----------|
| 1844 . . . . . | £ s. 8 15 | £ s. 6 2 | £ s. 4 1 | £ s. 3 0 |
| 1845 . . . . . | 7 5       | 5 0      | 4 7      | 2 14     |
| 1846 . . . . . | 10 10     | 7 14     | 4 9      | 3 6      |
| 1847 . . . . . | 12 6      | 10 13    | 7 3      | 4 8      |
| 1848 . . . . . | 10 17     | 6 19     | 4 16     | 3 5      |
| 1849 . . . . . | 8 2       | 4 10     | 4 0      | 2 1      |
| 1850 . . . . . | 8 2       | 4 10     | 3 12     | 2 3      |
| 1851 . . . . . | 8 3       | 6 5      | 4 6      | 2 19     |
| 1852 . . . . . | 8 15      | 8 8      | 5 4      | 3 0      |
| 1853 . . . . . | 9 12      | 7 4      | 5 8      | 3 7      |
| 1854 . . . . . | 14 18     | 12 8     | 7 13     | 4 18     |
| 1855 . . . . . | 14 2      | 9 16     | 6 10     | 4 4      |
| 1856 . . . . . | 16 18     | 13 13    | 8 3      | 5 1      |
| 1857 . . . . . | 11 12     | 7 11     | 6 10     | 3 17     |
| 1858 . . . . . | 9 10      | 7 0      | 5 2      | 4 10     |
| 1859 . . . . . | 10 0      | 7 7      | 5 1      | 4 12     |
| 1860 . . . . . | 10 17     | 8 2      | 7 0      | 4 13     |
| 1861 . . . . . | 12 16     | 8 7      | 8 2      | 4 14     |
| 1862 . . . . . | 14 0      | 9 17     | 6 5      | 4 13     |
| 1863 . . . . . | 11 6      | 8 5      | 5 11     | 3 17     |
| 1864 . . . . . | 9 0       | 6 8      | 5 17     | 3 19     |
| 1865 . . . . . | 8 8       | 5 17     | 5 5      | 3 15     |
| 1866 . . . . . | 11 10     | 7 15     | 8 0      | 5 7      |
| 1867 . . . . . | 14 6      | 9 12     | 9 9      | 4 18     |
| 1868 . . . . . | 16 0      | 13 7     | 9 1      | 5 12     |
| 1869 . . . . . | 11 14     | 9 17     | 9 18     | 5 15     |
| 1870 . . . . . | 10 5      | 7 9      | 7 12     | 4 6      |
| 1871 . . . . . | 12 8      | 8 18     | 7 14     | 5 2      |
| 1872 . . . . . | 13 16     | 9 10     | 9 10     | 4 18     |
| 1873 . . . . . | 14 5      | 11 6     | 10 5     | 5 13     |
| 1874 . . . . . | 10 14     | 9 8      | 9 8      | 6 5      |
| 1875 . . . . . | 10 14     | 9 5      | 9 6      | 6 5      |
| 1876 . . . . . | 11 7      | 9 3      | 7 15     | 5 14     |
| 1877 . . . . . | 12 16     | 10 7     | 7 14     | 5 17     |
| 1878 . . . . . | 12 5      | 9 1      | 9 7      | 5 11     |
| 1879 . . . . . | 9 16      | 7 0      | 8 18     | 4 7      |
| 1880 . . . . . | 12 19     | 9 16     | 9 5      | 4 16     |

The foregoing table is summed up as follows :—

| Period            | Wheat     | Rye      | Barley    | Oats      |
|-------------------|-----------|----------|-----------|-----------|
| 1826-30 . . . . . | £ s. 7 14 | £ s. 5 5 | £ s. 3 11 | £ s. 2 12 |
| 1831-40 . . . . . | 8 0       | 5 16     | 3 17      | 2 10      |
| 1841-50 . . . . . | 9 6       | 6 15     | 4 8       | 2 18      |
| 1851-60 . . . . . | 15 17     | 8 15     | 6 4       | 4 3       |
| 1861-70 . . . . . | 12 9      | 8 15     | 7 9       | 4 13      |
| 1871-80 . . . . . | 12 2      | 9 9      | 9 3       | 5 8       |

The prices of twenty-one principal articles of consumption were as follows, per ton :—

|                     | 1880     | 1887      | 1880               | 1887      |
|---------------------|----------|-----------|--------------------|-----------|
| Barley . . . . .    | £ s. 9 2 | £ s. 7 10 | Pork . . . . .     | £ s. 55 0 |
| Beef . . . . .      | 49 0     | 46 0      | Potatoes . . . . . | 1 16      |
| Coal . . . . .      | 0 5      | 0 4       | Rice . . . . .     | 13 0      |
| Coffee . . . . .    | 63 0     | 78 0      | Rye . . . . .      | 7 4       |
| Copper . . . . .    | 63 0     | 47 0      | Silk . . . . .     | 136 0     |
| Cotton . . . . .    | 55 0     | 52 0      | Sugar . . . . .    | 33 0      |
| Herring . . . . .   | 12 0     | 7 0       | Tin . . . . .      | 79 0      |
| Iron . . . . .      | 2 12     | 2 10      | Tobacco . . . . .  | 53 0      |
| Mutton . . . . .    | 51 0     | 44 0      | Wheat . . . . .    | 11 14     |
| Oats . . . . .      | 6 14     | 5 12      | Wool . . . . .     | 167 0     |
| Petroleum . . . . . | 8 0      | 6 0       | Zinc . . . . .     | 160 0     |

The prices of live stock in 1883 were as follows :—

|                       | Horses    | Oxen       | Milch Cows |
|-----------------------|-----------|------------|------------|
| Prussia . . . . .     | £ s. 23 6 | £ s. 13 16 | £ s. 11 6  |
| Bavaria . . . . .     | 22 8      | 13 12      | 10 8       |
| Saxony . . . . .      | 33 0      | 13 0       | 12 2       |
| Wurtemberg . . . . .  | 20 10     | 14 12      | 11 10      |
| All Germany . . . . . | 23 18     | 14 0       | 11 8       |

The prices of four principal articles in Germany in late years were as follows, per ton :—

| Year           | Cotton    | Wool       | Lead      | Iron      |
|----------------|-----------|------------|-----------|-----------|
| 1879 . . . . . | £ s. 62 0 | £ s. 167 0 | £ s. 15 0 | £ s. 2 12 |
| 1885 . . . . . | 55 0      | 134 0      | 11 0      | 2 8       |
| 1886 . . . . . | 49 0      | 133 0      | 13 0      | 2 3       |
| 1887 . . . . . | 52 0      | 116 0      | 12 10     | 2 10      |
| 1888 . . . . . | 53 0      | 130 0      | 14 0      | 2 12      |

## AUSTRIA

The prices of grain in fifteen years, taking the gulden at 20 pence, were as follows, per ton :—

|                | Wheat      | Rye      | Barley   | Oats     | Maize    |
|----------------|------------|----------|----------|----------|----------|
| 1874 . . . . . | £ s. 11 14 | £ s. 9 9 | £ s. 9 0 | £ s. 7 2 | £ s. 7 2 |
| 1875 . . . . . | 9 7        | 7 5      | 7 11     | 7 9      | 5 0      |
| 1876 . . . . . | 9 16       | 8 0      | 7 15     | 7 2      | 5 3      |
| 1877 . . . . . | 10 15      | 8 0      | 8 18     | 6 18     | 6 11     |
| 1878 . . . . . | 9 14       | 6 9      | 8 0      | 5 15     | 5 18     |
| 1879 . . . . . | 10 16      | 7 5      | 9 15     | 5 18     | 5 9      |
| 1880 . . . . . | 11 14      | 9 0      | 8 5      | 6 2      | 6 11     |
| 1881 . . . . . | 10 17      | 8 10     | 8 15     | 6 5      | 5 14     |
| 1882 . . . . . | 9 18       | 7 7      | 8 10     | 6 5      | 6 14     |
| 1883 . . . . . | 8 17       | 7 0      | 9 0      | 6 0      | 5 14     |
| 1884 . . . . . | 8 0        | 6 10     | 8 17     | 6 0      | 5 18     |
| 1885 . . . . . | 7 7        | 6 5      | 7 2      | 5 17     | 5 7      |
| 1886 . . . . . | 7 14       | 6 0      | 7 18     | 5 11     | 5 5      |
| 1887 . . . . . | 7 10       | 5 15     | 7 14     | 5 7      | 5 11     |
| 1888 . . . . . | 6 17       | 5 7      | 7 10     | 5 0      | 5 3      |

The averages, in periods of five years, were as follows :—

| Period                 | Wheat     | Rye       | Barley   | Oats      | Maize     |
|------------------------|-----------|-----------|----------|-----------|-----------|
| 1874-78 . . . . .      | £ s. 10 5 | £ s. 7 17 | £ s. 8 5 | £ s. 6 17 | £ s. 5 19 |
| 1879-83 . . . . .      | 10 8      | 7 16      | 8 17     | 6 2       | 6 0       |
| 1884-88 . . . . .      | 7 10      | 6 0       | 7 16     | 5 11      | 5 9       |
| Gen. average . . . . . | 9 7       | 7 4       | 8 6      | 6 3       | 5 16      |

The prices of some other commodities were as follows :—

|                         | 1882      | 1887      |                            | 1882       | 1887      |
|-------------------------|-----------|-----------|----------------------------|------------|-----------|
| Butter, ton . . . . .   | £ s. 72 0 | £ s. 53 0 | Rice, ton . . . . .        | £ s. 13 15 | £ s. 16 0 |
| Cheese, „ . . . . .     | 54 0      | 55 0      | Straw, „ . . . . .         | ...        | 1 18      |
| Coffee, „ . . . . .     | 80 0      | 102 0     | Sugar, ref., ton . . . . . | 35 0       | 29 0      |
| Hay, „ . . . . .        | ...       | 2 16      | Tea, ton . . . . .         | 233 0      | 268 0     |
| Potatoes, ton . . . . . | 3 7       | 3 15      | Tobacco, ton . . . . .     | 90 0       | 90 0      |
| Raisins, „ . . . . .    | 17 10     | 17 10     | Wine, 100 gal. . . . .     | ...        | 18 15     |

## HUNGARY

The prices of rural products were as follows, per ton :—

|                            | 1884           | 1886          |
|----------------------------|----------------|---------------|
| Barley . . . . .           | £ s. d. 6 14 0 | £ s. d. 7 5 0 |
| Beef . . . . .             | ...            | 42 0 0        |
| Hemp . . . . .             | 29 4 0         | 26 14 0       |
| Maize . . . . .            | 5 4 0          | 5 0 0         |
| Mutton . . . . .           | ...            | 31 10 0       |
| Oats . . . . .             | 5 12 0         | 5 2 0         |
| Pork . . . . .             | ...            | 38 10 0       |
| Potatoes . . . . .         | 3 7 0          | 2 10 0        |
| Rye . . . . .              | 6 14 0         | 5 8 0         |
| Wheat . . . . .            | 8 0 0          | 6 14 0        |
| Wool . . . . .             | 95 0 0         | 79 0 0        |
| Wine, 40 gallons . . . . . | ...            | 2 14 0        |

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## ITALY

The prices of wheat per ton in the Udine market from 1666 to 1875 were as follows :—

| Period      | Highest   | Lowest    | Average   | Year of |        |
|-------------|-----------|-----------|-----------|---------|--------|
|             |           |           |           | Highest | Lowest |
| 1606-10 . . | £ s. 7 14 | £ s. 3 17 | £ s. 5 11 | 1601    | 1610   |
| 1611-20 . . | 6 11      | 4 16      | 5 16      | 1618    | 1611   |
| 1621-30 . . | 12 6      | 5 13      | 7 16      | 1628    | 1625   |
| 1631-40 . . | 8 1       | 2 15      | 5 5       | 1631    | 1639   |
| 1641-50 . . | 12 11     | 4 2       | 7 0       | 1649    | 1645   |
| 1651-60 . . | 6 12      | 3 17      | 5 3       | 1656    | 1659   |
| 1661-70 . . | 5 16      | 3 10      | 4 11      | 1664    | 1666   |
| 1671-80 . . | 6 4       | 3 10      | 5 1       | 1677    | 1673   |
| 1681-90 . . | 5 9       | 2 18      | 4 2       | 1685    | 1688   |
| 1691-1700 . | 7 6       | 4 5       | 5 15      | 1696    | 1691   |
| 1701-10 . . | 8 4       | 3 16      | 5 8       | 1709    | 1702   |
| 1711-20 . . | 6 10      | 4 10      | 5 9       | 1717    | 1720   |
| 1721-30 . . | 5 7       | 3 10      | 4 7       | 1729    | 1727   |
| 1731-40 . . | 7 0       | 3 16      | 5 13      | 1735    | 1731   |
| 1741-50 . . | 7 10      | 4 14      | 6 3       | 1747    | 1745   |
| 1751-60 . . | 8 1       | 5 0       | 6 5       | 1751    | 1754   |
| 1761-70 . . | 9 14      | 4 15      | 6 18      | 1766    | 1762   |
| 1771-80 . . | 10 17     | 6 8       | 8 5       | 1774    | 1776   |
| 1781-90 . . | 10 13     | 7 7       | 8 16      | 1788    | 1781   |
| 1791-1800 . | 19 2      | 7 15      | 11 5      | 1800    | 1791   |
| 1801-10 . . | 19 12     | 8 5       | 13 0      | 1801    | 1808   |
| 1811-20 . . | 23 2      | 7 7       | 13 2      | 1816    | 1819   |
| 1821-30 . . | 9 14      | 5 0       | 7 1       | 1828    | 1824   |
| 1831-40 . . | 9 12      | 7 1       | 8 0       | 1839    | 1834   |
| 1841-50 . . | 12 0      | 6 10      | 9 4       | 1846    | 1844   |
| 1851-60 . . | 14 12     | 8 13      | 11 14     | 1855    | 1851   |
| 1861-70 . . | 11 18     | 8 7       | 10 7      | 1867    | 1864   |
| 1871-75 . . | 15 0      | 10 3      | 13 6      | 1873    | 1875   |

The prices of maize in the Udine market from 1626 to 1875 were per ton as follows :—

| Period      | Highest  | Lowest   | Average   | Year of |        |
|-------------|----------|----------|-----------|---------|--------|
|             |          |          |           | Highest | Lowest |
| 1626-30 . . | £ s. 9 5 | £ s. 3 6 | £ s. 5 10 | 1628    | 1626   |
| 1631-40 . . | 3 6      | 1 12     | 2 8       | 1633    | 1639   |
| 1641-50 . . | 8 10     | 1 18     | 3 18      | 1649    | 1645   |
| 1651-60 . . | 3 16     | 2 0      | 2 11      | 1656    | 1659   |
| 1661-70 . . | 3 11     | 1 10     | 2 2       | 1663    | 1669   |
| 1671-80 . . | 4 10     | 1 18     | 2 12      | 1675    | 1678   |
| 1681-90 . . | 4 1      | 1 10     | 2 4       | 1685    | 1682   |
| 1691-1700 . | 4 18     | 2 5      | 3 6       | 1695    | 1700   |
| 1701-10 . . | 3 16     | 1 14     | 2 17      | 1709    | 1703   |
| 1711-20 . . | 4 4      | 1 14     | 3 5       | 1717    | 1720   |
| 1721-30 . . | 3 2      | 1 13     | 2 7       | 1724    | 1727   |
| 1731-40 . . | 4 11     | 2 6      | 3 5       | 1739    | 1734   |
| 1741-50 . . | 4 9      | 2 8      | 3 4       | 1750    | 1748   |
| 1751-60 . . | 6 1      | 2 3      | 3 13      | 1751    | 1753   |
| 1761-70 . . | 6 7      | 2 16     | 4 5       | 1763    | 1761   |
| 1771-80 . . | 7 1      | 3 15     | 5 2       | 1772    | 1775   |
| 1781-90 . . | 8 10     | 3 12     | 5 7       | 1782    | 1790   |
| 1791-1800 . | 16 2     | 4 19     | 7 17      | 1800    | 1791   |
| 1801-10 . . | 15 4     | 5 9      | 8 15      | 1802    | 1808   |
| 1811-20 . . | 16 18    | 3 5      | 8 14      | 1816    | 1819   |
| 1821-30 . . | 8 0      | 3 13     | 5 8       | 1830    | 1823   |
| 1831-40 . . | 8 4      | 3 19     | 5 10      | 1839    | 1831   |
| 1841-50 . . | 8 7      | 4 18     | 5 18      | 1846    | 1844   |
| 1851-60 . . | 10 11    | 5 14     | 7 4       | 1853    | 1858   |
| 1861-70 . . | 8 3      | 5 0      | 6 4       | 1861    | 1868   |
| 1871-75 . . | 9 12     | 6 5      | 8 0       | 1871    | 1875   |

Nothing is more surprising than the great difference of prices of grain in Italian cities. For instance, wheat in 1865 was £2 per ton dearer in Florence than in Genoa, and in 1877 it was £3 dearer in Genoa than in Florence, as shown in the following table :—

| Year         | Wheat     |            | Maize    |           |
|--------------|-----------|------------|----------|-----------|
|              | Genoa     | Florence   | Verona   | Florence  |
| 1862 . . . . | £ s. 13 0 | £ s. 14 16 | £ s. 9 8 | £ s. 7 16 |
| 1863 . . . . | 12 10     | 14 7       | 6 14     | 5 8       |
| 1864 . . . . | 12 0      | 13 19      | 6 15     | 6 8       |
| 1865 . . . . | 11 0      | 13 0       | 6 6      | 6 8       |
| 1866 . . . . | 12 10     | 12 15      | 7 2      | 6 5       |
| 1867 . . . . | 15 14     | 14 18      | 7 14     | 7 15      |
| 1868 . . . . | 16 0      | 15 16      | 6 17     | 7 11      |
| 1869 . . . . | 12 16     | 13 18      | 5 10     | 5 6       |
| 1870 . . . . | 13 18     | 13 10      | 6 14     | 5 19      |
| 1871 . . . . | 14 11     | 14 16      | 10 10    | 7 18      |
| 1872 . . . . | 14 6      | 15 9       | 10 13    | 9 1       |
| 1873 . . . . | 15 14     | 16 4       | 8 14     | 8 11      |
| 1874 . . . . | 14 0      | 15 15      | 11 5     | 9 6       |
| 1875 . . . . | 12 0      | 12 11      | 7 3      | 6 1       |
| 1876 . . . . | 12 14     | 13 6       | 7 4      | 5 14      |
| 1877 . . . . | 17 8      | 14 2       | 8 16     | 7 12      |
| 1878 . . . . | 14 8      | 13 4       | 8 15     | 8 8       |
| 1879 . . . . | 12 9      | 13 0       | 8 4      | 7 8       |
| 1880 . . . . | 13 12     | 13 4       | 9 12     | 8 15      |
| 1881 . . . . | 11 5      | 11 8       | 7 16     | 7 4       |
| 1882 . . . . | 11 4      | 11 4       | 9 2      | 7 8       |
| 1883 . . . . | 10 10     | 10 16      | 7 3      | 6 15      |
| 1884 . . . . | 9 7       | 10 6       | 6 10     | 6 6       |
| 1885 . . . . | 9 0       | 10 7       | 6 9      | 6 2       |

In the above tables the depreciated paper money of the years 1866 to 1882 is converted into gold at the average rates for each year, the premium on gold varying from 4 to 14 per cent.

The prices of rice, wine, and olive-oil were as follows :—

| Year              | Rice, Ton | Wine, 100 Gallons | Olive-Oil, 100 Gallons |
|-------------------|-----------|-------------------|------------------------|
|                   | Milan     | Rome              | Rome                   |
| 1862 . . . .      | £ s. 13 0 | £ s. 9 16         | £ s. 22 0              |
| 1863 . . . .      | 12 7      | 8 4               | 18 8                   |
| 1864 . . . .      | 13 7      | 8 2               | 17 12                  |
| 1865 . . . .      | 13 2      | 8 10              | 17 0                   |
| 1866 . . . .      | 13 8      | 6 8               | 18 0                   |
| 1867 . . . .      | 14 4      | 6 10              | 22 16                  |
| 1868 . . . .      | 13 12     | 8 5               | 21 12                  |
| 1869 . . . .      | 12 16     | 9 8               | 17 0                   |
| 1870 . . . .      | 10 14     | 8 13              | 16 4                   |
| 1871 . . . .      | 12 15     | 4 16              | 16 12                  |
| 1872 . . . .      | 14 12     | 5 12              | 18 8                   |
| 1873 . . . .      | 15 4      | 7 0               | 20 4                   |
| 1874 . . . .      | 15 0      | 6 16              | ...                    |
| 1875 . . . .      | 15 4      | 6 4               | 17 12                  |
| 1876 . . . .      | 15 12     | 5 8               | 16 12                  |
| 1877 . . . .      | 15 8      | 12 4              | 19 10                  |
| 1878 . . . .      | 13 4      | 12 6              | 23 4                   |
| 1879 . . . .      | 14 4      | 7 7               | 17 4                   |
| 1880 . . . .      | 14 0      | 5 17              | 22 0                   |
| 1881 . . . .      | 12 12     | 7 4               | 19 10                  |
| 1882 . . . .      | 13 0      | 9 8               | 17 0                   |
| 1883 . . . .      | 15 8      | 8 10              | 18 0                   |
| 1884 . . . .      | 14 4      | 8 5               | 20 4                   |
| 1885 . . . .      | 12 10     | 10 8              | 18 8                   |
| 1862-65 . . . .   | 12 19     | 8 13              | 18 15                  |
| 1866-70 . . . .   | 12 19     | 7 17              | 19 2                   |
| 1871-75 . . . .   | 14 11     | 6 2               | 18 4                   |
| 1876-80 . . . .   | 14 9      | 8 12              | 19 14                  |
| 1881-85 . . . .   | 13 11     | 8 15              | 18 12                  |
| General average . | 13 18     | 8 0               | 18 17                  |

Rice ranged from £10 14s. in 1870 to £15 12s. in 1876; wine from £4 16s. in 1871 to £12 6s. in 1878; and oil from £16 4s. in 1870 to £23 4s. in 1878. It would seem, therefore, that wine is subject to much more violent fluctuations of price than either rice or oil.

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The prices of best beef per ton were as follows :—

| Year | Milan | Naples | Florence |
|------|-------|--------|----------|
|      | £ s.  | £ s.   | £ s.     |
| 1862 | 42 10 | 52 8   | 50 0     |
| 1863 | 47 10 | 51 4   | 52 0     |
| 1864 | 45 12 | 51 4   | 53 4     |
| 1865 | 46 0  | 57 4   | 54 0     |
| 1866 | 43 0  | 53 5   | 52 0     |
| 1867 | 44 8  | 51 4   | 54 0     |
| 1868 | 45 0  | 50 8   | 54 0     |
| 1869 | 48 15 | 63 10  | 56 0     |
| 1870 | 50 8  | 63 12  | 54 0     |
| 1871 | 50 16 | 60 0   | 45 12    |
| 1872 | 52 15 | 63 4   | 48 2     |
| 1873 | 66 8  | 78 0   | 51 0     |
| 1874 | 60 4  | 82 0   | 61 0     |
| 1875 | 58 16 | 69 10  | 62 10    |
| 1876 | 55 4  | 69 5   | 63 6     |
| 1877 | 53 12 | 67 4   | 63 14    |
| 1878 | 53 16 | 62 16  | 60 0     |
| 1879 | 53 16 | 59 12  | 68 0     |
| 1880 | 53 12 | 67 0   | 68 5     |
| 1881 | 55 16 | 74 10  | 76 4     |
| 1882 | 51 4  | 76 0   | 80 0     |
| 1883 | 54 0  | 79 4   | 85 12    |
| 1884 | 56 0  | 82 8   | 91 10    |
| 1885 | 60 0  | 79 4   | 87 0     |

## SWITZERLAND.

The price of meat per ton from 1845 to 1881 averages thus :—

| Period  | Beef | Mutton | Pork | Average |
|---------|------|--------|------|---------|
|         | £ s. | £ s.   | £ s. | £ s.    |
| 1845-51 | 32 0 | 32 0   | 33 0 | 32 7    |
| 1852-61 | 39 0 | 41 0   | 42 0 | 40 13   |
| 1862-71 | 52 0 | 52 0   | 43 0 | 49 0    |
| 1872-81 | 62 0 | 64 0   | 54 0 | 60 0    |

The prices of other commodities were :—

|             | 1885  | 1888  |             | 1885  | 1888  |
|-------------|-------|-------|-------------|-------|-------|
|             | £ s.  | £ s.  |             | £ s.  | £ s.  |
| Barley, ton | 8 10  | 9 6   | Spirits, }  |       |       |
| Butter, "   | 54 0  | 70 0  | 100 gall.   | 9 1   | 8 11  |
| Cheese, "   | 74 0  | 70 0  | Sugar, ton  | 27 0  | 19 10 |
| Coffee, "   | 52 0  | 84 0  | Tea, "      | 204 0 | 204 0 |
| Oats, "     | 6 17  | 6 12  | Tobacco, "  | 65 0  | 41 0  |
| Potatoes, " | 2 0   | 3 2   | Wheat, "    | 8 10  | 9 1   |
| Raisins, "  | 18 0  | 18 10 | Wine, 100 } |       |       |
| Rice, "     | 15 16 | 13 10 | gallons     | 8 3   | 5 11  |

Mr. Secretary Mühlemann, of Berne, gives the following table of prices per ton :—

| Year | Wheat | Rye   | Barley | Year  | Wheat | Rye   | Barley | Year | Wheat | Rye   | Barley |
|------|-------|-------|--------|-------|-------|-------|--------|------|-------|-------|--------|
|      | £ s.  | £ s.  | £ s.   |       | £ s.  | £ s.  | £ s.   |      | £ s.  | £ s.  | £ s.   |
| 1784 | 9 4   | 6 10  | 5 14   | 1812  | 18 7  | 12 3  | 9 16   | 1854 | 18 8  | 14 17 | 10 0   |
| 1785 | 13 8  | 8 2   | 6 16   | 1813  | 16 4  | 9 9   | 8 0    | 1855 | 18 8  | 11 13 | 8 14   |
| 1786 | 11 14 | 6 12  | 5 6    | 1814  | 12 2  | 7 13  | 6 10   | 1856 | 17 14 | 10 3  | 8 1    |
| 1787 | 11 8  | 6 12  | 5 6    | 1815  | 12 18 | 8 6   | 6 14   | 1857 | 15 6  | 10 11 | 8 15   |
| 1788 | 13 8  | 8 16  | 6 14   | 1816  | 23 17 | 15 10 | 12 5   | 1858 | 9 16  | 6 2   | 5 14   |
| 1789 | 14 0  | 10 0  | 8 2    | 1817  | 32 15 | 20 12 | 16 14  | 1859 | 10 12 | 6 7   | 5 17   |
| 1790 | 15 10 | 9 12  | 7 12   | 1832* | ...   | 9 17  | 7 13   | 1860 | 14 18 | 10 12 | 8 7    |
| 1791 | 12 0  | 7 0   | 6 0    | 1833  | ...   | 7 1   | 6 10   | 1861 | 14 14 | 9 17  | 7 7    |
| 1792 | 12 0  | 7 0   | 6 0    | 1834  | ...   | 5 4   | 5 6    | 1862 | 12 17 | 7 14  | 6 18   |
| 1793 | 15 13 | 9 18  | 8 10   | 1835  | ...   | 5 4   | 5 7    | 1863 | 12 10 | 6 10  | 6 8    |
| 1794 | 20 12 | 14 12 | 12 2   | 1836  | ...   | 5 18  | 5 14   | 1864 | ...   | 6 14  | 6 17   |
| 1795 | 26 4  | 16 9  | 13 0   | 1837  | ...   | 5 19  | 5 5    | 1865 | ...   | 7 4   | 6 18   |
| 1796 | 16 8  | 10 1  | 8 11   | 1838  | ...   | 6 7   | 5 14   | 1866 | ...   | 7 17  | 7 6    |
| 1797 | 13 1  | 6 7   | 5 18   | 1839  | ...   | 7 11  | 6 7    | 1867 | ...   | 11 4  | 8 7    |
| 1798 | 14 18 | 5 12  | 5 16   | 1840  | ...   | 7 11  | 6 9    | 1868 | ...   | 9 17  | 8 6    |
| 1799 | 15 0  | 7 12  | 6 15   | 1841  | ...   | 6 7   | 5 0    | 1869 | ...   | 6 8   | 6 16   |
| 1800 | 17 2  | 11 2  | 9 1    | 1842  | ...   | 7 0   | 5 10   | 1870 | ...   | 7 2   | 7 8    |
| 1801 | 15 3  | 10 7  | 8 11   | 1843  | ...   | 9 12  | 7 5    | 1871 | 13 6  | 8 12  | 8 12   |
| 1802 | 19 6  | 11 12 | 8 15   | 1844  | ...   | 8 10  | 8 0    | 1872 | 13 14 | 8 3   | 8 5    |
| 1803 | 18 6  | 11 3  | 8 14   | 1845  | ...   | 8 3   | 6 17   | 1873 | 14 10 | 9 3   | 8 19   |
| 1804 | 12 6  | 7 6   | 6 16   | 1846  | ...   | 12 0  | 8 10   | 1874 | 14 0  | 9 17  | 9 19   |
| 1805 | 15 10 | 7 17  | 6 6    | 1847  | 22 0  | 16 10 | 11 17  | 1875 | 10 15 | 8 3   | 8 19   |
| 1806 | 17 15 | 10 10 | 8 14   | 1848  | 12 0  | 6 16  | 5 12   | 1876 | 11 8  | 8 15  | 9 5    |
| 1807 | 12 17 | 8 0   | 6 8    | 1849  | 10 2  | 6 10  | 5 0    | 1877 | 13 0  | 9 14  | 10 3   |
| 1808 | 11 16 | 6 16  | 6 1    | 1850  | 10 13 | 6 17  | 5 9    | 1878 | 11 18 | 8 16  | 9 10   |
| 1809 | 9 18  | 6 8   | 6 1    | 1851  | 11 8  | 7 16  | 6 4    | 1879 | 11 1  | 9 4   | 8 15   |
| 1810 | 10 18 | 6 14  | 5 17   | 1852  | 13 2  | 9 2   | 6 10   | 1880 | 12 8  | 9 4   | 9 4    |
| 1811 | 15 17 | 8 11  | 7 0    | 1853  | 15 4  | 10 1  | 6 10   | 1881 | 11 11 | 8 15  | 9 3    |

The price of common bread at Berne per 10 lbs. was as follows, in pence :—

| Year | Pence | Year | Pence | Year | Pence | Year | Pence | Year | Pence | Year | Pence | Year | Pence | Year | Pence | Year | Pence |
|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|
| 1800 | 25    | 1808 | 16    | 1816 | 30    | 1824 | 16    | 1832 | 22    | 1840 | 26    | 1848 | 28    | 1856 | 22    | 1864 | 20    |
| 1801 | 21    | 1809 | 16    | 1817 | 41    | 1825 | 15    | 1833 | 17    | 1841 | 24    | 1849 | 15    | 1857 | 21    | 1865 | 17    |
| 1802 | 24    | 1810 | 16    | 1818 | 22    | 1826 | 13    | 1834 | 17    | 1842 | 16    | 1850 | 16    | 1858 | 22    | 1866 | 17    |
| 1803 | 24    | 1811 | 21    | 1819 | 16    | 1827 | 13    | 1835 | 16    | 1843 | 17    | 1851 | 17    | 1859 | 17    | 1867 | 18    |
| 1804 | 20    | 1812 | 25    | 1820 | 15    | 1828 | 16    | 1836 | 17    | 1844 | 19    | 1852 | 19    | 1860 | 20    | 1868 | 21    |
| 1805 | 23    | 1813 | 23    | 1821 | 16    | 1829 | 17    | 1837 | 17    | 1845 | 20    | 1853 | 20    | 1861 | 21    | 1869 | 21    |
| 1806 | 24    | 1814 | 19    | 1822 | 15    | 1830 | 18    | 1838 | 20    | 1846 | 21    | 1854 | 21    | 1862 | 22    | 1870 | 22    |
| 1807 | 19    | 1815 | 19    | 1823 | 14    | 1831 | 21    | 1839 | 21    | 1847 | 22    | 1855 | 22    | 1863 | 23    | 1871 | 23    |

\* There is a gap in the table from 1817 till 1832.

† There is a gap from 1836 to 1845.



# PRICES

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# PRICES

The preceding table may be summed up thus:—

| Years    | Average, Pence | Maximum Year |
|----------|----------------|--------------|
| 1800-10. | 20.1           | 1800         |
| 1811-20. | 23.1           | 1817         |
| 1821-30. | 15.3           | 1830         |
| 1831-40. | 18.7           | 1847         |
| 1851-60. | 20.2           | 1854         |
| 1861-70. | 18.7           | 1867         |
| 1871-81. | 21.0           | 1872         |

The price of the best potatoes per ton was as follows:—

| Year | £ s. | Year | £ s. | Year | £ s. |
|------|------|------|------|------|------|
| 1846 | 5 10 | 1858 | 3 8  | 1870 | 4 4  |
| 1847 | 7 10 | 1859 | 4 2  | 1871 | 4 4  |
| 1848 | 4 2  | 1860 | 5 16 | 1872 | 6 0  |
| 1849 | 3 7  | 1861 | 5 19 | 1873 | 5 0  |
| 1850 | 3 12 | 1862 | 3 11 | 1874 | 3 12 |
| 1851 | 4 14 | 1863 | 4 1  | 1875 | 4 4  |
| 1852 | 5 4  | 1864 | 4 8  | 1876 | 5 0  |
| 1853 | 5 7  | 1865 | 4 12 | 1877 | 5 1  |
| 1854 | 7 0  | 1866 | 4 4  | 1878 | 5 8  |
| 1855 | 5 12 | 1867 | 5 13 | 1879 | 5 13 |
| 1856 | 4 18 | 1868 | 4 9  | 1880 | 4 11 |
| 1857 | 5 10 | 1869 | 3 14 | 1881 | 5 8  |

## DENMARK.

Dr. Broch gives the following table of prices per ton at Copenhagen:—

| Period    | Rye      | Barley    | Oats     | Period  | Rye       | Barley    | Oats     |
|-----------|----------|-----------|----------|---------|-----------|-----------|----------|
| 1601-10   | £ s. 3 8 | £ s. 2 18 | £ s. ... | 1851-52 | £ s. 6 10 | £ s. 4 18 | £ s. 3 3 |
| 1611-20   | 3 9      | 3 3       | ...      | 1853-54 | 9 7       | 6 8       | 4 13     |
| 1621-30   | 5 16     | 4 1       | ...      | 1855-56 | 9 8       | 7 9       | 5 3      |
| 1631-40   | 4 8      | 3 12      | 2 1      | 1857    | 6 1       | 5 16      | 4 4      |
| 1641-50   | 4 16     | 3 17      | 2 1      | 1858    | 5 12      | 5 3       | 3 17     |
| 1651-60   | 4 1      | 3 9       | 1 15     | 1859    | 6 0       | 5 3       | 3 17     |
| 1661-70   | 4 7      | 3 9       | 2 1      | 1860    | 6 15      | 6 4       | 3 19     |
| 1671-80   | 4 1      | 3 3       | 2 4      | 1861    | 8 12      | 6 5       | 4 0      |
| 1681-90   | 3 18     | 3 0       | 1 17     | 1862    | 6 11      | 5 8       | 3 18     |
| 1691-1700 | 5 1      | 3 11      | 2 3      | 1863    | 5 10      | 4 11      | 3 3      |
| 1701-10   | 4 1      | 3 1       | 1 14     | 1864    | 6 10      | 5 6       | 4 7      |
| 1711-20   | 4 6      | 3 4       | 1 18     | 1865    | 7 14      | 6 1       | 4 15     |
| 1721-30   | 3 15     | 2 17      | 1 12     | 1866    | 7 7       | 7 3       | 4 11     |
| 1731-40   | 3 12     | 2 16      | 1 9      | 1867    | 11 4      | 7 19      | 5 10     |
| 1741-50   | 4 2      | 2 14      | 1 11     | 1868    | 8 17      | 8 11      | 6 6      |
| 1751-60   | 4 4      | 3 2       | 2 0      | 1869    | 6 8       | 5 8       | 3 17     |
| 1761-70   | 5 6      | 3 11      | 2 1      | 1870    | 7 6       | 6 8       | 4 9      |
| 1771-80   | 5 5      | 3 9       | 2 3      | 1871    | 8 3       | 6 19      | 4 11     |
| 1781-90   | 5 14     | 4 9       | 2 18     | 1872    | 7 16      | 7 10      | 4 12     |
| 1791-1800 | 6 10     | 4 11      | 3 3      | 1873    | 9 12      | 8 6       | 5 10     |
| 1801-10   | 9 18     | 5 14      | 3 17     | 1874    | 8 8       | 8 3       | 6 0      |
| 1810-20   | 3 18     | 2 16      | 2 0      | 1875    | 8 0       | 7 14      | 5 12     |
| 1821-30   | 4 15     | 3 9       | 2 9      | 1876    | 8 8       | 7 16      | 5 17     |
| 1831-40   | 5 9      | 4 3       | 2 18     | 1877    | 7 3       | 7 9       | 4 16     |
| 1841-50   | 7 5      | 6 0       | 4 4      | 1878    | 6 8       | 6 10      | 4 2      |
| 1851-60   | 7 13     | 6 6       | 4 9      | 1879    | 7 4       | 7 2       | 4 7      |
| 1861-70   | 8 1      | 7 10      | 5 0      | 1880    | 9 7       | 7 10      | 5 1      |

The prices from 1811 to 1818 cannot be given, owing to the fluctuations of paper money. All the above prices are reduced to silver.

The preceding table arranged in half centuries shows thus:—

| Period    | Rye      | Barley    | Oats     |
|-----------|----------|-----------|----------|
| 1601-50   | £ s. 4 8 | £ s. 3 11 | £ s. 2 1 |
| 1651-1700 | 4 6      | 3 8       | 2 0      |
| 1701-50   | 4 0      | 2 18      | 1 13     |
| 1751-1800 | 5 8      | 4 10      | 2 9      |
| 1801-50   | 4 13     | 3 9       | 2 9      |
| 1851-80   | 7 14     | 6 11      | 4 11     |

## SWEDEN AND NORWAY

The following list of prices is official:—

|               | Sweden    |          | Norway    |           |
|---------------|-----------|----------|-----------|-----------|
|               | 1882      | 1888     | 1882      | 1888      |
| Bacon, ton    | £ s. 6 12 | £ s. 5 2 | £ s. 50 0 | £ s. 40 0 |
| Barley, "     | 78 0      | 67 0     | 7 3       | 5 6       |
| Butter, "     | 52 0      | 56 0     | 64 0      | 63 0      |
| Cheese, "     | 81 0      | 85 0     | 84 0      | 79 0      |
| Cocoa, "      | 42 0      | 91 0     | 52 0      | 72 0      |
| Coffee, "     | 20 5      | 19 0     | ...       | ...       |
| Fish, "       | ...       | ...      | 14 3      | 10 18     |
| Flour, "      | 63 0      | 33 0     | ...       | ...       |
| Lard, "       | 7 0       | 6 10     | 7 18      | 5 19      |
| Maize, "      | 7 0       | 4 19     | 6 16      | 4 16      |
| Oats, "       | 63 0      | 39 0     | ...       | ...       |
| Pork, "       | 1 16      | 2 16     | ...       | ...       |
| Potatoes, ton | 31 0      | 33 0     | 31 0      | 21 0      |
| Raisins, "    | 9 17      | 11 10    | 12 8      | 11 0      |
| Rice, "       | 33 0      | 21 0     | 33 0      | 21 0      |
| Sugar, ref. " | 145 0     | 168 0    | 145 0     | 118 0     |
| Tea, "        | ...       | ...      | 62 0      | 60 0      |
| Tobacco, "    | 14 14     | 8 4      | 10 3      | 7 18      |
| Wheat, "      | ...       | ...      | ...       | ...       |

## HOLLAND

The prices paid per ton at the Meerenberg Hospital for supplies by tender were:—

|      | Wheat Bread | Rye Bread | Butter    | Beef      | Rice       | Pota-toes | Peas      |
|------|-------------|-----------|-----------|-----------|------------|-----------|-----------|
| 1851 | £ s. 18 8   | £ s. 7 4  | £ s. 68 0 | £ s. 31 0 | £ s. 17 12 | £ s. 4 4  | £ s. 13 4 |
| 1852 | 18 10       | 8 0       | 68 0      | 29 0      | 14 8       | 3 12      | 12 0      |
| 1853 | 18 10       | 7 4       | 68 0      | 30 0      | 14 8       | 3 18      | 13 16     |
| 1854 | 24 0        | 10 16     | 70 0      | 40 0      | 16 12      | 3 6       | 12 6      |
| 1855 | 25 5        | 10 8      | 74 0      | 43 0      | 17 12      | 3 6       | 14 8      |
| 1856 | 21 0        | 8 16      | 84 0      | 44 0      | 17 4       | 4 4       | 13 5      |
| 1857 | 16 4        | 6 0       | 83 0      | 45 0      | 14 4       | 3 6       | 10 18     |
| 1858 | 14 8        | 4 16      | 96 0      | 46 0      | 13 4       | 2 18      | 10 14     |
| 1859 | 14 8        | 4 16      | 92 0      | 40 0      | 11 4       | ...       | 14 13     |
| 1860 | 14 16       | ...       | 91 0      | 50 0      | 11 16      | 4 16      | 12 16     |
| 1861 | 17 4        | 6 8       | 85 0      | 44 0      | 13 10      | ...       | 14 3      |
| 1862 | 17 5        | 7 0       | 83 0      | 43 0      | 14 16      | 4 16      | 14 18     |
| 1863 | 14 16       | 6 12      | 79 0      | 39 0      | 12 12      | 3 12      | 10 4      |
| 1864 | 13 15       | 5 8       | 78 0      | 39 0      | 12 0       | 2 18      | 9 14      |
| 1865 | 12 0        | 5 0       | 85 0      | 41 0      | 10 8       | 3 2       | 10 1      |
| 1866 | 13 16       | 5 12      | 93 0      | 46 0      | 12 16      | 4 10      | 12 7      |
| 1867 | 16 15       | 6 7       | 83 0      | 44 0      | 14 8       | 3 19      | 13 3      |
| 1868 | 18 8        | 8 0       | 75 0      | 43 0      | 14 16      | 3 5       | 13 8      |
| 1869 | 14 16       | 5 12      | 86 0      | 47 0      | 13 12      | 3 12      | 13 8      |
| 1870 | 12 0        | 5 8       | 85 0      | 45 0      | 11 4       | 3 11      | 11 16     |
| 1871 | 14 8        | 5 16      | 89 0      | 45 0      | 12 8       | 3 16      | 12 18     |
| 1872 | 16 0        | 5 12      | 89 0      | 48 0      | 12 8       | 3 16      | 10 16     |
| 1873 | 16 12       | 6 0       | 82 0      | 55 0      | 12 12      | 3 2       | 12 10     |
| 1874 | 17 12       | 7 12      | 85 0      | 55 0      | 12 10      | 2 18      | 14 0      |
| 1875 | 12 16       | 5 12      | 90 0      | 53 0      | 11 15      | 2 14      | 15 10     |
| 1876 | 13 12       | 6 8       | 90 0      | 49 0      | 11 12      | 3 5       | 16 4      |
| 1877 | 15 12       | 7 12      | 94 0      | 51 0      | 12 0       | 3 5       | 15 10     |
| 1878 | 16 8        | 7 4       | 83 0      | 54 0      | 12 15      | 4 16      | 14 4      |
| 1879 | 14 0        | 6 8       | 76 0      | 56 0      | 12 0       | 3 14      | 14 4      |
| 1880 | 14 16       | 7 4       | 76 0      | 45 0      | 13 4       | 4 14      | 19 14     |
| 1881 | 14 8        | 8 10      | 82 0      | 52 0      | 13 2       | 3 10      | 16 12     |
| 1882 | 14 16       | 8 0       | 77 0      | 52 0      | 11 4       | 3 5       | 15 16     |
| 1883 | 14 12       | 7 15      | 76 0      | 58 0      | 9 18       | 4 2       | 14 8      |
| 1884 | 14 0        | 7 4       | 76 0      | 58 0      | 10 4       | 3 2       | 13 15     |

|        | Highest         | Lowest          |
|--------|-----------------|-----------------|
| Bread  | £25 5s. in 1885 | £12 os. in 1870 |
| Butter | 96 os. in 1858  | 68 os. in 1851  |
| Beef   | 58 os. in 1883  | 29 os. in 1852  |
| Rice   | 17 12s. in 1851 | 9 18s. in 1883  |

## BELGIUM

The following is an official statement of prices from 1840 to 1887 :—

|                     | 1840    | 1850    | 1860    | 1870    | 1880    | 1887    |
|---------------------|---------|---------|---------|---------|---------|---------|
|                     | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
| Barley, ton         | 8 8 0   | 6 0 0   | 9 8 0   | 9 0 0   | 8 12 0  | 6 6 0   |
| Beef, "             | ...     | ...     | 50 0 0  | 63 0 0  | 65 0 0  | 50 0 0  |
| Beer, 40 gallons    | ...     | 0 17 6  | 0 17 6  | 1 10 0  | 1 17 0  | 2 10 0  |
| Butter, ton         | ...     | ...     | 85 0 0  | 119 0 0 | 129 0 0 | 104 0 0 |
| Cheese, "           | 28 0 0  | 40 0 0  | 56 0 0  | 60 0 0  | 60 0 0  | 60 0 0  |
| Coal, "             | ...     | 0 12 0  | 0 12 9  | 0 12 0  | 0 11 3  | 0 9 6   |
| Coffee, "           | 56 0 0  | 52 0 0  | 68 0 0  | 56 0 0  | 84 0 0  | 88 0 0  |
| Cotton, "           | 68 0 0  | 64 0 0  | 60 0 0  | 92 0 0  | 80 0 0  | 48 0 0  |
| Cows                | ...     | ...     | ...     | 13 12 0 | 13 4 0  | 11 4 0  |
| Flax, ton           | ...     | 64 0 0  | 60 0 0  | 52 0 0  | 68 0 0  | 40 0 0  |
| Hay, "              | 2 14 0  | 2 6 0   | 2 12 0  | 4 4 0   | 4 10 0  | 3 8 0   |
| Hemp, ton           | ...     | 40 0 0  | 32 0 0  | 44 0 0  | 48 0 0  | 32 0 0  |
| Honey, "            | 35 0 0  | 28 0 0  | 28 0 0  | 40 0 0  | 36 0 0  | 20 0 0  |
| Horses              | 14 8 0  | 14 8 0  | 17 4 0  | 30 0 0  | 30 0 0  | 30 0 0  |
| Iron wares, ton     | 24 0 0  | 20 0 0  | 7 4 0   | 6 16 0  | 6 16 0  | 4 8 0   |
| Lard, ton           | 40 0 0  | 40 0 0  | 48 0 0  | 44 0 0  | 36 0 0  | 28 0 0  |
| Oats, "             | 7 4 0   | 5 8 0   | 8 4 0   | 8 10 0  | 7 10 0  | 5 14 0  |
| Pigs                | 1 4 0   | 1 0 0   | 1 8 0   | 1 10 0  | 1 6 6   | 1 6 6   |
| Potatoes, ton       | 2 14 0  | 2 16 0  | 3 8 0   | 3 8 0   | 4 2 0   | 3 10 0  |
| Rye, "              | 7 14 0  | 5 16 0  | 8 12 0  | 8 8 0   | 8 18 0  | 5 10 0  |
| Sheep               | ...     | ...     | ...     | 1 16 0  | 2 1 6   | 1 16 6  |
| Silks, cwt.         | ...     | ...     | 600 0 0 | 600 0 0 | 260 0 0 | 312 0 0 |
| Steel, ton          | 52 0 0  | 52 0 0  | 52 0 0  | 48 0 0  | 16 0 0  | 4 16 0  |
| Straw, "            | 1 16 0  | 1 6 0   | 1 12 0  | 2 12 0  | 2 14 0  | 2 4 0   |
| Sugar, "            | 28 0 0  | 26 0 0  | 29 0 0  | 24 10 0 | 22 0 0  | 11 12 0 |
| Timber, cubic metre | ...     | ...     | 3 4 0   | 1 16 0  | 2 4 0   | 2 4 0   |
| Wheat, ton          | 11 10 0 | 8 8 0   | 12 10 0 | 11 14 0 | 11 8 0  | 7 16 0  |
| Wool, "             | ...     | ...     | ...     | 84 0 0  | 152 0 0 | 72 0 0  |
| Woolens, cwt.       | 64 0 0  | 40 0 0  | 40 0 0  | 36 0 0  | 46 0 0  | 28 0 0  |
| Yarn, cotton, ton   | ...     | ...     | 128 0 0 | 252 0 0 | 180 0 0 | 112 0 0 |
| " linen, "          | ...     | ...     | ...     | 200 0 0 | 160 0 0 | 84 0 0  |
| " woollen, ton      | ...     | 320 0 0 | 360 0 0 | 260 0 0 | 400 0 0 | 260 0 0 |

## UNITED STATES

The prices in Massachusetts from 1780 to 1880 were as follows :—

|                          | 1780-1800 | 1801-20 | 1821-30 | 1831-40 | 1841-50 | 1851-60 | 1861-80 |
|--------------------------|-----------|---------|---------|---------|---------|---------|---------|
| Apples, bushel . pence   | 10        | 22      | 22      | 35      | 44      | 50      | ...     |
| Beans, quart . "         | 2         | 4       | 4       | 4       | 3       | 4       | 7       |
| Beef, lb. . "            | 2         | 4       | 4       | 4       | 4       | 6       | 4       |
| Boots, pair . shill.     | 25        | 22      | 20      | 15      | 10      | 9       | ...     |
| Brandy, gallon . "       | 6         | 7       | 6       | ...     | 8       | ...     | ...     |
| Butter, lb. . pence      | 8         | 11      | 9       | 11      | 10      | 13      | 16      |
| Calico, yard . "         | 25        | 19      | 15      | 12      | 8       | 5       | ...     |
| Cambric, yard . "        | 63        | 40      | 18      | 13      | 11      | 10      | ...     |
| Candles, lb. . "         | 11        | 11      | 8       | 7       | 7       | 14      | ...     |
| Cheese, "                | 5         | 6       | 4       | 5       | 5       | 6       | 7       |
| Cider, gallon . "        | 3         | 9       | 10      | 7       | 8       | 5       | ...     |
| Codfish, lb. . "         | 2         | 2       | 2       | 2       | 2       | 3       | 4       |
| Coffee, "                | 11        | 13      | 10      | 7       | 6       | 8       | 16      |
| Cottons, yard . "        | 18        | 18      | 10      | 7       | 6       | 6       | ...     |
| Eggs, dozen . "          | 4         | 11      | 8       | 10      | 10      | 11      | 14      |
| Fish, lb. . "            | 2         | 3       | 2       | 2       | 3       | 2       | ...     |
| Flannel, yard . "        | 21        | 33      | 29      | 22      | 19      | 20      | 16      |
| Flour . "                | 2         | 3       | 2       | 2       | 2       | 2       | 3       |
| Gin . "                  | 62        | 58      | 60      | 65      | ...     | ...     | ...     |
| Gloves . "               | 27        | 26      | 26      | 23      | 20      | 30      | 32      |
| Ham . "                  | 11        | ...     | 5       | 5       | 5       | 6       | 7       |
| Handkerchiefs, each . "  | 33        | 28      | 22      | 22      | 25      | 21      | 26      |
| Herrings, dozen . "      | 4         | 8       | 4       | 5       | 6       | 4       | ...     |
| Hose, pair . "           | 37        | 55      | 30      | 26      | 19      | 22      | 25      |
| Lamb, lb. . "            | 4         | 4       | 3       | 4       | 4       | 6       | ...     |
| Lard, "                  | ...       | 8       | 5       | 6       | 5       | 7       | 7       |
| Linen, yard . "          | 18        | 28      | 23      | 29      | 19      | 27      | ...     |
| Maize, bushel . "        | 40        | 59      | 41      | 39      | 36      | 50      | ...     |
| Milk, quart . "          | 2         | 2       | 2       | 3       | 3       | 3       | 3       |
| Molasses, gallon . pence | 24        | 36      | 19      | 22      | 15      | 22      | 34      |
| Muslin, yard . "         | 26        | 37      | 29      | 27      | 18      | 13      | 11      |
| Mutton, lb. . "          | 3         | 4       | 3       | 4       | 4       | 6       | 8       |
| Oats, bushel . "         | 24        | 32      | 21      | 27      | 27      | ...     | ...     |
| Pork, lb. . "            | 5         | 6       | 4       | 5       | 5       | 6       | 5       |
| Potatoes, bushel . "     | 15        | 24      | 18      | 25      | 39      | 43      | 50      |
| Raisins, lb. . "         | 8         | 9       | 7       | 5       | 5       | 7       | ...     |
| Rice, lb. . "            | 2         | 3       | 2       | 3       | 3       | 3       | 5       |
| Rye, bushel . "          | 52        | 67      | 44      | 52      | 50      | 75      | ...     |
| Rum, gallon . "          | 35        | 51      | 38      | ...     | ...     | ...     | ...     |
| Salt, bushel . "         | 40        | 48      | 36      | 33      | 31      | 33      | ...     |
| Shoes, pair . "          | 48        | 64      | 63      | 68      | 53      | 55      | ...     |
| Silks, yard . "          | 46        | 65      | 40      | 33      | 42      | 49      | 50      |
| Soap, lb. . "            | 7         | 6       | 5       | 6       | 4       | 6       | 4       |
| Starch, lb. . "          | 12        | 11      | 8       | 8       | 6       | 6       | 5       |
| Sugar, "                 | 7         | 8       | 7       | 7       | 5       | 4       | 5       |
| Tallow, "                | 8         | 7       | 6       | 3       | 4       | ...     | ...     |
| Tea, "                   | 40        | 52      | 41      | 28      | 27      | 26      | 32      |
| Veal, "                  | 3         | 4       | 4       | 4       | 5       | 6       | 8       |
| Vinegar, gallon . "      | 8         | 13      | 9       | 10      | 8       | 8       | ...     |
| Wine, "                  | 75        | 83      | 66      | ...     | 63      | ...     | ...     |
| Wood, foot . "           | 19        | 21      | 22      | 41      | 30      | 35      | 45      |

The prices of grain, cotton, and refined sugar per ton of 2240 lbs., at port of shipment, from 1817 to 1889 were, reduced to English gold, as follows :—

| Year       | Wheat     | Maize      | Cotton     | Sugar      |
|------------|-----------|------------|------------|------------|
| 1817 . . . | £ s. 17 6 | £ s. 12 10 | £ s. 122 0 | £ s. 117 0 |
| 1818 . . . | 15 8      | 8 7        | 158 0      | 117 0      |
| 1819 . . . | 9 12      | 6 5        | 112 0      | 102 0      |

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| Year           | Wheat  | Maize | Cotton | Sugar  | Year                                                                                                     | Wheat    | Maize  | Cotton     | Sugar       |
|----------------|--------|-------|--------|--------|----------------------------------------------------------------------------------------------------------|----------|--------|------------|-------------|
| 1820 . . . . . | £ 5 15 | £ 5 5 | £ 81 0 | £ 93 0 | 1881 . . . . .                                                                                           | £ 8 11   | £ 4 11 | £ 53 0     | £ 43 0      |
| 1821 . . . . . | 5 15   | 5 5   | 74 0   | 71 0   | 1882 . . . . .                                                                                           | 9 9      | 5 12   | 53 0       | 45 10       |
| 1822 . . . . . | 5 8    | 6 4   | 77 0   | 69 0   | 1883 . . . . .                                                                                           | 8 12     | 5 14   | 51 0       | 43 0        |
| 1823 . . . . . | 10 6   | 5 0   | 55 0   | 56 0   | 1884 . . . . .                                                                                           | 8 2      | 5 2    | 49 10      | 32 0        |
| 1824 . . . . . | 7 17   | 3 15  | 72 0   | 58 0   | 1885 . . . . .                                                                                           | 6 13     | 4 10   | 50 0       | 30 0        |
| 1825 . . . . . | 7 19   | 4 3   | 98 0   | 65 0   | 1886 . . . . .                                                                                           | 6 15     | 4 3    | 47 0       | 31 10       |
| 1826 . . . . . | 6 10   | 6 6   | 57 0   | 74 0   | 1887 . . . . .                                                                                           | 6 17     | 4 0    | 45 0       | 28 0        |
| 1827 . . . . . | 5 3    | 5 0   | 47 0   | 66 0   | 1888 . . . . .                                                                                           | 6 10     | 4 11   | 46 0       | 29 0        |
| 1828 . . . . . | 5 16   | 4 1   | 50 0   | 65 10  | 1889 . . . . .                                                                                           | 6 19     | 4 0    | 46 10      | 35 0        |
| 1829 . . . . . | 12 6   | 4 9   | 47 0   | 50 0   | The Iron and Steel Association publish the following prices (reduced to English gold) per English ton :— |          |        |            |             |
| 1830 . . . . . | 7 17   | 4 4   | 47 0   | 57 0   |                                                                                                          |          |        |            |             |
| 1831 . . . . . | 10 4   | 5 16  | 43 10  | 49 10  | Year                                                                                                     | Pig Iron | Bar    | Iron Rails | Steel Rails |
| 1832 . . . . . | 8 4    | 5 5   | 47 0   | 50 0   | 1846 . . . . .                                                                                           | £ 5 16   | £ 19 1 | £ 13 0     | £ 11 4      |
| 1833 . . . . . | 7 1    | 5 16  | 52 0   | 45 10  | 1847 . . . . .                                                                                           | 6 5      | 17 18  | ...        | ...         |
| 1834 . . . . . | 8 6    | 5 11  | 60 0   | 43 10  | 1848 . . . . .                                                                                           | 5 10     | 16 9   | 13 0       | ...         |
| 1835 . . . . . | 8 8    | 6 9   | 78 0   | 37 0   | 1849 . . . . .                                                                                           | 4 15     | 14 1   | 11 4       | ...         |
| 1836 . . . . . | 7 14   | 7 3   | 78 0   | 54 0   | 1850 . . . . .                                                                                           | 4 6      | 12 8   | 10 0       | ...         |
| 1837 . . . . . | 12 3   | 8 4   | 66 0   | 55 0   | 1851 . . . . .                                                                                           | 4 9      | 11 8   | 9 11       | ...         |
| 1838 . . . . . | 10 4   | 7 2   | 48 0   | 43 0   | 1852 . . . . .                                                                                           | 4 14     | 12 4   | 10 0       | ...         |
| 1839 . . . . . | 11 13  | 7 11  | 68 0   | 51 0   | 1853 . . . . .                                                                                           | 7 10     | 17 7   | 16 2       | ...         |
| 1840 . . . . . | 7 6    | 4 18  | 40 0   | 53 0   | 1854 . . . . .                                                                                           | 7 13     | 19 0   | 16 13      | ...         |
| 1841 . . . . . | 7 6    | 4 18  | 48 0   | 47 0   | 1855 . . . . .                                                                                           | 5 15     | 15 10  | 13 2       | ...         |
| 1842 . . . . . | 8 12   | 4 16  | 37 0   | 39 0   | 1856 . . . . .                                                                                           | 5 12     | 15 6   | 13 8       | ...         |
| 1843 . . . . . | 6 11   | 3 9   | 28 10  | 36 0   | 1857 . . . . .                                                                                           | 5 10     | 14 15  | 13 8       | ...         |
| 1844 . . . . . | 6 19   | 4 2   | 37 0   | 35 10  | 1858 . . . . .                                                                                           | 4 12     | 13 0   | 10 8       | ...         |
| 1845 . . . . . | 6 12   | 4 2   | 27 10  | 38 0   | 1859 . . . . .                                                                                           | 4 18     | 12 10  | 10 5       | ...         |
| 1846 . . . . . | 8 0    | 5 8   | 36 0   | 44 10  | 1860 . . . . .                                                                                           | 4 15     | 12 5   | 10 0       | ...         |
| 1847 . . . . . | 10 13  | 7 7   | 47 0   | 37 0   | 1861 . . . . .                                                                                           | 4 4      | 12 13  | 8 17       | ...         |
| 1848 . . . . . | 10 3   | 5 10  | 35 0   | 35 0   | 1862 . . . . .                                                                                           | 4 7      | 12 10  | 7 11       | ...         |
| 1849 . . . . . | 8 16   | 5 0   | 30 0   | 31 0   | 1863 . . . . .                                                                                           | 5 2      | 13 5   | 11 0       | ...         |
| 1850 . . . . . | 8 3    | 4 18  | 57 0   | 48 0   | 1864 . . . . .                                                                                           | 6 5      | 15 5   | 13 2       | ...         |
| 1851 . . . . . | 7 14   | 4 5   | 56 10  | 38 0   | 1865 . . . . .                                                                                           | 6 2      | 14 2   | 13 2       | ...         |
| 1852 . . . . . | 7 6    | 4 17  | 37 10  | 33 0   | 1866 . . . . .                                                                                           | 7 0      | 14 16  | 12 15      | ...         |
| 1853 . . . . . | 8 12   | 5 1   | 46 0   | 33 0   | 1867 . . . . .                                                                                           | 6 13     | 13 0   | 12 15      | 25 0        |
| 1854 . . . . . | 12 0   | 6 6   | 45 0   | 35 10  | 1868 . . . . .                                                                                           | 5 1      | 12 15  | 12 2       | 24 0        |
| 1855 . . . . . | 12 17  | 7 9   | 40 0   | 35 0   | 1869 . . . . .                                                                                           | 6 6      | 12 13  | 12 1       | 20 10       |
| 1856 . . . . . | 14 16  | 6 5   | 45 0   | 41 0   | 1870 . . . . .                                                                                           | 6 1      | 14 8   | 13 0       | 18 10       |
| 1857 . . . . . | 11 14  | 5 16  | 59 0   | 54 10  | 1871 . . . . .                                                                                           | 6 11     | 14 13  | 13 1       | 18 5        |
| 1858 . . . . . | 7 16   | 5 14  | 54 10  | 57 0   | 1872 . . . . .                                                                                           | 8 15     | 17 18  | 15 14      | 20 10       |
| 1859 . . . . . | 7 6    | 6 8   | 54 10  | 45 0   | 1873 . . . . .                                                                                           | 7 16     | 15 15  | 13 16      | 22 0        |
| 1860 . . . . . | 7 11   | 6 2   | 51 0   | 42 0   | 1874 . . . . .                                                                                           | 5 13     | 12 15  | 11 0       | 14 14       |
| 1861 . . . . . | 9 12   | 5 8   | 52 0   | 41 0   | 1875 . . . . .                                                                                           | 4 13     | 11 0   | 8 13       | 12 10       |
| 1862 . . . . . | 7 15   | 4 0   | 94 0   | 41 0   | 1876 . . . . .                                                                                           | 4 3      | 9 14   | 7 14       | 11 2        |
| 1863 . . . . . | 7 0    | 3 15  | 186 0  | 37 0   | 1877 . . . . .                                                                                           | 3 15     | 9 2    | 7 0        | 9 1         |
| 1864 . . . . . | 5 3    | 3 6   | 188 0  | 33 10  | 1878 . . . . .                                                                                           | 3 11     | 9 0    | 6 17       | 8 13        |
| 1865 . . . . . | 9 10   | 7 7   | 233 0  | 60 0   | 1879 . . . . .                                                                                           | 4 9      | 10 15  | 8 12       | 10 1        |
| 1866 . . . . . | 7 15   | 5 0   | 140 0  | 52 0   | 1880 . . . . .                                                                                           | 5 18     | 12 10  | 10 5       | 14 1        |
| 1867 . . . . . | 7 0    | 5 18  | 102 0  | 32 0   | 1881 . . . . .                                                                                           | 5 5      | 12 0   | 9 16       | 12 15       |
| 1868 . . . . . | 10 16  | 6 14  | 65 0   | 47 0   | 1882 . . . . .                                                                                           | 5 7      | 12 14  | 9 8        | 10 2        |
| 1869 . . . . . | 8 2    | 5 18  | 84 0   | 52 0   | 1883 . . . . .                                                                                           | 4 13     | 10 9   | ...        | 7 17        |
| 1870 . . . . . | 8 16   | 6 14  | 95 0   | 51 10  | 1884 . . . . .                                                                                           | 4 3      | 9 3    | ...        | 6 8         |
| 1871 . . . . . | 9 3    | 5 16  | 60 0   | 56 0   | 1885 . . . . .                                                                                           | 3 15     | 8 8    | ...        | 5 18        |
| 1872 . . . . . | 10 4   | 5 5   | 78 0   | 51 10  | 1886 . . . . .                                                                                           | 3 18     | 9 0    | ...        | 7 3         |
| 1873 . . . . . | 8 16   | 5 8   | 74 0   | 47 0   | 1887 . . . . .                                                                                           | 4 7      | 10 6   | ...        | 7 14        |
| 1874 . . . . . | 10 4   | 5 9   | 65 0   | 45 0   | 1888 . . . . .                                                                                           | 3 19     | 9 15   | ...        | 6 1         |
| 1875 . . . . . | 7 12   | 6 5   | 60 0   | 45 0   | 1889 . . . . .                                                                                           | 3 14     | 8 17   | ...        | 5 14        |
| 1876 . . . . . | 8 12   | 5 0   | 55 0   | 45 10  |                                                                                                          |          |        |            |             |
| 1877 . . . . . | 8 13   | 4 10  | 53 0   | 53 0   |                                                                                                          |          |        |            |             |
| 1878 . . . . . | 10 4   | 4 11  | 50 0   | 47 0   |                                                                                                          |          |        |            |             |
| 1879 . . . . . | 8 4    | 3 18  | 47 0   | 39 0   |                                                                                                          |          |        |            |             |
| 1880 . . . . . | 9 13   | 4 10  | 53 0   | 42 0   |                                                                                                          |          |        |            |             |

The American Almanac gives the following prices from 1825 to 1886 (reduced to English gold) :—

|                       | 1825-30 | 1881-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-86 |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|
| Beef, ton . . . . .   | £ 22 0  | £ 25 0  | £ 22 0  | £ 23 0  | £ 22 0  | £ 22 0  | £ 27 16 |
| Butter, ton . . . . . | 70 0    | 80 0    | 61 10   | 89 0    | 106 0   | 104 0   | 102 0   |
| Cheese, " . . . . .   | 33 0    | 37 0    | 29 0    | 38 0    | 46 0    | 52 0    | 47 0    |
| Coal, " . . . . .     | 1 13    | 1 14    | 1 5     | 1 5     | 1 6     | 0 19    | 0 16    |
| Coffee, " . . . . .   | 65 0    | 55 0    | 36 0    | 49 0    | 71 0    | 77 0    | 50 0    |
| Cotton, " . . . . .   | 56 0    | 58 0    | 39 0    | 50 0    | 170 0   | 65 0    | 52 0    |
| Fish, " . . . . .     | 13 0    | 20 10   | 26 0    | 37 0    | 34 0    | 30 0    | 44 0    |
| Flour, " . . . . .    | 13 0    | 17 0    | 13 0    | 14 0    | 12 10   | 12 0    | 10 6    |
| Hams, " . . . . .     | 47 0    | 49 0    | 35 0    | 46 0    | 45 0    | 42 0    | 65 0    |
| Iron, " . . . . .     | 10 18   | 9 7     | 6 13    | 6 1     | 6 2     | 6 11    | 4 11    |

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|              | 1835-40 | 1841-40 | 1841-60 | 1861-60 | 1861-70 | 1871-80 | 1881-84 |
|--------------|---------|---------|---------|---------|---------|---------|---------|
| Leather, ton | £ 98 0  | £ 89 0  | £ 73 0  | £ 102 0 | £ 104 0 | £ 116 0 | £ 107 0 |
| Maize, ..    | 5 0     | 6 13    | 5 14    | 6 13    | 6 7     | 4 13    | 5 2     |
| Pork, ..     | 30 0    | 39 0    | 25 0    | 39 0    | 40 0    | 34 0    | 34 0    |
| Rice, ..     | 14 0    | 17 0    | 21 0    | 19 0    | 33 0    | 32 0    | 25 0    |
| Sugar, ..    | 35 0    | 32 0    | 29 0    | 29 0    | 39 0    | 33 0    | 28 0    |
| Tobacco, ..  | 19 0    | 33 0    | 27 0    | 42 0    | 58 0    | 40 0    | 37 0    |
| Wheat, ..    | 8 10    | 10 10   | 9 0     | 12 3    | 11 13   | 10 0    | 8 2     |
| Wool, ..     | 125 0   | 152 0   | 125 0   | 162 0   | 176 0   | 181 0   | 172 0   |

Prices at New York, reduced to English gold, from 1855 to 1889 :—

| Year | Flour, barrel | Leather, cwt. | Bacon, cwt. | Lard, cwt. | Pork, cwt. | Beef, cwt. | Butter, cwt. | Cheese, cwt. | Tobacco, cwt. | Petroleum, 100 gallons | Eggs (120) |
|------|---------------|---------------|-------------|------------|------------|------------|--------------|--------------|---------------|------------------------|------------|
| 1855 | 38 0          | 90 0          | 39 0        | 48 0       | 34 0       | 41 0       | 84 0         | 50 0         | ...           | ...                    | ...        |
| 1856 | 35 0          | 121 0         | 43 0        | 48 0       | 41 0       | 35 0       | 92 0         | 48 0         | ...           | ...                    | ...        |
| 1857 | 29 0          | 130 0         | 48 0        | 60 0       | 47 0       | 35 6       | 88 0         | 47 0         | ...           | ...                    | ...        |
| 1858 | 23 0          | 113 0         | 44 0        | 53 0       | 41 0       | 40 6       | 83 0         | 42 0         | ...           | ...                    | ...        |
| 1859 | 25 0          | 113 0         | 49 0        | 53 0       | 37 0       | 33 0       | 76 0         | 42 6         | ...           | ...                    | ...        |
| 1860 | 25 0          | 107 0         | 41 0        | 52 0       | 35 0       | 30 0       | 70 0         | 47 6         | ...           | ...                    | ...        |
| 1861 | 24 0          | 95 0          | 45 0        | 46 6       | 40 0       | 30 6       | 71 0         | 48 6         | ...           | ...                    | ...        |
| 1862 | 20 0          | 84 0          | 30 0        | 35 0       | 27 0       | 30 0       | 64 0         | 33 0         | ...           | 95 0                   | ...        |
| 1863 | 19 0          | 93 0          | 28 0        | 33 0       | 22 0       | 24 0       | 62 0         | 33 0         | ...           | 53 0                   | ...        |
| 1864 | 15 0          | 80 0          | 26 0        | 27 0       | 22 0       | 20 0       | 68 0         | 28 0         | ...           | 108 0                  | ...        |
| 1865 | 28 0          | 120 0         | 70 0        | 60 0       | 49 0       | 36 0       | 100 0        | 66 0         | ...           | 108 0                  | ...        |
| 1866 | 24 0          | 95 0          | 56 0        | 65 0       | 54 0       | 47 0       | 114 0        | 56 0         | 52 0          | 165 0                  | 9 0        |
| 1867 | 27 0          | 115 0         | 42 0        | 49 0       | 47 0       | 41 0       | 82 0         | 50 0         | 36 0          | 108 0                  | 11 0       |
| 1868 | 31 0          | 80 0          | 42 0        | 49 0       | 38 0       | 41 0       | 94 0         | 47 0         | 38 0          | 87 0                   | 9 0        |
| 1869 | 24 0          | ...           | 52 0        | 63 0       | 49 0       | 31 0       | 126 0        | 56 0         | 40 0          | 120 0                  | ...        |
| 1870 | 22 0          | 112 0         | 65 0        | 65 0       | 53 0       | 30 0       | 119 0        | 65 0         | 46 0          | 111 0                  | 14 0       |
| 1871 | 24 0          | 107 0         | 47 0        | 54 0       | 46 0       | 37 0       | 92 0         | 58 0         | 38 0          | 95 0                   | 10 0       |
| 1872 | 26 0          | 98 0          | 36 0        | 42 0       | 30 0       | 30 0       | 80 0         | 49 0         | 43 0          | 93 0                   | 7 6        |
| 1873 | 27 0          | 102 0         | 36 0        | 37 0       | 32 0       | 32 0       | 90 0         | 52 0         | 44 0          | 90 0                   | 9 0        |
| 1874 | 26 0          | 107 0         | 41 0        | 40 0       | 34 0       | 34 0       | 104 0        | 54 0         | 41 0          | 65 0                   | 8 0        |
| 1875 | 22 0          | 106 0         | 46 0        | 57 0       | 41 0       | 35 0       | 98 0         | 56 0         | 46 0          | 51 0                   | 9 0        |
| 1876 | 23 0          | 111 0         | 50 0        | 55 0       | 45 0       | 36 0       | 101 0        | 53 0         | 44 0          | 52 0                   | 10 0       |
| 1877 | 26 0          | 108 0         | 49 0        | 49 0       | 40 0       | 34 0       | 92 0         | 53 0         | 46 0          | 84 0                   | 9 6        |
| 1878 | 25 0          | 100 0         | 39 0        | 40 0       | 32 0       | 36 0       | 82 0         | 52 0         | 39 0          | 59 0                   | 6 6        |
| 1879 | 22 0          | 95 0          | 32 0        | 33 0       | 27 0       | 29 0       | 65 0         | 41 0         | 36 0          | 45 0                   | 6 6        |
| 1880 | 24 0          | 109 0         | 31 0        | 35 0       | 28 0       | 30 0       | 79 0         | 45 0         | 35 6          | 35 0                   | 7 0        |
| 1881 | 23 0          | 105 0         | 38 0        | 44 0       | 35 0       | 30 0       | 92 0         | 52 0         | 39 0          | 43 0                   | 7 0        |
| 1882 | 25 0          | 98 0          | 47 0        | 54 0       | 42 0       | 39 0       | 89 0         | 52 0         | 39 6          | 37 0                   | 8 0        |
| 1883 | 25 0          | 99 0          | 53 0        | 56 0       | 46 0       | 41 0       | 87 0         | 53 0         | 40 0          | 36 0                   | 8 6        |
| 1884 | 23 0          | 96 0          | 48 0        | 45 0       | 37 0       | 35 0       | 85 0         | 48 0         | 42 6          | 38 0                   | 8 9        |
| 1885 | 20 0          | 93 0          | 44 0        | 37 0       | 34 0       | 35 0       | 78 0         | 45 0         | 47 0          | 36 0                   | 8 9        |
| 1886 | 19 6          | 93 0          | 35 0        | 33 0       | 28 0       | 28 0       | 72 0         | 38 0         | 36 0          | 36 0                   | 7 6        |
| 1887 | 18 6          | 88 0          | 37 0        | 34 0       | 31 0       | 25 0       | 73 0         | 45 0         | 40 0          | 32 0                   | 6 9        |
| 1888 | 19 0          | 81 0          | 39 0        | 36 0       | 35 0       | 24 6       | 85 0         | 47 0         | 39 0          | 32 6                   | 6 6        |
| 1889 | 20 0          | 77 0          | 39 0        | 39 0       | 35 0       | 25 6       | 76 0         | 45 0         | 41 0          | 32 0                   | 5 9        |

Retail prices in 1870 were as follows :—

|                   | New England | Middle States | Southern | Western | Union |
|-------------------|-------------|---------------|----------|---------|-------|
| Beef, lb.         | 0 10        | 0 9           | 0 5      | 0 6     | 0 7   |
| Butter, lb.       | 1 10        | 1 8           | 1 5      | 1 3     | 1 7   |
| Coal, ton         | 46 0        | 31 0          | 40 0     | 32 0    | 44 0  |
| Cheese, lb.       | 0 10        | 1 0           | 1 1      | 1 0     | 1 0   |
| Coffee, ..        | 1 4         | 1 3           | 1 2      | 1 2     | 1 3   |
| Eggs, dozen       | 1 5         | 1 2           | 1 0      | 1 1     | 1 2   |
| Flour, barrel     | 40 0        | 30 0          | 36 0     | 25 0    | 30 0  |
| Lard, lb.         | 1 0         | 0 10          | 1 0      | 0 11    | 0 11  |
| Mutton, ..        | 0 8         | 0 7           | 0 5      | 0 5     | 0 7   |
| Milk, gallon      | 1 2         | 1 6           | 2 0      | 1 2     | 1 6   |
| Molasses, gallon  | 4 2         | 4 0           | 4 2      | 4 4     | 4 2   |
| Pork, lb.         | 0 9         | 0 7           | 0 6      | 0 6     | 0 7   |
| Potatoes, bushel  | 2 10        | 3 5           | 4 6      | 2 2     | 3 0   |
| Petroleum, gallon | 2 0         | 2 3           | 3 0      | 2 4     | 2 6   |
| Rice, cwt.        | 60 0        | 60 0          | 60 0     | 60 0    | 60 0  |
| Soap, ..          | 56 0        | 47 0          | 51 0     | 47 0    | 50 0  |
| Sugar, ..         | 65 0        | 70 0          | 78 0     | 74 0    | 70 0  |
| Tea, lb.          | 4 10        | 5 6           | 8 0      | 6 8     | 5 10  |

## PRICE-LEVELS.

Mr. Jevons constructed several price-levels from 1782 to 1869, as follows :—

Table of Forty Classified Articles.

| Years     | Metals | Fibre | Grain | Colonial Products | General Average |
|-----------|--------|-------|-------|-------------------|-----------------|
| 1782      | 100    | 100   | 100   | 100               | 100             |
| 1783-90   | 95     | 102   | 109   | 88                | 91              |
| 1791-1800 | 116    | 119   | 135   | 86                | 112             |
| 1801-10   | 150    | 157   | 170   | 71                | 133             |
| 1811-20   | 124    | 134   | 166   | 72                | 115             |
| 1821-30   | 102    | 97    | 135   | 56                | 88              |
| 1831-40   | 91     | 96    | 134   | 53                | 83              |
| 1841-50   | 88     | 76    | 127   | 42                | 73              |
| 1851-60   | 97     | 84    | 132   | 39                | 79              |
| 1861-69   | 93     | 105   | 128   | 40                | 77              |

General Table at Intervals of Ten Years.

| Year | Number | Year | Number | Year | Number |
|------|--------|------|--------|------|--------|
| 1789 | 100    | 1819 | 131    | 1849 | 75     |
| 1799 | 151    | 1829 | 93     | 1859 | 90     |
| 1809 | 184    | 1839 | 108    | 1869 | 89     |

Table of Price-Level from 1846 to 1869.

| Year | Number | Year | Number | Year | Number |
|------|--------|------|--------|------|--------|
| 1846 | 100    | 1854 | 115    | 1862 | 108    |
| 1847 | 106    | 1855 | 112    | 1863 | 107    |
| 1848 | 89     | 1856 | 117    | 1864 | 106    |
| 1849 | 85     | 1857 | 123    | 1865 | 105    |
| 1850 | 87     | 1858 | 108    | 1866 | 111    |
| 1851 | 87     | 1859 | 110    | 1867 | 102    |
| 1852 | 89     | 1860 | 112    | 1868 | 104    |
| 1853 | 106    | 1861 | 110    | 1869 | 103    |

According to the prices given by Arthur Young, the following is a general price-level from A.D. 1301 down to his time, and continued to 1884 :—

|        | 1301-1400 | 1401-1500 | 1501-1600 | 1601-1700 | 1701-1800 | 1801-80 | 1880-84 |
|--------|-----------|-----------|-----------|-----------|-----------|---------|---------|
| Cattle | 100       | 95        | 80        | 160       | 246       | 350     | 500     |
| Beer   | 100       | 80        | 80        | 80        | 160       | 280     | 350     |
| Butter | 100       | 75        | 75        | 100       | 125       | 250     | 350     |
| Grain  | 100       | 95        | 133       | 270       | 330       | 350     | 240     |
| Horses | 100       | 105       | 100       | 132       | 346       | 700     | 800     |
| Wine   | 100       | 70        | 130       | 200       | 500       | 600     | 700     |
| Eggs   | 100       | 100       | 70        | 70        | 135       | 160     | 270     |
| Meat   | 100       | 85        | 65        | 200       | 300       | 400     | 550     |
| Total  | 800       | 705       | 733       | 1212      | 2142      | 3090    | 3760    |

The following price-levels embrace a period of forty years to 1884 :—

| Years   | Jevons | Economist | Hamburg | Soetbeer | Average |
|---------|--------|-----------|---------|----------|---------|
| 1845-50 | 100    | 100       | 100     | 100      | 100     |
| 1851-55 | 107    | ...       | 112     | 114      | 111     |
| 1856-60 | 120    | 127       | 121     | 125      | 123     |
| 1861-65 | 123    | ...       | 124     | 127      | 125     |
| 1866-70 | 121    | 140       | 124     | 125      | 127     |
| 1871-75 | ...    | 127       | 133     | 136      | 132     |
| 1876-80 | ...    | 115       | 123     | 127      | 122     |
| 1881-84 | ...    | 105       | 118     | 124      | 116     |

Sauerbeck's and other index-numbers for late years are as follows :—

| Sauerbeck |     | Kral    |     | Economist |     | Hamburg |     |
|-----------|-----|---------|-----|-----------|-----|---------|-----|
| Year      | No. | Year    | No. | Year      | No. | Year    | No. |
| 1867-77   | 100 | 1861-70 | 100 | 1845-50   | 100 | 1847-50 | 100 |
| 1873      | 111 | 1871    | 98  | 1871-77   | 124 | 1851-60 | 116 |
| 1878      | 87  | 1872    | 107 | 1878      | 115 | 1861-70 | 124 |
| 1879      | 83  | 1873    | 112 | 1879      | 100 | 1871-75 | 133 |
| 1880      | 88  | 1874    | 109 | 1880      | 115 | 1876-80 | 123 |
| 1881      | 85  | 1875    | 106 | 1881      | 108 | 1881    | 121 |
| 1882      | 84  | 1876    | 101 | 1882      | 111 | 1882    | 122 |
| 1883      | 82  | 1877    | 100 | 1883      | 106 | 1883    | 122 |
| 1884      | 76  | 1878    | 94  | 1884      | 101 | 1884    | 114 |
| 1885      | 72  | 1879    | 93  | 1885      | 94  | 1885    | 109 |
| 1886      | 69  | 1880    | 97  | 1886      | 92  | 1886    | 104 |
| 1887      | 68  | 1881    | 94  | 1887      | 95  | 1887    | 103 |
| 1888      | 70  | 1882    | 96  | 1888      | 99  | ...     | ... |
| 1889      | 72  | 1883-84 | 90  | 1889      | 99  | ...     | ... |

The Economist index-numbers for twenty principal articles of merchandise showed as follows :—

|         | 1845-50 | 1857  | 1870  | 1880  | 1881  | 1882  | 1885  | 1884  | 1885  | 1886  | 1887  | 1888  | 1889  | 1890  | 1881-90 |
|---------|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Calico  | 100     | 113   | 135   | 95    | 101   | 99    | 92    | 88    | 81    | 85    | 85    | 86    | 89    | 91    | 90      |
| Coffee  | 100     | 151   | 134   | 151   | 122   | 100   | 82    | 106   | 89    | 84    | 153   | 109   | 166   | 186   | 129     |
| Copper  | 100     | 133   | 83    | 81    | 75    | 86    | 80    | 71    | 57    | 49    | 48    | 88    | 71    | 64    | 69      |
| Cotton  | 100     | 95    | 173   | 110   | 105   | 102   | 89    | 92    | 90    | 80    | 85    | 88    | 93    | 92    | 92      |
| Flax    | 100     | 121   | 116   | 78    | 71    | 75    | 68    | 76    | 79    | 78    | 76    | 64    | 67    | 64    | 72      |
| Indigo  | 100     | 121   | 151   | 205   | 197   | 195   | 190   | 151   | 145   | 141   | 131   | 129   | 126   | 120   | 153     |
| Iron    | 100     | 121   | 88    | 92    | 79    | 86    | 78    | 69    | 72    | 67    | 62    | 67    | 70    | 109   | 76      |
| Lead    | 100     | 143   | 109   | 112   | 87    | 88    | 83    | 70    | 68    | 75    | 72    | 82    | 74    | 82    | 78      |
| Leather | 100     | 150   | 128   | 144   | 144   | 139   | 139   | 139   | 143   | 141   | 135   | 132   | 130   | 130   | 137     |
| Meat    | 100     | 105   | 123   | 119   | 146   | 125   | 145   | 123   | 127   | 113   | 110   | 114   | 108   | 123   | 123     |
| Oil     | 100     | 141   | 126   | 106   | 95    | 94    | 100   | 110   | 89    | 83    | 75    | 74    | 78    | 82    | 88      |
| Silk    | 100     | 204   | 174   | 135   | 130   | 139   | 126   | 117   | 88    | 98    | 129   | 113   | 110   | 114   | 116     |
| Sugar   | 100     | 123   | 83    | 70    | 60    | 67    | 60    | 54    | 44    | 46    | 37    | 46    | 61    | 42    | 52      |
| Tallow  | 100     | 147   | 105   | 102   | 89    | 103   | 111   | 113   | 85    | 68    | 64    | 77    | 87    | 75    | 87      |
| Tea     | 100     | 162   | 102   | 141   | 100   | 89    | 76    | 92    | 80    | 93    | 77    | 81    | 64    | 62    | 81      |
| Timber  | 100     | 103   | 99    | 105   | 106   | 110   | 108   | 100   | 97    | 92    | 89    | 85    | 110   | 115   | 101     |
| Tim.    | 100     | 166   | 138   | 109   | 110   | 134   | 114   | 104   | 100   | 118   | 122   | 140   | 115   | 120   | 118     |
| Wheat   | 100     | 118   | 80    | 88    | 82    | 84    | 77    | 73    | 60    | 58    | 66    | 58    | 55    | 56    | 67      |
| Wool    | 100     | 146   | 96    | 117   | 120   | 108   | 106   | 98    | 91    | 92    | 114   | 107   | 108   | 120   | 106     |
| Total   | 2,000   | 2,563 | 2,243 | 2,160 | 2,019 | 2,023 | 1,924 | 1,846 | 1,685 | 1,661 | 1,730 | 1,830 | 1,782 | 1,847 | 1,835   |

Index-numbers according to Board of Trade prices for British imports were as follows :—

|           | 1854-60 | 1861-70 | 1871-80 | 1881-88 | 1889 |
|-----------|---------|---------|---------|---------|------|
| Bacon     | 100     | 96      | 88      | 91      | 81   |
| Barley    | 100     | 102     | 98      | 76      | 66   |
| Beef      | 100     | 95      | 110     | 120     | 102  |
| Brandy    | 100     | 71      | 84      | 98      | 98   |
| Butter    | 100     | 120     | 131     | 125     | 126  |
| Cheese    | 100     | 108     | 108     | 99      | 92   |
| Cigars    | 100     | 93      | 123     | 104     | 102  |
| Cochineal | 100     | 76      | 62      | 30      | 28   |
| Cocoa     | 100     | 104     | 137     | 158     | 144  |
| Coffee    | 100     | 131     | 181     | 149     | 169  |
| Copper    | 100     | 73      | 61      | 43      | 35   |
| Cotton    | 100     | 222     | 106     | 90      | 87   |
| Currants  | 100     | 58      | 75      | 75      | 67   |
| Eggs      | 100     | 109     | 142     | 124     | 120  |
| Flax      | 100     | 115     | 105     | 83      | 76   |
| Flour     | 100     | 83      | 94      | 72      | 64   |
| Gloves    | 100     | 130     | 125     | 112     | 108  |
| Guano     | 100     | 102     | 92      | 76      | 58   |
| Hemp      | 100     | 96      | 92      | 84      | 95   |
| Hides     | 100     | 94      | 90      | 80      | 75   |
| Hops      | 100     | 87      | 88      | 98      | 67   |
| Indigo    | 100     | 108     | 85      | 76      | 65   |

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|                     | 1854-60 | 1861-70 | 1871-80 | 1881-88 | 1889  |
|---------------------|---------|---------|---------|---------|-------|
| Jute . . . . .      | 100     | 105     | 91      | 72      | 77    |
| Lard . . . . .      | 100     | 98      | 82      | 76      | 64    |
| Maize . . . . .     | 100     | 85      | 80      | 66      | 55    |
| Molasses . . . . .  | 100     | 88      | 70      | 58      | 57    |
| Nitre . . . . .     | 100     | 82      | 84      | 70      | 60    |
| Oats . . . . .      | 100     | 98      | 96      | 76      | 68    |
| Oil . . . . .       | 100     | 108     | 84      | 70      | 68    |
| Oil-seeds . . . . . | 100     | 110     | 107     | 82      | 79    |
| Oranges . . . . .   | 100     | 92      | 73      | 61      | 50    |
| Oxen . . . . .      | 100     | 112     | 130     | 125     | 115   |
| Pepper . . . . .    | 100     | 80      | 104     | 142     | 142   |
| Pork . . . . .      | 100     | 104     | 91      | 84      | 80    |
| Potatoes . . . . .  | 100     | 128     | 157     | 180     | 228   |
| Raisins . . . . .   | 100     | 81      | 96      | 92      | 87    |
| Rice . . . . .      | 100     | 103     | 83      | 68      | 68    |
| Rum . . . . .       | 100     | 70      | 60      | 50      | 50    |
| Saltpetre . . . . . | 100     | 75      | 63      | 53      | 50    |
| Seeds . . . . .     | 100     | 88      | 74      | 67      | 64    |
| Sheep . . . . .     | 100     | 98      | 110     | 104     | 85    |
| Silk . . . . .      | 100     | 90      | 62      | 50      | 48    |
| Sugar . . . . .     | 100     | 81      | 70      | 51      | 49    |
| Tallow . . . . .    | 100     | 81      | 74      | 59      | 48    |
| Tea . . . . .       | 100     | 113     | 95      | 71      | 66    |
| Tobacco . . . . .   | 100     | 157     | 109     | 105     | 98    |
| Wheat . . . . .     | 100     | 85      | 85      | 66      | 57    |
| Wine . . . . .      | 100     | 50      | 67      | 65      | 67    |
| Wood . . . . .      | 100     | 99      | 83      | 72      | 73    |
| Wool . . . . .      | 100     | 87      | 69      | 55      | 48    |
| Total . . . . .     | 5,000   | 4,921   | 4,727   | 4,252   | 4,026 |

## Index-numbers of British exports:—

|                     | 1854-60 | 1861-70 | 1871-80 | 1881-88 | 1889 |
|---------------------|---------|---------|---------|---------|------|
| Alkali . . . . .    | 100     | 90      | 92      | 61      | 54   |
| Bags . . . . .      | 100     | 91      | 64      | 43      | 45   |
| Beer . . . . .      | 100     | 106     | 120     | 113     | 110  |
| Books . . . . .     | 100     | 93      | 75      | 67      | 59   |
| Boots . . . . .     | 100     | 113     | 103     | 97      | 90   |
| Brass . . . . .     | 100     | 92      | 83      | 70      | 75   |
| Butter . . . . .    | 100     | 97      | 124     | 126     | 115  |
| Candles . . . . .   | 100     | 74      | 61      | 47      | 36   |
| Carpets . . . . .   | 100     | 113     | 110     | 84      | 80   |
| Cement . . . . .    | 100     | 93      | 91      | 75      | 68   |
| Cheese . . . . .    | 100     | 103     | 103     | 100     | 95   |
| Cloth . . . . .     | 100     | 133     | 137     | 140     | 151  |
| Coal . . . . .      | 100     | 104     | 133     | 95      | 111  |
| Copper . . . . .    | 100     | 80      | 73      | 55      | 43   |
| Cordage . . . . .   | 100     | 96      | 98      | 85      | 92   |
| Cottons . . . . .   | 100     | 140     | 103     | 80      | 76   |
| " printed . . . . . | 100     | 127     | 110     | 82      | 73   |
| Firearms . . . . .  | 100     | 136     | 112     | 120     | 112  |
| Flannel . . . . .   | 100     | 113     | 113     | 82      | 75   |
| Glass . . . . .     | 100     | 88      | 85      | 72      | 70   |
| " bottle . . . . .  | 100     | 92      | 97      | 87      | 87   |
| Gunpowder . . . . . | 100     | 85      | 81      | 81      | 83   |
| Hats . . . . .      | 100     | 92      | 68      | 52      | 52   |
| Herrings . . . . .  | 100     | 108     | 116     | 104     | 88   |
| Horses . . . . .    | 100     | 88      | 110     | 104     | 120  |
| Iron, pig . . . . . | 100     | 85      | 111     | 72      | 75   |
| " rails . . . . .   | 100     | 96      | 111     | 67      | 60   |
| " hoops . . . . .   | 100     | 80      | 78      | 53      | 52   |
| Jute . . . . .      | 100     | 79      | 64      | 45      | 47   |
| Lead . . . . .      | 100     | 88      | 83      | 58      | 60   |
| Leather . . . . .   | 100     | 106     | 93      | 101     | 104  |
| Linen . . . . .     | 100     | 110     | 104     | 91      | 80   |
| " printed . . . . . | 100     | 118     | 101     | 91      | 83   |
| Oilseed . . . . .   | 100     | 106     | 88      | 69      | 70   |
| Paper . . . . .     | 100     | 71      | 65      | 45      | 39   |
| Sailcloth . . . . . | 100     | 108     | 113     | 95      | 92   |
| Salt . . . . .      | 100     | 91      | 118     | 118     | 145  |
| Soap . . . . .      | 100     | 100     | 96      | 84      | 77   |
| Silks . . . . .     | 100     | 118     | 102     | 113     | 98   |
| Spirits . . . . .   | 100     | 67      | 108     | 173     | 188  |
| Steel . . . . .     | 100     | 91      | 94      | 65      | 44   |
| Sugar . . . . .     | 100     | 70      | 51      | 34      | 30   |
| Tin . . . . .       | 100     | 89      | 83      | 83      | 80   |

|                        | 1854-60 | 1861-70 | 1871-80 | 1881-88 | 1889  |
|------------------------|---------|---------|---------|---------|-------|
| Wire . . . . .         | 100     | 100     | 87      | 68      | 74    |
| Wool . . . . .         | 100     | 125     | 116     | 74      | 65    |
| Worsted . . . . .      | 100     | 140     | 110     | 92      | 88    |
| Yarn, cotton . . . . . | 100     | 167     | 125     | 97      | 98    |
| " linen . . . . .      | 100     | 123     | 123     | 108     | 112   |
| " woollen . . . . .    | 100     | 123     | 112     | 82      | 77    |
| Zinc . . . . .         | 100     | 79      | 74      | 51      | 55    |
| Total . . . . .        | 5,000   | 5,077   | 4,872   | 4,151   | 4,047 |

The summary of import and export numbers is:—

|                   | Imports | Exports | Total  |
|-------------------|---------|---------|--------|
| 1854-60 . . . . . | 5,000   | 5,000   | 10,000 |
| 1861-70 . . . . . | 4,921   | 5,077   | 9,998  |
| 1871-80 . . . . . | 4,727   | 4,872   | 9,599  |
| 1881-88 . . . . . | 4,252   | 4,151   | 8,403  |
| 1889 . . . . .    | 4,026   | 4,047   | 8,073  |

The foregoing method, however, has the disadvantage that all articles are treated as of equal importance, wheat the same as gunpowder in affecting the level of prices. The British Association appointed a committee under Professor Edgeworth to frame a more suitable method of price-level, and the committee adopted one similar to that of Mr. Jevons.

The following are the various scales that have been proposed:—

|                          | Jevons | Edgeworth | Giffen | Sauerbeck | Soetbeer | Mulhall | Average |
|--------------------------|--------|-----------|--------|-----------|----------|---------|---------|
| Butter* . . . . .        | 35     | 75        | 75     | 30        | 45       | 80      | 57      |
| Sugar . . . . .          | 35     | 25        | 25     | 55        | 45       | 15      | 33      |
| Wine . . . . .           | 35     | 25        | 25     | ...       | 70       | 45      | 40      |
| Wool . . . . .           | 35     | 25        | 25     | 75        | 20       | 20      | 33      |
| Silk . . . . .           | 35     | 25        | 25     | 10        | 20       | 15      | 22      |
| Tea and coffee . . . . . | 35     | 25        | 25     | 20        | 20       | 15      | 23      |
| Wheat . . . . .          | 35     | 65        | 50     | 110       | 45       | 100     | 67      |
| Barley . . . . .         | 35     | 65        | 50     | 55        | 45       | 35      | 47      |
| Oats . . . . .           | 35     | 65        | 50     | 60        | 20       | 50      | 47      |
| Metals . . . . .         | 70     | 50        | 50     | 15        | 40       | 80      | 51      |
| Coal . . . . .           | ...    | ...       | 100    | ...       | ...      | 40      | 70      |
| Indigo . . . . .         | 35     | 1         | 10     | 5         | 20       | 1       | 12      |
| Flax . . . . .           | 35     | 3         | 30     | 10        | 20       | 5       | 17      |
| Palm-oil . . . . .       | 35     | 1         | 10     | ...       | 20       | 1       | 13      |
| Timber . . . . .         | 70     | 30        | 30     | 20        | 70       | 60      | 47      |
| Leather . . . . .        | 70     | 25        | 25     | 20        | 70       | 40      | 68      |
| Meat . . . . .           | 110    | 100       | 100    | 155       | 90       | 120     | 113     |
| Cotton . . . . .         | 110    | 30        | 25     | 100       | 20       | 20      | 51      |
| Sundries . . . . .       | 150    | 365       | 370    | 260       | 320      | 258     | 195     |
| Total . . . . .          | 1000   | 1000      | 1000   | 1000      | 1000     | 1000    | 1000    |

\* Butter includes also cheese and milk.

In the foregoing scales it will be observed that our writers took no account of coal, and one omitted wine. There seems to have been no good reason for inserting indigo and palm-oil, which are items of trifling value, while fish, lard, rice, potatoes, and other important articles, are omitted. Another feature that seems inexplicable is, that four of the above writers give barley the same relative importance as wheat, whereas the latter, (see page 12) ought to be three times greater than the former. A similar remark applies to oats, which should stand for only half the value of wheat.

A general price-level for the principal countries from 1860-62 to 1883 is taken as follows from my *History of Prices* (Longmans, 1885):—

| Year    | Ratio of Values |        |       |         |               |         |
|---------|-----------------|--------|-------|---------|---------------|---------|
|         | United Kingdom  | France | Italy | Belgium | United States | Average |
| 1860-62 | 100             | 100    | 100   | 100     | 100           | 100     |
| 1863    | 121             | 103    | 101   | 94      | 90            | 109     |
| 1864    | 138             | 107    | 100   | 96      | 106           | 120     |
| 1865    | 126             | 102    | 107   | 92      | 104           | 113     |
| 1866    | 127             | 98     | 98    | 97      | 170           | 116     |
| 1867    | 115             | 86     | 107   | 90      | 99            | 102     |
| 1868    | 110             | 87     | 105   | 87      | 107           | 101     |
| 1869    | 109             | 87     | 106   | 81      | 125           | 101     |
| 1870    | 100             | 80     | 105   | 85      | 108           | 95      |
| Average | 118             | 94     | 104   | 90      | 114           | 107     |
| 1871    | 100             | 83     | 106   | 97      | 112           | 97      |
| 1872    | 106             | 87     | 118   | 105     | 125           | 102     |
| 1873    | 110             | 89     | 122   | 103     | 100           | 103     |
| 1874    | 104             | 83     | 107   | 99      | 102           | 97      |
| 1875    | 99              | 78     | 96    | 97      | 96            | 92      |
| 1876    | 93              | 80     | 109   | 93      | 85            | 89      |
| 1877    | 94              | 77     | 100   | 97      | 101           | 91      |
| 1878    | 87              | 76     | 92    | 92      | 83            | 84      |
| 1879    | 84              | 80     | 97    | 89      | 90            | 85      |
| 1880    | 86              | 81     | 90    | 96      | 96            | 88      |
| Average | 96              | 81     | 104   | 97      | 99            | 92      |
| 1881    | 85              | 78     | 87    | 95      | 94            | 86      |
| 1882    | 85              | 76     | 82    | 83      | 98            | 85      |
| 1883    | 84              | 71     | 77    | 78      | 91            | 81      |
| Average | 85              | 75     | 82    | 85      | 94            | 84      |

The manner in which the above price-levels were arrived at was this. The trade of each country, imports and exports, was set down for each year side by side with what the amount would have been (seeing the quantities imported and exported) if the prices of 1860-62 had been maintained. As regards Great Britain, the exports of foreign and colonial merchandise are not included.

Actual trade returns (millions £ sterling):—

| Year    | United Kingdom | France | Italy | Belgium | United States | Aggregate |
|---------|----------------|--------|-------|---------|---------------|-----------|
| 1860-62 | 346            | 180    | 54    | 41      | 101           | 722       |
| 1863    | 396            | 203    | 61    | 46      | 59            | 765       |
| 1864    | 435            | 218    | 62    | 51      | 46            | 812       |
| 1865    | 437            | 229    | 61    | 54      | 47            | 828       |
| 1866    | 484            | 239    | 59    | 56      | 82            | 920       |
| 1867    | 456            | 234    | 65    | 55      | 99            | 909       |
| 1868    | 475            | 244    | 67    | 61      | 92            | 939       |
| 1869    | 485            | 249    | 69    | 64      | 106           | 973       |
| 1870    | 503            | 227    | 66    | 64      | 144           | 1,004     |
| Average | 428            | 216    | 61    | 52      | 89            | 847       |
| 1871    | 554            | 258    | 81    | 87      | 175           | 1,155     |
| 1872    | 611            | 293    | 94    | 93      | 193           | 1,284     |
| 1873    | 626            | 294    | 96    | 103     | 207           | 1,326     |
| 1874    | 610            | 288    | 91    | 96      | 210           | 1,295     |
| 1875    | 598            | 296    | 89    | 96      | 184           | 1,263     |
| 1876    | 576            | 303    | 101   | 101     | 182           | 1,263     |
| 1877    | 593            | 284    | 83    | 100     | 206           | 1,266     |
| 1878    | 562            | 294    | 82    | 103     | 225           | 1,266     |
| 1879    | 555            | 313    | 93    | 109     | 236           | 1,306     |
| 1880    | 634            | 340    | 91    | 116     | 308           | 1,489     |
| Average | 592            | 296    | 90    | 100     | 213           | 1,291     |
| 1881    | 631            | 337    | 96    | 117     | 314           | 1,495     |
| 1882    | 655            | 336    | 95    | 117     | 300           | 1,503     |
| 1883    | 667            | 330    | 99    | 116     | 312           | 1,524     |

At prices of 1860-62 (millions £ sterling):—

| Year    | United Kingdom | France | Italy | Belgium | United States | Aggregate |
|---------|----------------|--------|-------|---------|---------------|-----------|
| 1863    | 328            | 197    | 60    | 49      | 65            | 699       |
| 1864    | 315            | 204    | 62    | 53      | 43            | 677       |
| 1865    | 347            | 225    | 57    | 58      | 45            | 732       |
| 1866    | 381            | 244    | 60    | 58      | 48            | 791       |
| 1867    | 396            | 273    | 61    | 61      | 100           | 891       |
| 1868    | 432            | 280    | 64    | 70      | 86            | 932       |
| 1869    | 445            | 286    | 65    | 79      | 85            | 960       |
| 1870    | 503            | 283    | 63    | 75      | 133           | 1,057     |
| Average | 393            | 249    | 61    | 63      | 76            | 842       |
| 1871    | 554            | 310    | 77    | 90      | 156           | 1,187     |
| 1872    | 599            | 338    | 80    | 88      | 154           | 1,259     |
| 1873    | 570            | 330    | 78    | 100     | 207           | 1,285     |
| 1874    | 586            | 348    | 85    | 97      | 206           | 1,322     |
| 1875    | 604            | 380    | 93    | 99      | 192           | 1,368     |
| 1876    | 618            | 379    | 93    | 109     | 214           | 1,413     |
| 1877    | 631            | 368    | 83    | 103     | 204           | 1,389     |
| 1878    | 648            | 387    | 89    | 112     | 271           | 1,507     |
| 1879    | 657            | 391    | 96    | 122     | 262           | 1,528     |
| 1880    | 737            | 420    | 101   | 121     | 321           | 1,700     |
| Average | 620            | 366    | 87    | 104     | 219           | 1,396     |
| 1881    | 742            | 431    | 110   | 123     | 334           | 1,740     |
| 1882    | 770            | 442    | 116   | 141     | 306           | 1,775     |
| 1883    | 794            | 463    | 129   | 149     | 343           | 1,883     |
| Average | 769            | 445    | 118   | 138     | 328           | 1,798     |

The following price-level for twelve principal items of international consumption is taken from the same work (to which the late Professor Neumann Spallart alludes in his *Uebersichten Ueber Production*, 1886):—

Price-Levels of the World for 100 Years.

| Years     | Agricultural |      |       |      |        |       |
|-----------|--------------|------|-------|------|--------|-------|
|           | Grain        | Meat | Dairy | Wool | Cotton | Sugar |
| 1782-90   | 100          | 100  | 100   | 100  | 100    | 100   |
| 1791-1800 | 133          | 141  | 131   | 121  | 110    | 170   |
| 1801-10   | 165          | 188  | 167   | 259  | 75     | 138   |
| 1811-20   | 175          | 208  | 190   | 206  | 75     | 165   |
| 1821-30   | 118          | 157  | 153   | 90   | 46     | 113   |
| 1831-40   | 110          | 173  | 144   | 75   | 41     | 110   |
| 1841-50   | 105          | 165  | 155   | 60   | 26     | 110   |
| 1851-60   | 128          | 184  | 175   | 54   | 28     | 104   |
| 1861-70   | 123          | 194  | 198   | 46   | 61     | 110   |
| 1871-80   | 115          | 220  | 218   | 36   | 34     | 88    |
| 1881-84   | 98           | 244  | 222   | 30   | 29     | 64    |

| Years     | Industrial |        |      |         |          |         |
|-----------|------------|--------|------|---------|----------|---------|
|           | Hardware   | Timber | Coal | Cottons | Woollens | Leather |
| 1782-90   | 100        | 100    | 100  | 100     | 100      | 100     |
| 1791-1800 | 124        | 138    | 109  | 107     | 112      | 128     |
| 1801-10   | 159        | 263    | 85   | 82      | 199      | 173     |
| 1811-20   | 181        | 238    | 91   | 82      | 161      | 168     |
| 1821-30   | 144        | 108    | 91   | 58      | 92       | 90      |
| 1831-40   | 124        | 127    | 71   | 54      | 84       | 100     |
| 1841-50   | 82         | 182    | 57   | 42      | 73       | 111     |
| 1851-60   | 75         | 144    | 61   | 36      | 68       | 103     |
| 1861-70   | 72         | 144    | 61   | 52      | 78       | 108     |
| 1871-80   | 85         | 128    | 61   | 37      | 75       | 96      |
| 1881-84   | 55         | 116    | 48   | 32      | 62       | 94      |

It appears from the above that agricultural products have risen 13 per cent., manufactures fallen 43 per cent., in price-level since 1782-90.

Beginning from 1841, we have in the following table a retrospect of values for 44 years; that is to say, if the same quantity of merchandise produced and consumed yearly from 1881 to 1884 were bought and sold at prices ruling in the four preceding decades, the amounts would be approximately as follows:—

|                          | Millions, £ Sterling |         |         |         |         |
|--------------------------|----------------------|---------|---------|---------|---------|
|                          | 1841-50              | 1851-60 | 1861-70 | 1871-80 | 1881-84 |
| Grain . . . . .          | 1,419                | 1,724   | 1,658   | 1,547   | 1,326   |
| Meat . . . . .           | 560                  | 628     | 661     | 747     | 830     |
| Hardware . . . . .       | 576                  | 525     | 504     | 593     | 384     |
| Dairy products . . . . . | 236                  | 266     | 303     | 333     | 340     |
| Cotton goods . . . . .   | 386                  | 335     | 484     | 346     | 302     |
| Woolen goods . . . . .   | 263                  | 245     | 280     | 268     | 223     |
| Timber . . . . .         | 428                  | 338     | 338     | 301     | 273     |
| Coal . . . . .           | 224                  | 241     | 241     | 241     | 189     |
| Leather . . . . .        | 218                  | 202     | 212     | 188     | 184     |
| Potatoes . . . . .       | 115                  | 125     | 154     | 164     | 181     |
| Wine . . . . .           | 86                   | 105     | 111     | 111     | 130     |
| Raw cotton . . . . .     | 76                   | 85      | 183     | 101     | 87      |
| Wool . . . . .           | 160                  | 145     | 125     | 97      | 83      |
| Books . . . . .          | 120                  | 115     | 105     | 87      | 79      |
| Silks . . . . .          | 68                   | 82      | 104     | 88      | 73      |
| Linens, &c. . . . .      | 77                   | 74      | 78      | 74      | 70      |
| Sugar . . . . .          | 106                  | 100     | 106     | 84      | 61      |
| Coffee . . . . .         | 23                   | 30      | 38      | 50      | 42      |
| Tobacco . . . . .        | 29                   | 44      | 53      | 38      | 37      |
| Tea . . . . .            | 16                   | 20      | 24      | 21      | 16      |
| Total . . . . .          | 5,186                | 5,429   | 5,762   | 5,479   | 4,910   |

The above twenty items comprise 90 per cent. of all human industries as regards products or manufactures, and therefore enable us to arrive at the variations of price-level for the whole world—that is, the rise or fall in the purchasing power of gold since 1850. The result is as follows:—

| Years             |       |
|-------------------|-------|
| 1841-50 . . . . . | 100.0 |
| 1851-60 . . . . . | 104.7 |
| 1861-70 . . . . . | 111.1 |
| 1871-80 . . . . . | 105.7 |
| 1881-84 . . . . . | 94.7  |

## PROSTITUTION

|                      | Prostitutes | Per 10,000 Inhab. |
|----------------------|-------------|-------------------|
| London . . . . .     | 31,800      | 83                |
| Paris . . . . .      | 26,990      | 122               |
| Berlin . . . . .     | 27,300      | 248               |
| Lyons . . . . .      | 5,520       | 145               |
| Marseilles . . . . . | 4,080       | 112               |
| Bordeaux . . . . .   | 2,610       | 125               |

The Paris police reports show that 89 per cent. are French, 11 per cent. foreign. According to the *Dict. des Sciences Med.*, 100 prostitutes may be expected in their lives to give birth to 60 infants; 100 married women to 480.

## PROTECTION

In order to promote certain local products or manufactures, which in some cases could not be profitably cultivated otherwise, "protection" is given either by means of bounties or by heavy import dues on foreign goods.

### UNITED KINGDOM.

Between the years 1690 and 1830 Great Britain paid the inhabitants of Belfast and Dundee 28 millions sterling to enable them to sell and export Irish and Scotch linen at less than cost. The export of linen has quadrupled since the bounties were abolished in 1830, the average bounty before that year having been £150,000 per annum.

Bounties on the exportation of grain in England averaged £160,000 per annum for some years, until their abolition in 1805.

### FRANCE

In 1860, by virtue of the Cobden Treaty, it was stipulated that no duties on foreign imports should exceed 25 per cent. *ad valorem*. The treaty has since lapsed. In 1880 a system of shipping bounties was established as follows:—48 shillings per ton for building iron vessels, and 16 shillings for wooden; 15 pence per ton per 1000 miles run on French-built vessels entering French ports; 7½ pence per ton for French vessels not built in France. The amounts paid for these bounties were:—

| Year           | Building | Navigation | Total   |
|----------------|----------|------------|---------|
| 1881 . . . . . | £38,000  | £39,000    | £77,000 |
| 1884 . . . . . | 179,000  | 344,000    | 523,000 |
| 1886 . . . . . | 120,000  | 303,000    | 423,000 |

There are also fishing bounties, which in some years reach £200,000, and sugar bounties, £600,000. The effect of the shipping bounties has certainly been to promote French shipping, viz:—

| Entries           | 1880      | 1887      | Increase     |
|-------------------|-----------|-----------|--------------|
| French . . . . .  | 3,614,000 | 4,770,000 | 33 per cent. |
| Foreign . . . . . | 8,750,000 | 8,710,000 | ...          |

In 1889 the duties were increased on imported food to protect the French farmers: cattle now pay 32 shillings, sheep 4 shillings per head, and wheat 50 shillings per ton. This causes bread to be at times so dear that municipal bakeries are established to sell cheap bread to the poor.

### BELGIUM.

Sugar bounties average £170,000 a year in Belgium, and £150,000 in Holland.

### UNITED STATES.

Protective duties in 1885 compelled San Francisco to pay £9 a ton for American made rails, when as good could be landed from England at £5 a ton. Iron ore at Pittsburg cost 40 shillings per ton, when Bilbao ores could be landed in New York at 12 shillings.

## PUBLIC WORKS

There is no means of ascertaining the value or cost of these in the various countries. In France a sum of 402 millions sterling was expended in 80 years, down to 1880, on roads, bridges, harbours, and canals. In England about 200 millions have been spent on sanitary works and schools. The United States Government in 90 years, down to 1880, spent 93 millions sterling on public edifices, arsenals, lighthouses, &c. The system of dykes in Holland represents an outlay of 300 millions sterling. The following table shows the amount of loans for public works in the United Kingdom from 1817 to 1881:—

|                         | Advanced    | Balance Due |
|-------------------------|-------------|-------------|
| Great Britain . . . . . | £44,700,000 | £26,020,000 |
| Ireland . . . . .       | 31,800,000  | 6,100,000   |
| Total . . . . .         | £76,500,000 | £32,120,000 |

The total account of public works loans from 1792 to 1890 for the whole United Kingdom showed thus:—

|                               |              |
|-------------------------------|--------------|
| Sums advanced . . . . .       | £115,324,000 |
| Repaid by borrowers . . . . . | 63,979,000   |
| Bad debts, &c. . . . .        | 12,635,000   |
| Balance due in 1890 . . . . . | 38,660,000   |



Q.

**QUAKERS**

There are 18,000 in the United Kingdom. They have a longer span of life than the general population, their death-rate during twenty years averaging only 18 per thousand as compared with 22 per thousand, probably the result of temperate habits. They have, however, one-fifth more insane than the rest of the population, namely, 33 per 10,000 against 28, which perhaps arises from inter-marriage.

**QUICKSILVER**

The *Times* published the following estimate of production:—

| Year                    | Tons          |            |       |
|-------------------------|---------------|------------|-------|
|                         | United States | Spain, &c. | Total |
| 1880 . . .              | 2005          | 1995       | 4000  |
| 1889 . . .              | 880           | 2500       | 3380  |
| Average ten years . . . | 1360          | 2280       | 3640  |

The Almaden mines in Spain were worked by the Romans: they still employ 4000 miners, who suffer a

tremendous death-rate. In 1888 the value exported from Spain was £500,000. A flask of quicksilver weighs 76 lbs. According to Kolb, the production in California was as follows:—

| Year       | Flasks | Tons  | Value   | Value per Flask |
|------------|--------|-------|---------|-----------------|
| 1859 . . . | 3,400  | 113   | £26,000 | 7.6             |
| 1860 . . . | 9,450  | 315   | 66,000  | 7.0             |
| 1865 . . . | 42,500 | 1,420 | 232,000 | 5.5             |
| 1870 . . . | 13,800 | 460   | 96,000  | 7.0             |
| 1876 . . . | 41,100 | 1,370 | 342,000 | 8.3             |

It appears that the production has now fallen to 26,000 flasks or 880 tons yearly, being about equal to one-third of what is produced annually in Spain.

The annual production and consumption average:—

| Production       |      | Consumption         |      |
|------------------|------|---------------------|------|
|                  | Tons |                     | Tons |
| California . . . | 900  | Great Britain . . . | 1600 |
| Spain . . .      | 1100 | United States . . . | 600  |
| Austria . . .    | 300  | China . . .         | 500  |
| Various . . .    | 1000 | Various . . .       | 600  |
| Total . . .      | 3300 | Total . . .         | 3300 |

R.

**RABBITS**

The annual slaughter is supposed to reach 20 millions in Great Britain, 70 millions in France.\* The annual exportation from Belgium averages 5 millions; the importation into Great Britain, 3 millions. The consumption in Melbourne market is one million yearly. Rabbits were introduced into Australia a few years ago for food, but multiplied so rapidly as to become a pest. A single pair of rabbits can become multiplied in four years into 1,250,000. The Sydney Cabinet in the year 1887 destroyed 25,300,000 rabbits, having spent £700,000 in four years to mitigate the pest. Mr. Coghlan says that 100 million acres of land have been more or less injured by them. To check their onward march a fence of 290 miles between the Macquarie and Darling rivers was made at a cost of £24,000; another of 346 miles from the Murray River north; another of 260 miles on the southern line of Queensland; another of 340 miles from Albany to the Macquarie; but the rabbits broke through. The number of rabbit-skins exported averages yearly:—

|                       |            |
|-----------------------|------------|
| New South Wales . . . | 15,000,000 |
| New Zealand . . .     | 6,000,000  |
| Victoria . . .        | 3,000,000  |

besides 1000 bales yearly from South Australia. The Cabinet of Victoria spends £15,000 a year in killing rabbits.

**RAILWAYS**

The *Aimanac de Gotha* gives the total mileage at various dates as follows:—

| Year       | Miles  | Year       | Miles   |
|------------|--------|------------|---------|
| 1830 . . . | 210    | 1870 . . . | 139,860 |
| 1840 . . . | 5,420  | 1875 . . . | 177,600 |
| 1850 . . . | 23,960 | 1880 . . . | 224,900 |
| 1860 . . . | 67,350 | 1885 . . . | 307,400 |

The Actual mileage, however, was as follows:—

|                    | 1840  | 1850   | 1860   | 1870    | 1880    | 1888    |
|--------------------|-------|--------|--------|---------|---------|---------|
| U. Kingdom . . .   | 838   | 6,620  | 10,430 | 15,540  | 17,930  | 19,810  |
| France . . .       | 360   | 1,890  | 5,880  | 9,770   | 14,500  | 20,900  |
| Germany . . .      | 341   | 3,640  | 6,980  | 11,730  | 20,690  | 24,270  |
| Russia . . .       | 16    | 310    | 990    | 7,100   | 14,020  | 17,700  |
| Austria . . .      | 90    | 960    | 2,810  | 5,950   | 11,500  | 15,610  |
| Italy . . .        | 13    | 270    | 1,120  | 3,830   | 5,340   | 7,830   |
| Spain . . .        | ...   | 80     | 1,190  | 3,200   | 4,550   | 5,930   |
| Portugal . . .     | ...   | ...    | 40     | 440     | 710     | 1,190   |
| Sweden . . .       | ...   | ...    | 375    | 1,090   | 3,650   | 4,670   |
| Norway . . .       | ...   | ...    | 40     | 170     | 690     | 970     |
| Denmark . . .      | ...   | 20     | 70     | 470     | 830     | 1,220   |
| Holland . . .      | 11    | 110    | 200    | 780     | 1,440   | 1,700   |
| Belgium . . .      | 210   | 550    | 1,070  | 1,800   | 2,400   | 2,760   |
| Switzerland . . .  | ...   | 15     | 650    | 890     | 1,600   | 1,870   |
| Roumania . . .     | ...   | ...    | ...    | 150     | 860     | 1,530   |
| Servia . . .       | ...   | ...    | ...    | ...     | 100     | 340     |
| Bulgaria . . .     | ...   | ...    | ...    | ...     | 200     | 430     |
| Greece . . .       | ...   | ...    | ...    | ...     | 10      | 370     |
| Turkey . . .       | ...   | ...    | 40     | 390     | 700     | 900     |
| Europe . . .       | 1,679 | 14,465 | 31,885 | 63,300  | 101,720 | 130,000 |
| U. States . . .    | 2,820 | 9,020  | 30,630 | 53,400  | 93,670  | 156,080 |
| Canada . . .       | 16    | 70     | 2,090  | 2,500   | 6,890   | 12,700  |
| Mexico . . .       | ...   | ...    | ...    | 220     | 660     | 5,010   |
| Peru . . .         | ...   | ...    | 50     | 250     | 1,180   | 1,630   |
| Chili . . .        | ...   | ...    | 120    | 450     | 1,100   | 1,750   |
| Brazil . . .       | ...   | ...    | 135    | 505     | 2,175   | 5,580   |
| Argentina . . .    | ...   | ...    | 15     | 640     | 1,540   | 5,550   |
| Uruguay . . .      | ...   | ...    | ...    | 60      | 270     | 450     |
| Japan . . .        | ...   | ...    | ...    | ...     | 75      | 910     |
| India . . .        | ...   | ...    | 840    | 4,830   | 9,310   | 15,250  |
| Australia . . .    | ...   | ...    | 250    | 1,230   | 5,390   | 10,140  |
| South Africa . . . | ...   | ...    | ...    | ...     | 1,010   | 2,010   |
| Algeria . . .      | ...   | ...    | ...    | ...     | 780     | 1,840   |
| Egypt . . .        | ...   | ...    | 275    | 550     | 1,120   | 1,260   |
| West Indies . . .  | ...   | ...    | ...    | 100     | 650     | 1,280   |
| Various . . .      | ...   | ...    | ...    | 200     | 900     | 2,870   |
| The World . . .    | 4,515 | 23,555 | 66,290 | 128,235 | 228,440 | 354,310 |

\* De Foville questions the number of rabbits in France.

The following table shows the condition of railways actually working, mostly for the years 1887-88:—

|                          | Miles   | Cost, Millions £ | Passengers, Millions | Goods, Tons, Millions | Receipts, £ | Expenses, £ | Net, £      |
|--------------------------|---------|------------------|----------------------|-----------------------|-------------|-------------|-------------|
| England . . . . .        | 13,980  | 714              | 720                  | 239                   | 62,000,000  | 32,400,000  | 29,600,000  |
| Scotland . . . . .       | 3,100   | 114              | 74                   | 39                    | 8,000,000   | 3,800,000   | 4,200,000   |
| Ireland . . . . .        | 2,730   | 37               | 22                   | 4                     | 2,900,000   | 1,500,000   | 1,400,000   |
| United Kingdom . . . . . | 19,810  | 865              | 816                  | 282                   | 72,900,000  | 37,700,000  | 35,200,000  |
| France . . . . .         | 20,900  | 570              | 218                  | 78                    | 42,400,000  | 22,400,000  | 20,000,000  |
| Germany . . . . .        | 24,270  | 495              | 316                  | 179                   | 54,600,000  | 29,300,000  | 25,300,000  |
| Russia . . . . .         | 17,700  | 314              | 38                   | 50                    | 25,300,000  | 14,400,000  | 10,900,000  |
| Austria . . . . .        | 15,610  | 307              | 65                   | 79                    | 20,800,000  | 11,700,000  | 9,100,000   |
| Italy . . . . .          | 7,830   | 138              | 46                   | 15                    | 9,400,000   | 6,200,000   | 3,200,000   |
| Spain . . . . .          | 5,930   | 94               | 15                   | 8                     | 5,600,000   | 2,500,000   | 3,100,000   |
| Portugal . . . . .       | 1,190   | 19               | 3                    | 1                     | 900,000     | 400,000     | 500,000     |
| Sweden . . . . .         | 4,670   | 28               | 10                   | 8                     | 2,100,000   | 1,300,000   | 800,000     |
| Norway . . . . .         | 970     | 7                | 3                    | 1                     | 400,000     | 300,000     | 100,000     |
| Denmark . . . . .        | 1,220   | 10               | 9                    | 3                     | 800,000     | 680,000     | 120,000     |
| Holland . . . . .        | 1,700   | 35               | 18                   | 8                     | 2,300,000   | 1,300,000   | 1,000,000   |
| Belgium . . . . .        | 2,760   | 71               | 73                   | 41                    | 6,800,000   | 3,500,000   | 3,300,000   |
| Switzerland . . . . .    | 1,870   | 37               | 27                   | 9                     | 3,300,000   | 1,800,000   | 1,500,000   |
| Roumania . . . . .       | 1,530   | 29               | 2                    | 2                     | 1,100,000   | 650,000     | 450,000     |
| Servia . . . . .         | 340     | 6                | 1                    | ...                   | 200,000     | 100,000     | 100,000     |
| Bulgaria . . . . .       | 430     | 8                | 1                    | ...                   | 300,000     | 150,000     | 150,000     |
| Greece . . . . .         | 370     | 6                | 1                    | ...                   | 200,000     | 100,000     | 100,000     |
| Turkey . . . . .         | 900     | 16               | 1                    | 1                     | 600,000     | 300,000     | 300,000     |
| Europe . . . . .         | 130,000 | 3,055            | 1,663                | 765                   | 250,000,000 | 134,780,000 | 115,220,000 |
| United States . . . . .  | 156,080 | 1,949            | 451                  | 590                   | 198,000,000 | 138,000,000 | 60,000,000  |
| Canada . . . . .         | 12,700  | 151              | 12                   | 18                    | 8,400,000   | 6,200,000   | 2,200,000   |
| Mexico . . . . .         | 5,010   | 62               | 13                   | 1                     | 1,000,000   | 700,000     | 300,000     |
| Peru . . . . .           | 1,630   | 41               | ...                  | ...                   | ...         | ...         | ...         |
| Chili . . . . .          | 1,750   | 14               | ...                  | ...                   | 2,000,000   | 1,200,000   | 800,000     |
| Brazil . . . . .         | 5,580   | 49               | 7                    | 2                     | 3,800,000   | 2,500,000   | 1,300,000   |
| Argentina . . . . .      | 5,550   | 48               | 8                    | 3                     | 2,800,000   | 1,700,000   | 1,100,000   |
| Uruguay . . . . .        | 450     | 5                | 1                    | ...                   | 300,000     | 200,000     | 100,000     |
| Japan . . . . .          | 910     | 11               | 12                   | 1                     | 600,000     | 250,000     | 350,000     |
| India . . . . .          | 15,250  | 145              | 103                  | 23                    | 15,000,000  | 7,500,000   | 7,500,000   |
| Australia . . . . .      | 10,140  | 94               | 81                   | 17                    | 8,200,000   | 5,100,000   | 3,100,000   |
| South Africa . . . . .   | 2,010   | 18               | 3                    | 1                     | 1,700,000   | 900,000     | 800,000     |
| Algeria . . . . .        | 1,840   | 26               | 4                    | 2                     | 1,400,000   | 900,000     | 500,000     |
| Egypt . . . . .          | 1,260   | 18               | 4                    | 1                     | 1,300,000   | 600,000     | 700,000     |
| West Indies . . . . .    | 1,280   | 16               | ...                  | ...                   | ...         | ...         | ...         |
| Java . . . . .           | 790     | 7                | ...                  | ...                   | ...         | ...         | ...         |
| Various . . . . .        | 2,080   | 27               | ...                  | ...                   | ...         | ...         | ...         |
| Total . . . . .          | 354,310 | 5,736            | 2,362                | 1,424                 | 494,500,000 | 300,530,000 | 193,970,000 |

There are no particulars, except length of line, known as regards Servia, Bulgaria, Greece, and Turkey: it is assumed in the above table that the ratios per mile are the same as in Roumania. The cost of construction in Mexico, being unknown, is assumed to be the same as in the United States. In some cases the traffic is not for the same year as the mileage. Tables of traffic per mile are given farther on. In the preceding table there are blanks as regards traffic for 5780 miles, or  $1\frac{1}{2}$  per cent. of the total. Allowing for these blanks, the whole railway business of the world is summed up as follows:—

|                     | Miles   | Cost, Millions £ | Millions   |             | Millions £ |          |     |                  |
|---------------------|---------|------------------|------------|-------------|------------|----------|-----|------------------|
|                     |         |                  | Passengers | Goods, Tons | Receipts   | Expenses | Net | Interest on Cost |
| Europe . . . . .    | 130,000 | 3,055            | 1,663      | 765         | 250        | 135      | 115 | 3.8              |
| America . . . . .   | 191,010 | 2,348            | 507        | 619         | 219        | 153      | 66  | 2.8              |
| Africa . . . . .    | 5,530   | 67               | 12         | 5           | 5          | 3        | 2   | 3.0              |
| Asia . . . . .      | 17,630  | 172              | 121        | 25          | 17         | 9        | 8   | 4.6              |
| Australia . . . . . | 10,140  | 94               | 81         | 17          | 8          | 5        | 3   | 3.3              |
| The World . . . . . | 354,310 | 5,736            | 2,384      | 1,431       | 499        | 305      | 194 | 3.4              |

The total mileage and cost of construction for Europe and the world at various dates were approximately as follows:—

| Year | Europe  |            |            | The World |            |            |
|------|---------|------------|------------|-----------|------------|------------|
|      | Miles   | Millions £ | £ per Mile | Miles     | Millions £ | £ per Mile |
| 1840 | 1,679   | 52         | 30.900     | 4,515     | 71         | 15.800     |
| 1850 | 14,465  | 404        | 27.800     | 23,555    | 465        | 19.800     |
| 1860 | 31,885  | 797        | 25.000     | 66,290    | 1,079      | 16.300     |
| 1870 | 63,300  | 1,476      | 23.300     | 128,235   | 2,097      | 16.400     |
| 1880 | 101,720 | 2,411      | 23.700     | 228,440   | 3,938      | 17.200     |
| 1888 | 130,000 | 3,055      | 23.300     | 354,310   | 5,736      | 16.100     |

A French scientific journal in 1890 summed up existing railways thus:—

|                     | Miles   |
|---------------------|---------|
| Europe . . . . .    | 135,200 |
| Asia . . . . .      | 17,900  |
| Africa . . . . .    | 5,300   |
| Australia . . . . . | 10,500  |
| America . . . . .   | 191,200 |
| Total . . . . .     | 360,100 |

The amount of capital invested in railways at various dates was as follows :—

|                 | Millions £ Sterling |      |       |       |       |       |
|-----------------|---------------------|------|-------|-------|-------|-------|
|                 | 1840                | 1850 | 1860  | 1870  | 1880  | 1888  |
| United Kingdom  | 28                  | 240  | 348   | 530   | 728   | 865   |
| France          | 11                  | 57   | 171   | 274   | 392   | 570   |
| Germany         | 6                   | 61   | 116   | 204   | 431   | 495   |
| Russia          | ...                 | 5    | 17    | 119   | 234   | 314   |
| Austria         | 2                   | 20   | 57    | 120   | 255   | 307   |
| Italy           | ...                 | 5    | 22    | 75    | 105   | 138   |
| Spain           | ...                 | 1    | 19    | 51    | 72    | 94    |
| Portugal        | ...                 | ...  | ...   | 7     | 11    | 19    |
| Sweden          | ...                 | ...  | 2     | 7     | 23    | 28    |
| Norway          | ...                 | ...  | ...   | 2     | 4     | 7     |
| Denmark         | ...                 | ...  | 1     | 4     | 7     | 10    |
| Holland         | ...                 | 2    | 4     | 13    | 25    | 35    |
| Belgium         | 5                   | 13   | 26    | 43    | 58    | 71    |
| Switzerland     | ...                 | ...  | 13    | 18    | 32    | 37    |
| Roumania, &c.   | ...                 | ...  | 1     | 9     | 34    | 65    |
| Europe          | 52                  | 404  | 797   | 1,476 | 2,411 | 3,055 |
| United States   | 19                  | 60   | 239   | 497   | 1,171 | 1,949 |
| Canada          | ...                 | 1    | 25    | 30    | 84    | 151   |
| Spanish America | ...                 | ...  | 4     | 25    | 81    | 228   |
| Japan           | ...                 | ...  | ...   | ...   | 1     | 11    |
| India           | ...                 | ...  | 8     | 46    | 88    | 145   |
| Australia       | ...                 | ...  | 2     | 12    | 51    | 94    |
| South Africa    | ...                 | ...  | ...   | ...   | 9     | 18    |
| Algeria         | ...                 | ...  | ...   | ...   | 11    | 26    |
| Egypt           | ...                 | ...  | 4     | 8     | 16    | 18    |
| West Indies     | ...                 | ...  | ...   | 1     | 8     | 16    |
| Various         | ...                 | ...  | ...   | 2     | 7     | 25    |
| The World       | 71                  | 465  | 1,079 | 2,097 | 3,938 | 5,736 |

The progress of railway construction is shown as follows :—

|                 | Miles Built Yearly |         | Capital Sunk Yearly, £ |             |
|-----------------|--------------------|---------|------------------------|-------------|
|                 | 1841-70            | 1871-88 | 1841-70                | 1871-88     |
| U. Kingdom      | 490                | 240     | 16,700,000             | 18,400,000  |
| France          | 310                | 610     | 8,800,000              | 16,300,000  |
| Germany         | 380                | 700     | 6,600,000              | 16,100,000  |
| Russia          | 235                | 600     | 4,000,000              | 10,900,000  |
| Austria         | 196                | 530     | 4,000,000              | 10,500,000  |
| Italy           | 130                | 220     | 2,500,000              | 3,500,000   |
| Spain           | 105                | 150     | 1,700,000              | 2,400,000   |
| Portugal        | 15                 | 40      | 250,000                | 650,000     |
| Sweden          | 36                 | 200     | 250,000                | 1,200,000   |
| Norway          | 6                  | 45      | 70,000                 | 270,000     |
| Denmark         | 16                 | 42      | 130,000                | 330,000     |
| Holland         | 26                 | 52      | 430,000                | 1,200,000   |
| Belgium         | 53                 | 54      | 1,300,000              | 1,500,000   |
| Switzerland     | 30                 | 55      | 600,000                | 1,000,000   |
| Roumania, &c.   | 18                 | 166     | 300,000                | 3,100,000   |
| Europe          | 2,046              | 3,704   | 47,630,000             | 86,350,000  |
| United States   | 2,690              | 5,640   | 15,900,000             | 80,700,000  |
| Canada          | 83                 | 560     | 1,000,000              | 6,800,000   |
| Spanish America | 74                 | 1,030   | 800,000                | 11,300,000  |
| Japan           | ...                | 50      | ...                    | 600,000     |
| India           | 160                | 570     | 1,500,000              | 5,500,000   |
| Australia       | 41                 | 484     | 400,000                | 4,550,000   |
| South Africa    | ...                | 111     | ...                    | 1,000,000   |
| Algeria         | ...                | 102     | ...                    | 1,500,000   |
| Egypt           | 18                 | 40      | 270,000                | 550,000     |
| West Indies     | 3                  | 65      | 30,000                 | 900,000     |
| Various         | 7                  | 105     | 70,000                 | 1,400,000   |
| Total           | 5,022              | 12,461  | 67,600,000             | 201,150,000 |

The following table shows the average cost of construction per mile, and also the latest traffic returns per mile (mostly for 1887-88) :—

|                 | Construc-<br>tion, £ | Receipts,<br>£ | Expenses,<br>£ | Net, £ | Number<br>of<br>Passengers | Tons of<br>Goods | Working<br>Expenses,<br>Percentage | Interest on<br>Capital |
|-----------------|----------------------|----------------|----------------|--------|----------------------------|------------------|------------------------------------|------------------------|
| United Kingdom  | 43,600               | 3,680          | 1,910          | 1,770  | 41,200                     | 14,200           | 52                                 | 4.1                    |
| France          | 27,000               | 2,110          | 1,090          | 1,020  | 11,000                     | 4,000            | 52                                 | 3.8                    |
| Germany         | 20,400               | 2,250          | 1,210          | 1,040  | 13,000                     | 7,400            | 54                                 | 5.1                    |
| Russia          | 17,700               | 1,380          | 790            | 590    | 2,100                      | 2,700            | 57                                 | 3.3                    |
| Austria         | 19,700               | 1,390          | 780            | 610    | 4,600                      | 5,100            | 56                                 | 3.1                    |
| Italy           | 17,800               | 1,290          | 850            | 440    | 6,200                      | 2,100            | 65                                 | 2.5                    |
| Spain           | 15,800               | 1,220          | 540            | 680    | 3,300                      | 1,800            | 44                                 | 4.4                    |
| Portugal        | 15,800               | 900            | 390            | 510    | 2,700                      | 1,000            | 43                                 | 3.3                    |
| Sweden          | 6,100                | 470            | 290            | 180    | 2,200                      | 1,700            | 62                                 | 2.9                    |
| Norway          | 7,100                | 430            | 300            | 130    | 3,400                      | 1,200            | 70                                 | 1.8                    |
| Denmark         | 8,000                | 700            | 600            | 100    | 7,800                      | 2,700            | 86                                 | 1.2                    |
| Holland         | 20,600               | 1,350          | 750            | 600    | 10,900                     | 4,800            | 54                                 | 2.9                    |
| Belgium         | 25,800               | 2,450          | 1,280          | 1,170  | 26,700                     | 14,800           | 52                                 | 4.6                    |
| Switzerland     | 20,500               | 1,780          | 940            | 840    | 14,500                     | 4,600            | 53                                 | 4.1                    |
| Roumania, &c.   | 15,700               | 1,080          | 650            | 430    | ...                        | ...              | 60                                 | 2.7                    |
| Europe          | 23,400               | 1,940          | 1,050          | 890    | 12,800                     | 5,900            | 54                                 | 3.7                    |
| United States   | 12,500               | 1,290          | 900            | 390    | 2,900                      | 3,800            | 70                                 | 3.1                    |
| Canada          | 11,900               | 700            | 490            | 210    | 900                        | 1,400            | 70                                 | 1.7                    |
| Spanish America | 10,900               | 510            | 340            | 170    | 1,800                      | 400              | 67                                 | 1.6                    |
| Japan           | 12,400               | 660            | 280            | 380    | 13,200                     | 1,100            | 43                                 | 3.1                    |
| India           | 9,500                | 1,050          | 525            | 525    | 7,100                      | 1,500            | 50                                 | 5.2                    |
| Australia       | 9,300                | 820            | 510            | 310    | 8,100                      | 1,700            | 63                                 | 3.3                    |
| South Africa    | 8,900                | 800            | 420            | 380    | 1,500                      | 500              | 52                                 | 4.3                    |
| Algeria         | 14,000               | 730            | 510            | 220    | 2,200                      | 1,100            | 70                                 | 1.6                    |
| Egypt           | 14,100               | 1,050          | 480            | 570    | 3,200                      | 800              | 46                                 | 4.1                    |
| The World       | 16,100               | 1,350          | 830            | 520    | 6,600                      | 3,800            | 62                                 | 3.2                    |

English lines are the most costly, Swedish the cheapest, the difference being as 7 to 1. Only India and Germany earn over 5 per cent. on capital, the average for the world being 3½ per cent. There are 13 countries earning over the average, and 11 less than the average.

The passenger and goods traffic at various dates were approximately as follows :—

|                    | Millions of Passengers |      |       |       | Goods, Millions Tons |      |       |       |
|--------------------|------------------------|------|-------|-------|----------------------|------|-------|-------|
|                    | 1860                   | 1870 | 1882  | 1888  | 1860                 | 1870 | 1882  | 1888  |
| U. Kingdom . . .   | 180                    | 363  | 721   | 816   | 82                   | 170  | 256   | 282   |
| France . . . . .   | 57                     | 103  | 180   | 218   | 22                   | 52   | 90    | 78    |
| Germany . . . . .  | 48                     | 136  | 210   | 316   | 24                   | 98   | 157   | 179   |
| Russia . . . . .   | 5                      | 14   | 38    | 38    | 3                    | 8    | 35    | 50    |
| Austria . . . . .  | 12                     | 21   | 44    | 65    | 7                    | 25   | 57    | 79    |
| Italy . . . . .    | 6                      | 24   | 34    | 46    | 1                    | 6    | 10    | 15    |
| Spain & Portugal . | 5                      | 10   | 17    | 18    | 2                    | 4    | 7     | 9     |
| Scandinavia . . .  | 1                      | 8    | 15    | 22    | ...                  | 5    | 8     | 12    |
| Holland . . . . .  | 2                      | 6    | 18    | 18    | 1                    | 2    | 4     | 8     |
| Belgium . . . . .  | 17                     | 41   | 56    | 73    | 7                    | 27   | 37    | 41    |
| Switzerland . . .  | 6                      | 15   | 22    | 27    | 1                    | 4    | 6     | 9     |
| Roumania, &c. . .  | ...                    | 1    | 4     | 6     | ...                  | ...  | 2     | 3     |
| Europe . . . . .   | 339                    | 742  | 1,359 | 1,663 | 150                  | 401  | 669   | 765   |
| United States . .  | 60                     | 110  | 375   | 451   | 70                   | 150  | 361   | 590   |
| Canada . . . . .   | 2                      | 3    | 8     | 12    | 2                    | 4    | 11    | 18    |
| Spanish America .  | 1                      | 4    | 14    | 36    | ...                  | 1    | 5     | 9     |
| India . . . . .    | 4                      | 20   | 64    | 103   | ...                  | 3    | 12    | 23    |
| Australia . . . .  | 6                      | 18   | 44    | 81    | ...                  | 2    | 9     | 17    |
| Various . . . . .  | 1                      | 3    | 10    | 38    | ...                  | 1    | 3     | 8     |
| The World . . . .  | 413                    | 900  | 1,874 | 2,384 | 222                  | 562  | 1,070 | 1,430 |

The rates for passengers and goods in 1883 in various countries, according to the *Jour. des Economistes*, were :—

|                    | Pence per Ten Miles |           |           | Ton Goods,<br>per 100<br>Miles |
|--------------------|---------------------|-----------|-----------|--------------------------------|
|                    | 1st Class           | 2nd Class | 3rd Class |                                |
| U. Kingdom . . .   | 21                  | 16        | 10        | 140                            |
| France . . . . .   | 20                  | 15        | 10        | 110                            |
| Germany . . . . .  | 15                  | 11        | 8         | 82                             |
| Russia . . . . .   | 18                  | 14        | 8         | 120                            |
| Austria . . . . .  | 19                  | 14        | 9         | 115                            |
| Italy . . . . .    | 18                  | 13        | 9         | 125                            |
| Spain . . . . .    | 21                  | 16        | 10        | ...                            |
| Portugal . . . . . | 18                  | 14        | 10        | ...                            |
| Sweden . . . . .   | 15                  | 11        | 8         | 160                            |
| Norway . . . . .   | 8                   | 5         | 2½        | 120                            |
| Denmark . . . . .  | 16                  | 11        | 8         | 144                            |
| Holland . . . . .  | 16                  | 13        | 8         | 78                             |
| Belgium . . . . .  | 12                  | 9         | 6         | 80                             |
| Switzerland . . .  | 19                  | 13        | 10        | 165                            |
| Greece . . . . .   | 14                  | 9         | 7         | ...                            |
| Roumania . . . .   | 36                  | 14        | 10        | 78                             |
| Turkey . . . . .   | 29                  | 26        | 14        | ...                            |

In the United States in 1888 the average compared with the rates on the Canadian Pacific line thus :—

|                     | Pence per 100 Miles |           |
|---------------------|---------------------|-----------|
|                     | Passenger           | Ton Goods |
| United States . . . | 112                 | 52        |
| Canada . . . . .    | 90                  | 51        |

The passenger rates are those of first class, and are lower than in Europe.

The speed on some of the principal railways is :—

|                        | Miles | Hours | Minutes | Miles per<br>Hour |
|------------------------|-------|-------|---------|-------------------|
| London to Grantham     | 105   | 1     | 57      | 54                |
| Paris to Poitiers . .  | 209   | 5     | 20      | 39                |
| Berlin to Minden . .   | 202   | 5     | 35      | 37                |
| Vienna to Pilsen . . . | 220   | 6     | 45      | 33                |
| Rome to Pisa . . . .   | 211   | 7     | ...     | 30                |
| Madrid to Saragossa .  | 214   | 9     | 26      | 23                |
| Lisbon to Oporto . . . | 212   | 11    | ...     | 19                |
| N. York to Washington  | 230   | 5     | 18      | 44                |

The distribution of passengers in 1884 was as follows :—

|                     | Percentage of Passengers |        |       |       |
|---------------------|--------------------------|--------|-------|-------|
|                     | First                    | Second | Third | Total |
| England . . . . .   | 6                        | 10     | 84    | 100   |
| Scotland . . . . .  | 7                        | 6      | 87    | 100   |
| Ireland . . . . .   | 7                        | 16     | 77    | 100   |
| United Kingdom . .  | 6                        | 10     | 84    | 100   |
| France . . . . .    | 7                        | 34     | 59    | 100   |
| Germany . . . . .   | 1                        | 13     | 86    | 100   |
| Russia . . . . .    | 2                        | 9      | 89    | 100   |
| Austria . . . . .   | 1                        | 13     | 86    | 100   |
| Italy . . . . .     | 6                        | 28     | 66    | 100   |
| Sweden . . . . .    | 4                        | 10     | 86    | 100   |
| Norway . . . . .    | ...                      | 8      | 92    | 100   |
| Denmark . . . . .   | 1                        | 14     | 85    | 100   |
| Holland . . . . .   | 9                        | 25     | 66    | 100   |
| Belgium . . . . .   | 5                        | 14     | 81    | 100   |
| Switzerland . . . . | 2                        | 17     | 81    | 100   |
| Roumania . . . . .  | 5                        | 22     | 73    | 100   |
| India . . . . .     | 1                        | 2      | 97    | 100   |

In European countries the highest ratio of first-class passengers is in Holland, of second class in France, and of third class in Norway.

The following table shows the earnings and expenses per mile run by locomotives in various countries in 1887-88 :—

|                     | Miles Run   | Pence per<br>Mile Run |               |     | Miles Run per<br>Locomotive |
|---------------------|-------------|-----------------------|---------------|-----|-----------------------------|
|                     |             | Receipts              | Ex-<br>penses | Net |                             |
| United States . . . | 688,800,000 | 69                    | 48            | 21  | 24,000                      |
| Germany . . . . .   | 171,400,000 | 77                    | 41            | 36  | 14,000                      |
| France . . . . .    | 158,800,000 | 64                    | 33            | 31  | 18,000                      |
| Italy . . . . .     | 46,600,000  | 48                    | 32            | 16  | 24,000                      |
| Austria . . . . .   | 66,100,000  | 76                    | 42            | 34  | 16,000                      |
| Switzerland . . . . | 13,100,000  | 61                    | 33            | 28  | 22,000                      |
| Sweden . . . . .    | 10,500,000  | 48                    | 30            | 18  | 15,000                      |
| Holland . . . . .   | 15,500,000  | 37                    | 21            | 16  | 26,000                      |
| Belgium . . . . .   | 32,700,000  | 50                    | 26            | 24  | 14,000                      |

The mileage run by locomotives in the United States far exceeds the aggregate mileage for the Continent of Europe. The cost of running in the United States is higher per mile than in Europe.

An ordinary locomotive has 300 horse-power, and burns one ton of coke for 40 miles of goods train, or 80 miles of passenger train. The life of a locomotive is usually fifteen years, during which it will run 240,000 miles, and earn £60,000. The price is usually £2000; and according to *Engineering*, Europe could turn out 6400 locomotives yearly, viz., Great Britain, 2200; Germany, 2000; France, 1000; Belgium, 500; Austria, 400; and other countries, 300. Boesig's factory at Berlin could make 300 yearly. Each locomotive has 5416 pieces. The first in use from Liverpool to Manchester in 1830 was of 8 tons, and had a speed of 20 miles an hour. In 1872 the largest in the United Kingdom were of 27 tons, rising in 1889 to 45 tons.

There are many 60-ton locomotives in the United States, and some in Canada of 70 tons. The weight of an empty passenger train in England is: locomotive, 35; tender, 25; two trucks, 12; eight carriages, 64; in all, 136 tons. If there be 60 passengers, their weight will be 3 tons, against 136 tons dead-weight. The engine of an express train consumes 10 gallons of water per mile; some of the American locomotives have tenders with a capacity of 3000 gallons.

Jeans's table of rolling-stock in 1885 compares with mileage and traffic as follows :—

|                 | Locomotives,<br>Number | Carriages,<br>Number | Waggons,<br>Number | Locomotives,<br>per 100 Miles | Carriages,<br>per Million<br>Passengers | Tons of Goods<br>Carried per<br>Wagon |
|-----------------|------------------------|----------------------|--------------------|-------------------------------|-----------------------------------------|---------------------------------------|
| U. Kingdom      | 15,200                 | 33,700               | 464,000            | 76                            | 41                                      | 610                                   |
| France . .      | 8,800                  | 19,700               | 223,000            | 44                            | 90                                      | 340                                   |
| Germany . .     | 12,200                 | 22,200               | 250,000            | 50                            | 71                                      | 720                                   |
| Russia . .      | 5,800                  | 7,000                | 116,000            | 33                            | 180                                     | 440                                   |
| Austria . .     | 4,200                  | 8,200                | 96,000             | 27                            | 126                                     | 820                                   |
| Italy . .       | 1,900                  | 5,600                | 32,000             | 25                            | 122                                     | 460                                   |
| Spain . .       | 1,200                  | 3,700                | 22,000             | 20                            | 245                                     | 360                                   |
| Scandinavia     | 1,000                  | 2,600                | 23,000             | 15                            | 123                                     | 510                                   |
| Holland . .     | 600                    | 1,600                | 8,000              | 35                            | 90                                      | 1,000                                 |
| Belgium . .     | 2,300                  | 5,000                | 56,000             | 84                            | 68                                      | 740                                   |
| Switzerland     | 600                    | 1,800                | 9,000              | 33                            | 67                                      | 1,000                                 |
| Roumania, &c.   | 2,700                  | 5,400                | 61,000             | 72                            | ...                                     | ...                                   |
| Europe . .      | 56,500                 | 116,500              | 1,360,000          | 44                            | 70                                      | 560                                   |
| U. States . .   | 23,600                 | 18,000               | 804,000            | 18                            | 40                                      | 740                                   |
| Canada . .      | 1,500                  | 1,300                | 38,000             | 12                            | 105                                     | 480                                   |
| Spanish America | 3,000                  | 1,800                | 82,000             | 14                            | 55                                      | ...                                   |
| Australia . .   | 2,300                  | 2,100                | 69,000             | 23                            | 26                                      | 250                                   |
| India . .       | 3,000                  | 1,900                | 82,000             | 20                            | 18                                      | 270                                   |
| Various . .     | 4,100                  | 8,400                | 75,000             | 44                            | ...                                     | ...                                   |
| Total . .       | 99,000                 | 150,000              | 2,510,000          | 28                            | 63                                      | 570                                   |

A French scientific journal in 1890 states that Europe has 61,000 locomotives, and the rest of the world 43,000, making a total of 104,000; it adds that England has 80 per 100 miles of railway, Germany 53, and France 47.

The increase of rolling-stock in ten years was very great :—

|             | Europe    |           | The World |           |
|-------------|-----------|-----------|-----------|-----------|
|             | 1875      | 1885      | 1875      | 1885      |
| Locomotives | 42,000    | 56,500    | 62,000    | 99,000    |
| Carriages   | 90,000    | 116,500   | 112,000   | 150,000   |
| Waggons     | 1,000,000 | 1,360,000 | 1,470,000 | 2,510,000 |

Jeans adds that the above rolling-stock in 1875 carried 1371 million passengers and 715 million tons of goods.

The weight of rail in England varies from 28 to 76 lbs. per yard. In 1882 the tonnage of rails in various countries was as follows (an estimate for 1888 is added) :—

|                | Tons of Rails |            |            | Tons per<br>Mile of<br>Rail | Tons Estimate<br>in 1888 |
|----------------|---------------|------------|------------|-----------------------------|--------------------------|
|                | Iron          | Steel      | Total      |                             |                          |
| United Kingdom | 1,980,000     | 2,410,000  | 4,390,000  | 240                         | 4,750,000                |
| France . .     | 1,570,000     | 1,715,000  | 3,285,000  | 202                         | 4,000,000                |
| Germany . .    | 2,550,000     | 1,570,000  | 4,120,000  | 195                         | 4,650,000                |
| Russia . .     | 820,000       | 920,000    | 1,740,000  | 126                         | 2,200,000                |
| Austria . .    | 930,000       | 700,000    | 1,630,000  | 128                         | 2,100,000                |
| Belgium . .    | 265,000       | 255,000    | 520,000    | 210                         | 600,000                  |
| Various . .    | 2,215,000     | 1,620,000  | 3,835,000  | 150                         | 4,400,000                |
| Europe . .     | 10,330,000    | 9,190,000  | 19,520,000 | 182                         | 22,700,000               |
| United States  | 7,200,000     | 5,200,000  | 12,400,000 | 118                         | 18,600,000               |
| Colonies, &c.  | 3,200,000     | 3,100,000  | 6,300,000  | 110                         | 7,800,000                |
| Total . .      | 20,730,000    | 17,490,000 | 38,220,000 | 152                         | 49,100,000               |

The following table shows the steepest gradients in some of the most difficult railways :—

|                 | Per Cent. |                | Per Cent. |
|-----------------|-----------|----------------|-----------|
| Mont Cenis . .  | 3.0       | Oroya . .      | 6.0       |
| Genoa-Turin . . | 3.5       | Utlberg . .    | 7.0       |
| Darjeeling . .  | 4.0       | Cantagallo . . | 9.5       |
| Tiflis . .      | 4.5       | Righi . .      | 28.0      |
| Einsiedlen . .  | 5.0       | Vesuvius . .   | 63.0      |

The Righi is in one part as steep as a staircase, the Vesuvius as a ladder. Resistance increases with gradient, and if the normal figure be adopted of 8 lbs. per ton on level way, the resistance at various gradients will be :—

| Gradient     | Lbs. per Ton | Gradient     | Lbs. per Ton |
|--------------|--------------|--------------|--------------|
| 1 in 100 . . | 15           | 5 in 100 . . | 45           |
| 3 " . .      | 30           | 10 " . .     | 83           |

Resistance likewise increases with speed as follows, on level way :—

| Miles per Hour | Lbs. per Ton | Miles per Hour | Lbs. per Ton |
|----------------|--------------|----------------|--------------|
| 10 . .         | 8            | 40 . .         | 26           |
| 20 . .         | 14           | 50 . .         | 33           |
| 30 . .         | 17           | 60 . .         | 51           |

The resistance on a railway is only one-third of what it is on an ordinary highroad.

The standard gauge of the world may be said to be 4 ft. 8½ inches. In 1885 the lines were summed up thus :—

| Gauge                    | Miles   | Ratio |
|--------------------------|---------|-------|
| 4 ft. 8½ in. . . .       | 224,000 | 74.0  |
| Under 4 ft. 8½ in. . . . | 42,400  | 14.0  |
| Over 4 ft. 8½ in. . . .  | 36,600  | 12.0  |
| Total . .                | 303,000 | 100.0 |

Steel rails average 130 tons per mile of way, iron 145 tons. The consumption of iron and steel for railways has been approximately as follows :—

| Period          | Europe, Tons | The World, Tons |
|-----------------|--------------|-----------------|
| 1825-40 . . . . | 400,000      | 800,000         |
| 1841-60 . . . . | 8,500,000    | 12,500,000      |
| 1861-70 . . . . | 10,100,000   | 14,000,000      |
| 1871-80 . . . . | 13,200,000   | 23,400,000      |
| 1881-88 . . . . | 12,800,000   | 32,300,000      |
| Total . .       | 45,000,000   | 83,000,000      |

The railways of greatest elevation are the following :—

| Line                | Over the        | Feet Over Sea-Level | Date of Construction |
|---------------------|-----------------|---------------------|----------------------|
| Semmering . . . .   | Alps . . . .    | 2,970               | 1854                 |
| Santos—San Paulo    | Serra Cubaton . | 3,500               | 1866                 |
| St. Gothard . . . . | Alps . . . .    | 3,780               | 1882                 |
| Mont Cenis . . . .  | Alps . . . .    | 4,290               | 1871                 |
| Aarberg . . . . .   | Alps . . . .    | 4,320               | 1884                 |
| Bremer . . . . .    | Alps . . . .    | 4,450               | 1867                 |
| Union Pacific . . . | Rocky Mountns.  | 8,573               | 1869                 |
| Uspallata . . . . . | Andes . . . .   | 10,570              | 1890                 |
| Mollendo . . . . .  | Andes . . . .   | 14,610              | 1878                 |
| Lima-Oroya . . . .  | Andes . . . .   | 15,840              | 1874                 |

All the above are working except Clark's line over the Uspallata Pass, which will establish direct transit from Buenos Ayres to Valparaiso, and approaches com-

pletion. The Union Pacific has a length of 1780 miles, of which 300 are through mountains. The cost was £38,800,000, including a subsidy of £11,000,000 from Congress: it was begun in 1862, and the first train ran from Chicago on May 1, 1869, for the terminus on the Pacific at San Francisco. The company received, moreover, a grant of 34,000 square miles of land, or 23 million acres, in alternate lots 20 miles deep on either side of the line. The cost of construction was £22,000 per mile, varying from £11,000 in level country to £36,000 a mile in the Rocky Mountains.

The saving which railways have effected for the public welfare in the matter of freight charges has been computed in different countries. In Prussia, in 1878, it was estimated at £6300 a mile for goods and passengers; in Great Britain, in 1848, at £1500 for passengers only. It may be roughly estimated that railways as a rule have caused a saving to the public of each country equal to at least 10 per cent. per annum on the cost of construction.

The following table, according to latest returns, shows the number of persons killed or wounded by railways :—

|                        | Killed     |        |       | Wounded    |        |        | Killed or Wounded | Per Million Passengers |
|------------------------|------------|--------|-------|------------|--------|--------|-------------------|------------------------|
|                        | Passengers | Others | Total | Passengers | Others | Total  |                   |                        |
| United Kingdom . . . . | 183        | 956    | 1,139 | 1,829      | 2,944  | 4,773  | 5,912             | 7.2                    |
| France . . . . .       | 39         | 336    | 375   | 131        | 498    | 629    | 1,004             | 4.6                    |
| Germany . . . . .      | 27         | 436    | 463   | 107        | 1,227  | 1,334  | 1,797             | 5.7                    |
| Russia . . . . .       | 19         | 425    | 444   | 88         | 609    | 697    | 1,141             | 30.0                   |
| Austria . . . . .      | 5          | 241    | 246   | 16         | 569    | 585    | 831               | 13.0                   |
| Italy . . . . .        | 5          | 116    | 121   | 62         | 1,109  | 1,171  | 1,292             | 28.0                   |
| Spain . . . . .        | 22         | 80     | 102   | 130        | 124    | 254    | 356               | 24.0                   |
| Portugal . . . . .     | 1          | 7      | 8     | 7          | 16     | 23     | 31                | 10.3                   |
| Sweden . . . . .       | 3          | 26     | 29    | ...        | 42     | 42     | 71                | 7.1                    |
| Norway . . . . .       | ...        | 8      | 8     | ...        | 1      | 1      | 9                 | 3.0                    |
| Denmark . . . . .      | ...        | ...    | 11    | ...        | ...    | 56     | 67                | 7.4                    |
| Holland . . . . .      | 4          | 37     | 41    | 4          | 31     | 35     | 76                | 4.2                    |
| Belgium . . . . .      | 7          | 145    | 152   | 60         | 640    | 700    | 852               | 11.6                   |
| Switzerland . . . . .  | 8          | 34     | 42    | 6          | 194    | 200    | 242               | 9.0                    |
| Europe . . . . .       | 323        | 2,847  | 3,181 | 2,440      | 8,004  | 10,500 | 13,681            | 8.2                    |

The railways of the United Kingdom pay £1400 a day compensation, of which 60 per cent. for damage to passengers, 40 per cent. to goods. In other countries the amount is unknown.

#### UNITED KINGDOM

The first regular railway for carrying passengers was opened from Stockton to Darlington, 27th September 1825.

The following table shows the development of railways :—

| Year | Miles Open | Cost, £     | Receipts, £ | Expenses, £ | Passengers Carried |
|------|------------|-------------|-------------|-------------|--------------------|
| 1843 | 1,950      | 65,500,000  | 4,540,000   | ...         | ...                |
| 1846 | 3,040      | 126,300,000 | 7,570,000   | ...         | 43,800,000         |
| 1850 | 6,620      | 240,300,000 | 13,200,000  | ...         | 72,900,000         |
| 1855 | 8,280      | 297,600,000 | 21,500,000  | 10,300,000  | 118,600,000        |
| 1860 | 10,430     | 348,100,000 | 27,800,000  | 13,200,000  | 163,500,000        |
| 1870 | 15,540     | 529,900,000 | 43,400,000  | 21,700,000  | 330,200,000        |
| 1880 | 17,930     | 728,300,000 | 63,000,000  | 33,600,000  | 603,900,000        |
| 1888 | 19,810     | 864,700,000 | 72,900,000  | 37,800,000  | 742,500,000        |

Holders of season-tickets are not counted; add 10 per cent. for them.

The mileage and traffic of the three kingdoms showed as follows :—

|                    | Miles  |        | Cost, £     |             | Receipts, £ per Mile |       | Expenses, £ per Mile |       |
|--------------------|--------|--------|-------------|-------------|----------------------|-------|----------------------|-------|
|                    | 1880   | 1888   | 1880        | 1888        | 1880                 | 1888  | 1880                 | 1888  |
| England . . . . .  | 7,580  | 13,980 | 289,000,000 | 714,000,000 | 3,090                | 4,430 | 1,490                | 2,310 |
| Scotland . . . . . | 1,490  | 3,100  | 39,000,000  | 114,100,000 | 1,990                | 2,580 | 905                  | 1,240 |
| Ireland . . . . .  | 1,360  | 2,730  | 20,100,000  | 36,600,000  | 1,030                | 1,060 | 440                  | 560   |
| United Kingdom . . | 10,430 | 19,810 | 348,100,000 | 864,700,000 | 2,670                | 3,680 | 1,270                | 1,910 |

The earnings and expenditure of thirty-four years are summed up thus :—

| Period             | Earnings, Millions £ |            |       | Expenses, Millions £ | Net Revenue, Millions £ |
|--------------------|----------------------|------------|-------|----------------------|-------------------------|
|                    | Passengers           | Goods, &c. | Total |                      |                         |
| 1855-59 . . . . .  | 58                   | 61         | 119   | 64                   | 55                      |
| 1860-69 . . . . .  | 159                  | 185        | 344   | 169                  | 175                     |
| 1870-79 . . . . .  | 242                  | 312        | 554   | 275                  | 279                     |
| 1880-88 . . . . .  | 265                  | 336        | 601   | 302                  | 299                     |
| 34 years . . . . . | 724                  | 894        | 1618  | 810                  | 808                     |

In the first period, ending 1859, the passenger earnings were 49 per cent. of the total; in the second, ending 1869, they fell to 46 per cent.; in the third, ending 1879, to 44 per cent.; and in the fourth, ending 1888, they were likewise 44 per cent.

The following table (allowing mean average for missing years) shows the traffic during the same period, adding 10 per cent. for holders of season-tickets to the number of passengers :—

| Period         | Passengers, Millions | Goods, Millions Tons | Earnings, Pence |         |
|----------------|----------------------|----------------------|-----------------|---------|
|                |                      |                      | Per Passenger   | Per Ton |
| 1855-59 . . .  | 740                  | 348                  | 18              | 42      |
| 1860-69 . . .  | 2,620                | 1,160                | 15              | 38      |
| 1870-79 . . .  | 5,270                | 1,923                | 11              | 39      |
| 1880-88 . . .  | 6,780                | 2,328                | 9               | 35      |
| 34 years . . . | 15,410               | 5,759                | 11              | 37      |

The aggregate traffic for ten years ending December 1888 showed the three kingdoms as follows :—

|                | Mean                |        | Passengers, Millions Carried | Goods, Millions Tons | Ten Years, Millions £ |           |        |
|----------------|---------------------|--------|------------------------------|----------------------|-----------------------|-----------|--------|
|                | Capital, Millions £ | Miles  |                              |                      | Earnings              | Ex-penses | Profit |
| England . . .  | 660                 | 13,300 | 6,580                        | 2,165                | 588                   | 308       | 280    |
| Scotland . . . | 101                 | 3,000  | 601                          | 344                  | 75                    | 38        | 37     |
| Ireland . . .  | 35                  | 2,500  | 205                          | 37                   | 27                    | 15        | 12     |
| U. Kingdom . . | 796                 | 18,800 | 7,386                        | 2,546                | 690                   | 361       | 329    |

From the above we derive the following averages :—

|                    | Cost per Mile, £ | Yearly Traffic per Mile |             | Annual Mileage |             |           | Interest on Capital per Cent. |
|--------------------|------------------|-------------------------|-------------|----------------|-------------|-----------|-------------------------------|
|                    |                  | Passengers              | Goods, Tons | Earnings, £    | Expenses, £ | Profit, £ |                               |
| England . . . . .  | 49,600           | 49,400                  | 16,200      | 4,410          | 2,310       | 2,100     | 4.2                           |
| Scotland . . . . . | 33,700           | 20,000                  | 11,500      | 2,500          | 1,270       | 1,230     | 3.7                           |
| Ireland . . . . .  | 14,000           | 8,200                   | 1,500       | 1,080          | 600         | 480       | 3.4                           |
| United Kingdom . . | 42,200           | 39,300                  | 13,500      | 3,670          | 1,920       | 1,750     | 4.1                           |

The cost, traffic, and mileage earnings for the whole United Kingdom at various dates showed thus :—

| Year           | Cost, £ | Passengers | Tons, Goods | Receipts, £ | Expenses, £ | Profit, £ | Interest on Capital per Cent. |
|----------------|---------|------------|-------------|-------------|-------------|-----------|-------------------------------|
| 1845 . . . . . | 35,900  | 15,700     | ...         | 2,590       | 1,240       | 1,350     | 3.7                           |
| 1860 . . . . . | 33,400  | 17,300     | 8,500       | 2,670       | 1,270       | 1,400     | 4.2                           |
| 1870 . . . . . | 34,200  | 23,400     | 10,300      | 2,800       | 1,400       | 1,400     | 4.1                           |
| 1880 . . . . . | 40,700  | 37,100     | 13,100      | 3,520       | 1,880       | 1,640     | 4.0                           |
| 1888 . . . . . | 43,600  | 41,200     | 14,200      | 3,680       | 1,910       | 1,770     | 4.1                           |

The goods traffic returns for 1870 were lost : the above mileage is the medium between the preceding and succeeding years. The number of passengers killed or injured at various dates in the United Kingdom was as follows :—

| Year           | Passengers Carried | Killed or Injured | Per Million |
|----------------|--------------------|-------------------|-------------|
| 1846 . . . . . | 48,200,000         | 151               | 3.2         |
| 1855 . . . . . | 130,400,000        | 321               | 2.5         |
| 1864 . . . . . | 252,000,000        | 711               | 2.8         |
| 1873 . . . . . | 501,000,000        | 1,542             | 3.1         |
| 1888 . . . . . | 816,000,000        | 1,515             | 1.9         |

In the above table 10 per cent. for season-ticket holders is added. The number of killed or injured on railways, including servants and trespassers, is much greater than that given above, which applies only to passengers.

The last four years show thus :—

| Year           | Killed | Injured | Total |
|----------------|--------|---------|-------|
| 1886 . . . . . | 938    | 3,539   | 4,477 |
| 1887 . . . . . | 919    | 3,590   | 4,509 |
| 1888 . . . . . | 905    | 3,826   | 4,731 |
| 1889 . . . . . | 1,076  | 4,836   | 5,912 |

The returns for 1889 were made up thus :—

|                        | Killed | Injured | Total |
|------------------------|--------|---------|-------|
| Passengers . . . . .   | 183    | 1,829   | 2,012 |
| Railway servants . . . | 435    | 2,769   | 3,204 |
| Trespassers . . . . .  | 351    | 122     | 473   |
| Various . . . . .      | 170    | 53      | 223   |
| Total . . . . .        | 1,139  | 4,773   | 5,912 |

The block system, which is considered a safeguard against collisions, is used as follows :—

|                    | Miles  | Ratio of Total |
|--------------------|--------|----------------|
| England . . . . .  | 12,160 | 94 per cent.   |
| Scotland . . . . . | 2,310  | 82 "           |
| Ireland . . . . .  | 570    | 21 "           |
| United Kingdom . . | 15,040 | 76 "           |

The number of passengers by the several classes in the United Kingdom were as follows in 1889 :—

| Class           | Number      | Ratio |
|-----------------|-------------|-------|
| 1st . . . . .   | 30,100,000  | 3.9   |
| 2nd . . . . .   | 62,700,000  | 8.1   |
| 3rd . . . . .   | 682,400,000 | 88.0  |
| Total . . . . . | 775,200,000 | 100.0 |

The above, however, counts 1,271,000 season-ticket holders for only one journey each, whereas it is believed they should stand for 77,500,000, or 10 per cent. extra added to the traffic. Dividing them evenly between 1st and 2nd class (by which such subscribers usually travel) the result is as follows :—

| Class           | Number      | Ratio |
|-----------------|-------------|-------|
| 1st . . . . .   | 69,000,000  | 8.1   |
| 2nd . . . . .   | 101,500,000 | 11.9  |
| 3rd . . . . .   | 682,500,000 | 80.0  |
| Total . . . . . | 853,000,000 | 100.0 |

The above estimate, as already stated, allows for holders of season-tickets six journeys yearly, which is, doubtless, below the reality.

## FRANCE

The length of lines at various dates was as follows:—

|           | Miles |       |       |       |        |        |
|-----------|-------|-------|-------|-------|--------|--------|
|           | 1841  | 1850  | 1860  | 1870  | 1880   | 1888   |
| State     | ...   | ...   | ...   | ...   | 1,400  | 1,550  |
| Companies | 360   | 1,890 | 5,880 | 9,770 | 14,880 | 19,210 |
| Total     | 360   | 1,890 | 5,880 | 9,770 | 16,280 | 20,760 |

The first line was opened to traffic in 1828, the first Government line constructed in 1878. In the following returns of traffic since 1841 the number of miles working in 1880 appears to have been less than that of lines completed.

| Year | Miles  | Passengers  | Goods, Tons | Average per Mile |       |
|------|--------|-------------|-------------|------------------|-------|
|      |        |             |             | Passengers       | Goods |
| 1841 | 360    | 6,400,000   | 1,100,000   | 17,500           | 3,000 |
| 1850 | 1,890  | 18,700,000  | 4,300,000   | 9,900            | 2,300 |
| 1860 | 5,880  | 56,500,000  | 23,000,000  | 9,600            | 4,000 |
| 1870 | 9,770  | 102,600,000 | 37,100,000  | 10,500           | 3,800 |
| 1880 | 14,500 | 165,000,000 | 80,800,000  | 11,400           | 5,500 |
| 1887 | 19,700 | 218,400,000 | 78,100,000  | 11,000           | 4,000 |

The mileage statistics were as follows:—

| Year | Per Mile     |              |           | Pence, per Mile |            | Per-centage of Ex-penses |
|------|--------------|--------------|-----------|-----------------|------------|--------------------------|
|      | Earn-ings, £ | Ex-penses, £ | Profit, £ | Pas-senger      | Ton, Goods |                          |
| 1843 | 1,810        | 970          | 840       | 1.08            | 1.71       | 53.6                     |
| 1850 | 2,080        | 990          | 1,090     | 1.01            | 1.56       | 47.6                     |
| 1860 | 2,890        | 1,300        | 1,590     | 0.90            | 1.10       | 45.0                     |
| 1870 | 2,550        | 1,230        | 1,320     | 0.78            | 0.97       | 48.2                     |
| 1880 | 2,830        | 1,410        | 1,420     | 0.80            | 0.95       | 49.8                     |
| 1887 | 2,110        | 1,090        | 1,020     | 0.70            | 0.95       | 51.6                     |

Counting the goods traffic by kilometer tons, that is, the number of tons carried one kilometer, and reducing it to English form by the number of tons carried 100 miles, we find as follows:—

| Year | Millions of Kilometer Tons | Tons Carried 100 Miles |
|------|----------------------------|------------------------|
| 1843 | 59                         | 378,000                |
| 1850 | 314                        | 1,980,000              |
| 1860 | 3,119                      | 19,700,000             |
| 1870 | 5,057                      | 31,900,000             |
| 1880 | 10,350                     | 65,200,000             |
| 1885 | 9,790                      | 61,700,000             |

As the actual number of tons carried in 1885 was 75,200,000, it appears that the average haulage of each ton of goods was 83 miles, against 80 miles in 1880.

Passenger traffic in 1885 showed as follows:—

| Class | Number      | Ratio |
|-------|-------------|-------|
| 1st   | 16,200,000  | 7.5   |
| 2nd   | 73,000,000  | 34.0  |
| 3rd   | 125,200,000 | 58.0  |

Total . . . 214,400,000 100.0

When railways were first made, in 1845, the cost of construction averaged thus per mile:—

|                      | £      | Ratio |
|----------------------|--------|-------|
| Land                 | 2,540  | 8.0   |
| Earthworks           | 11,430 | 36.0  |
| Rails, engines, cars | 12,700 | 40.0  |
| Stations, &c.        | 5,080  | 16.0  |

Total . . . 31,750 100.0

Subsequently, however, the cost diminished (being the reverse of what occurred in England), and the average

on 31st December 1885 for all railways then running in France was exactly £27,000 per mile. The number of railway servants at that date was 232,000. The following table shows approximately the number of passengers and that of tons of goods carried from 1841 to 1887:—

| Period   | Millions   |       |
|----------|------------|-------|
|          | Passengers | Tons  |
| 1841-49  | 90         | 18    |
| 1850-59  | 320        | 110   |
| 1860-69  | 810        | 330   |
| 1870-79  | 1,320      | 560   |
| 1880-87  | 1,608      | 650   |
| 47 years | 4,148      | 1,668 |

The earnings and expenses in thirty-nine years were approximately as follows:—

| Period   | Earnings, Millions £ | Expenses, Millions £ | Profit, Millions £ |
|----------|----------------------|----------------------|--------------------|
| 1850-59  | 97                   | 45                   | 52                 |
| 1860-69  | 211                  | 98                   | 113                |
| 1870-79  | 327                  | 161                  | 166                |
| 1880-88  | 374                  | 194                  | 180                |
| 39 years | 1,009                | 498                  | 511                |

## GERMANY

The statistics for Prussia and other States show thus:—

| Year | Miles Open |         |        |             |       |         |        |
|------|------------|---------|--------|-------------|-------|---------|--------|
|      | Prussia    | Bavaria | Saxony | Wur-temberg | Baden | Various | Total  |
| 1840 | 106        | 42      | 79     | ...         | 16    | 98      | 341    |
| 1850 | 1,770      | 370     | 290    | 160         | 170   | 880     | 3,640  |
| 1860 | 3,450      | 1,130   | 470    | 210         | 220   | 1,500   | 6,980  |
| 1870 | 6,860      | 1,690   | 710    | 650         | 600   | 1,220   | 11,730 |
| 1880 | 12,640     | 3,000   | 1,300  | 840         | 820   | 2,090   | 20,690 |
| 1888 | 15,255     | 3,320   | 1,585  | 985         | 860   | 2,265   | 24,270 |

Hanoverian railways, which were included in the column "Various" down to 1860, were amalgamated with those of Prussia after the conquest in 1866. The returns for the whole German Empire show:—

| Year | Miles Open | Cost, Mil-lions £ | Receipts, £ | Expenses, £ | Profit, £  | Interest on Capital, Per Cent. |
|------|------------|-------------------|-------------|-------------|------------|--------------------------------|
| 1868 | 10,600     | 169               | 22,300,000  | 11,200,000  | 11,100,000 | 6.5                            |
| 1870 | 11,730     | 204               | 25,300,000  | 12,800,000  | 12,500,000 | 6.1                            |
| 1880 | 20,690     | 431               | 43,300,000  | 25,200,000  | 18,100,000 | 4.2                            |
| 1888 | 24,270     | 495               | 54,600,000  | 29,300,000  | 25,300,000 | 5.1                            |

The traffic and rolling-stock are shown below, kilo-metric passengers and tons being reduced to English form as passengers travelling 10 miles, goods 100 miles average.

| Year | Kilometric, Millions |             | Millions of Passengers, 10 Miles | Millions of Tons, 100 Miles | Locomotives | Cars   | Waggons |
|------|----------------------|-------------|----------------------------------|-----------------------------|-------------|--------|---------|
|      | Pas-sengers          | Goods, Tons |                                  |                             |             |        |         |
| 1868 | 3,213                | 5,042       | 203                              | 32                          | 4,640       | 8,920  | 98,440  |
| 1870 | 4,372                | 5,336       | 275                              | 34                          | 5,460       | 10,430 | 113,570 |
| 1875 | 5,994                | 10,392      | 378                              | 66                          | 9,940       | 17,520 | 206,000 |
| 1880 | 6,149                | 12,224      | 389                              | 77                          | 10,840      | 19,800 | 220,000 |
| 1887 | 8,385                | 16,516      | 527                              | 104                         | 12,750      | 23,440 | 256,000 |



The value of rolling-stock in 1887 was £75,800,000; it had a capacity for carrying 1,020,000 passengers, and 2,750,000 tons of merchandise.

Prussian railways showed as follows from 1844 to 1878:—

| Year    | Kilometric Millions |             | Passengers,<br>10 Miles | Tons, 100<br>Miles |
|---------|---------------------|-------------|-------------------------|--------------------|
|         | Passengers          | Goods, Tons |                         |                    |
| 1844-50 | 130                 | 20          | 8,000,000               | 130,000            |
| 1850-55 | 420                 | 190         | 26,000,000              | 1,200,000          |
| 1860-65 | 870                 | 926         | 55,000,000              | 5,830,000          |
| 1870-75 | 3,020               | 4,044       | 196,000,000             | 25,700,000         |
| 1878    | 3,740               | 8,033       | 235,000,000             | 50,600,000         |

The total carried in thirty-five years was as follows:—

| Period   | Kilometric Millions |             | Millions of<br>Passengers,<br>10 Miles | Millions of<br>Tons, 100<br>Miles |
|----------|---------------------|-------------|----------------------------------------|-----------------------------------|
|          | Passengers          | Goods, Tons |                                        |                                   |
| 1844-50  | 1,730               | 611         | 109                                    | 4                                 |
| 1851-60  | 6,100               | 6,297       | 384                                    | 40                                |
| 1861-70  | 16,530              | 24,412      | 1,040                                  | 153                               |
| 1871-78  | 28,710              | 55,767      | 1,810                                  | 351                               |
| 35 years | 53,070              | 87,087      | 3,343                                  | 548                               |

In 1879 the following statement was published, showing the saving of freight charges and passengers fares effected by the railways of Prussia in the above period, estimating the old charges at 27 silbergroschen for a ton of goods carried 10 kilometers, and a passenger at 40 silbergroschen the same distance:—

| Period   | Waggon Fares,<br>Millions £ |                 |       | Railway Fares,<br>Millions £ |                 |       | Savings,<br>Millions £ |
|----------|-----------------------------|-----------------|-------|------------------------------|-----------------|-------|------------------------|
|          | Goods                       | Passen-<br>gers | Total | Goods                        | Passen-<br>gers | Total |                        |
| 1844-50  | 8                           | 5               | 13    | 3                            | 4               | 7     | 6                      |
| 1851-60  | 84                          | 16              | 100   | 25                           | 14              | 39    | 61                     |
| 1861-70  | 326                         | 44              | 370   | 71                           | 31              | 102   | 268                    |
| 1871-78  | 744                         | 77              | 821   | 136                          | 52              | 188   | 633                    |
| 35 years | 1,162                       | 142             | 1,304 | 235                          | 101             | 336   | 968                    |

Traffic returns for Russia showed as follows:—

| Year | Miles  | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £     |
|------|--------|------------|-------------|-------------|-------------|------------|
| 1870 | 7,100  | 14,400,000 | 7,700,000   | ...         | ...         | ...        |
| 1880 | 14,020 | 33,700,000 | 37,500,000  | 19,300,000  | 15,200,000  | 4,100,000  |
| 1887 | 18,380 | 38,200,000 | 50,400,000  | 25,300,000  | 14,400,000  | 10,900,000 |

|             | Per Mile |       |       |
|-------------|----------|-------|-------|
|             | 1870     | 1880  | 1887  |
| Passengers  | 2,030    | 2,400 | 2,080 |
| Goods, tons | 1,090    | 2,690 | 2,740 |
| Receipts, £ | ...      | 1,380 | 1,380 |
| Expenses, £ | ...      | 1,090 | 790   |
| Net, £      | ...      | 290   | 590   |

The total mileage in 1887 was made up thus:—

|                 | Miles  |
|-----------------|--------|
| European Russia | 16,760 |
| Finland         | 960    |
| Central Asia    | 660    |
| Total           | 18,380 |

At that time (1878) the cost of construction had reached 240 millions sterling; the saving which the railways effected to the benefit of the Prussian people was therefore four times what the lines had cost to make. If it be supposed that the traffic per mile on the other German lines was the same as on the Prussian, the business of all Germany since 1844 would be approximately as follows:—

| Period   | Millions of<br>Passengers,<br>10 Miles | Millions of<br>Tons<br>Goods, 100<br>Miles | Receipts,<br>Millions £ | Expenses,<br>Millions £ | Net<br>Earnings,<br>Millions £ |
|----------|----------------------------------------|--------------------------------------------|-------------------------|-------------------------|--------------------------------|
| 1844-50  | 229                                    | 9                                          | 15                      | ...                     | ...                            |
| 1851-60  | 776                                    | 82                                         | 80                      | ...                     | ...                            |
| 1861-70  | 1,890                                  | 281                                        | 186                     | ...                     | ...                            |
| 1871-80  | 3,720                                  | 726                                        | 398                     | 236                     | 162                            |
| 1881-87  | 3,220                                  | 630                                        | 341                     | 193                     | 148                            |
| 44 years | 9,835                                  | 1,728                                      | 1,020                   | ...                     | ...                            |

The distinction between State and Companies' lines is shown as follows in English miles:—

|            | State |        | Companies |       | Total  |        |
|------------|-------|--------|-----------|-------|--------|--------|
|            | 1875  | 1888   | 1875      | 1888  | 1875   | 1888   |
| Prussia    | 4,280 | 14,120 | 5,590     | 1,135 | 9,870  | 15,255 |
| Bavaria    | 1,580 | 2,890  | 880       | 430   | 2,460  | 3,320  |
| Saxony     | 740   | 1,520  | 360       | 65    | 1,100  | 1,585  |
| Wurtemberg | 790   | 970    | 10        | 15    | 800    | 985    |
| Baden      | 650   | 800    | 60        | 60    | 710    | 860    |
| Hesse, &c. | 590   | 800    | 1,490     | 1,465 | 2,080  | 2,265  |
| Total      | 8,630 | 21,100 | 8,390     | 3,070 | 17,020 | 24,270 |

The total mileage in 1889 was 25,450, representing a cost of about 527 millions sterling. Railway employees numbered 343,000.

#### RUSSIA

The first line, 16 miles, was opened from St. Petersburg to Charsko-Selo in 1837, the second in 1844, the mileage increasing as follows:—

| Year | Miles | Year | Miles  |
|------|-------|------|--------|
| 1840 | 16    | 1870 | 7,100  |
| 1850 | 310   | 1880 | 14,020 |
| 1860 | 990   | 1887 | 18,380 |

The respective mileages of Government lines and those belonging to companies are shown thus:—

|            | 1870  | 1886   |
|------------|-------|--------|
| Government | 730   | 2,250  |
| Companies  | 6,370 | 14,000 |
| Total      | 7,100 | 16,250 |

All the companies' lines enjoy concessions or guarantees. The rolling-stock in 1884 comprised 5810 locomotives and 121,000 carriages and waggons. In the same year there were 420 persons killed and 634 injured, of whom passengers were 25 and 85 respectively.

## AUSTRIA

Official tables give the following mileage :—

| Year | Austria | Hungary | Total  | State Lines | Companies' Lines |
|------|---------|---------|--------|-------------|------------------|
| 1840 | 90      | ...     | 90     | ...         | 90               |
| 1850 | 820     | 140     | 960    | 640         | 320              |
| 1860 | 1,810   | 1,000   | 2,810  | ...         | 2,810            |
| 1870 | 3,790   | 2,160   | 5,950  | 230         | 5,720            |
| 1880 | 7,080   | 4,420   | 11,500 | 2,240       | 9,260            |
| 1888 | 9,260   | 6,350   | 15,610 | 7,020       | 8,590            |

In the last-mentioned year 340 miles of Bosnian lines are counted as Austrian. The traffic for the whole Empire at various dates was as follows :—

| Year | Passengers | Goods, Tons | Receipts, £ | Per Mile   |       |
|------|------------|-------------|-------------|------------|-------|
|      |            |             |             | Passengers | Tons  |
| 1863 | 15,000,000 | ...         | 7,400,000   | 4,700      | ...   |
| 1870 | 21,500,000 | 24,500,000  | 13,200,000  | 3,600      | 4,100 |
| 1880 | 40,500,000 | 54,400,000  | 21,100,000  | 3,500      | 4,700 |
| 1887 | 65,400,000 | 78,600,000  | 20,800,000  | 4,600      | 5,100 |

The receipts in 1889 rose to £23,300,000, being at the rate of £1500 a mile. Capital, earnings, and expenditure at various dates compare as follows :—

| Year | Miles  | Cost, Millions £ | Per Mile, £ |          |         |     |
|------|--------|------------------|-------------|----------|---------|-----|
|      |        |                  | Cost        | Earnings | Expense | Net |
| 1870 | 5,950  | 120              | 20,200      | 2,220    | 1,280   | 940 |
| 1880 | 11,500 | 255              | 22,200      | 1,840    | 1,470   | 370 |
| 1887 | 15,050 | 298              | 19,800      | 1,390    | 780     | 610 |

Traffic returns on the railways of Italy at various dates compare as follows :—

| Year | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £    |
|------|-------|------------|-------------|-------------|-------------|-----------|
| 1875 | 4,770 | 28,000,000 | 7,200,000   | 5,800,000   | 3,900,000   | 1,900,000 |
| 1880 | 5,340 | 32,500,000 | 9,300,000   | 7,200,000   | 4,300,000   | 2,900,000 |
| 1887 | 7,330 | 45,500,000 | 15,400,000  | 9,400,000   | 6,200,000   | 3,200,000 |

Averages per mile were as follows :—

| Year | Construction, £ | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £ |
|------|-----------------|------------|-------------|-------------|-------------|--------|
| 1875 | 19,300          | 5,900      | 1,500       | 1,220       | 820         | 400    |
| 1880 | 19,600          | 6,100      | 1,700       | 1,350       | 800         | 550    |
| 1887 | 17,800          | 6,200      | 2,100       | 1,290       | 850         | 440    |

Returns on capital showed as follows :—

| Year | Cost, Millions £ | Net Earnings, £ | Percentage |
|------|------------------|-----------------|------------|
| 1875 | 92               | 1,900,000       | 2.1        |
| 1880 | 105              | 2,900,000       | 2.8        |
| 1887 | 122              | 3,200,000       | 2.6        |

Passenger and goods traffic showed the following earnings :—

| Year | Passengers, £ | Goods, £  | Pence         |         |
|------|---------------|-----------|---------------|---------|
|      |               |           | Per Passenger | Per Ton |
| 1875 | 2,700,000     | 3,100,000 | 23            | 103     |
| 1880 | 3,000,000     | 4,200,000 | 22            | 108     |
| 1887 | 3,800,000     | 5,600,000 | 20            | 87      |

The net return on capital invested was as follows :—

| Year | Cost, £     | Net Earnings, £ | Percentage |
|------|-------------|-----------------|------------|
| 1870 | 120,000,000 | 5,600,000       | 4.7        |
| 1880 | 255,000,000 | 4,200,000       | 1.6        |
| 1887 | 298,000,000 | 9,100,000       | 3.1        |

Excluding 340 miles of Bosnian lines, the mileage in 1888 was made up thus :—

|               | Austria | Hungary | Total  |
|---------------|---------|---------|--------|
| State lines   | 3,650   | 3,370   | 7,020  |
| Company lines | 5,270   | 2,980   | 8,250  |
| Total         | 8,920   | 6,350   | 15,270 |

## ITALY

The official returns of mileage show thus :—

| Year | Miles | Year | Miles |
|------|-------|------|-------|
| 1840 | 13    | 1870 | 3,830 |
| 1850 | 270   | 1880 | 5,340 |
| 1860 | 1,120 | 1889 | 8,130 |

The mileage of State lines and those of companies' lines were as follows :—

|           | 1870  | 1880  | 1887  |
|-----------|-------|-------|-------|
| State     | 500   | 2,380 | 5,030 |
| Companies | 3,330 | 2,960 | 2,300 |
| Total     | 3,830 | 5,340 | 7,330 |

## SPAIN

In 1848 the first railway was opened from Barcelona to Mataró, 18 miles. Progress is shown as follows :—

| Year | Miles | Year | Miles |
|------|-------|------|-------|
| 1848 | 18    | 1870 | 3,200 |
| 1855 | 300   | 1880 | 4,550 |
| 1860 | 1,190 | 1888 | 5,920 |

Traffic and earnings were as follows :—

| Year | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ |
|------|-------|------------|-------------|-------------|-------------|
| 1873 | 3,310 | 10,800,000 | 3,900,000   | 3,530,000   | ...         |
| 1880 | 4,550 | 14,800,000 | 8,100,000   | 5,570,000   | 2,450,000   |

Averages per mile were as follows :—

|      | Construction, £ | Passengers | Goods, Tons | Receipts, £ | Expenses, £ |
|------|-----------------|------------|-------------|-------------|-------------|
| 1873 | ...             | 3,300      | 1,200       | 1,070       | ...         |
| 1880 | 15,800          | 3,300      | 1,800       | 1,220       | 540         |

The cost of construction down to 1880 was officially stated thus :—

|                     |             |
|---------------------|-------------|
| State subsidies     | £28,000,000 |
| Outlay by companies | 44,000,000  |
| Total               | £72,000,000 |

If the existing lines in 1888 be taken at the same mileage cost, they will represent an outlay of £98,700,000. The ratio of working expenses is the lowest in the world, only 43 per cent. of earnings. The net earnings in 1880 were about 4½ per cent. (4.4) on the cost of construction. Later information is wanting. All the lines in Spain are owned by companies.

## PORTUGAL

The first line was in 1854, from Lisbon to Carregado, twenty-two miles. Official returns of mileage are as follows :—

| Year           | Miles | Year           | Miles |
|----------------|-------|----------------|-------|
| 1855 . . . . . | 22    | 1875 . . . . . | 640   |
| 1860 . . . . . | 42    | 1880 . . . . . | 710   |
| 1870 . . . . . | 440   | 1888 . . . . . | 1190  |

The official returns for 1881 and 1885 showed thus :—

| Year           | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ |
|----------------|-------|------------|-------------|-------------|-------------|
| 1881 . . . . . | 760   | 2,200,000  | 740,000     | 750,000     | 310,000     |
| 1885 . . . . . | 950   | 2,600,000  | 960,000     | 860,000     | 370,000     |

Averages per mile were as follows :—

| Year           | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £ |
|----------------|------------|-------------|-------------|-------------|--------|
| 1881 . . . . . | 2,900      | 970         | 990         | 410         | 580    |
| 1885 . . . . . | 2,700      | 1,010       | 900         | 390         | 510    |

Traffic returns on the railways of Sweden were as follows :—

| Year           | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £  |
|----------------|-------|------------|-------------|-------------|-------------|---------|
| 1875 . . . . . | 2,170 | 6,500,000  | 5,100,000   | 1,390,000   | 870,000     | 520,000 |
| 1880 . . . . . | 3,650 | 7,000,000  | 5,900,000   | 1,800,000   | 1,000,000   | 800,000 |
| 1887 . . . . . | 4,580 | 10,100,000 | 7,600,000   | 2,090,000   | 1,310,000   | 780,000 |

Averages per mile were as follows :—

| Year           | Construction, £ | Passengers | Goods, Tons | Receipts, £ | Expenses, £ |
|----------------|-----------------|------------|-------------|-------------|-------------|
| 1875 . . . . . | 6,300           | 3,000      | 2,400       | 640         | 400         |
| 1880 . . . . . | 6,400           | 1,900      | 1,600       | 500         | 270         |
| 1887 . . . . . | 6,100           | 2,200      | 1,700       | 470         | 290         |

Earnings showed the following returns for capital :—

| Year           | Cost, £    | Net Receipts, £ | Percentage |
|----------------|------------|-----------------|------------|
| 1875 . . . . . | 13,800,000 | 520,000         | 3.8        |
| 1880 . . . . . | 23,300,000 | 800,000         | 3.4        |
| 1887 . . . . . | 27,900,000 | 800,000         | 2.8        |

Mileage and traffic of Swedish railways in 1887 were made up thus :—

|                     | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £  |
|---------------------|-------|------------|-------------|-------------|-------------|---------|
| State . . . . .     | 1,550 | 4,000,000  | 2,500,000   | 1,030,000   | 730,000     | 300,000 |
| Companies . . . . . | 3,030 | 6,100,000  | 5,100,000   | 1,060,000   | 580,000     | 480,000 |
| Total . . . . .     | 4,580 | 10,100,000 | 7,600,000   | 2,090,000   | 1,310,000   | 780,000 |

The average percentage which net earnings gave on capital during five years ending 1886 was as follows :—

|                         |     |
|-------------------------|-----|
| State lines . . . . .   | 3.3 |
| Company lines . . . . . | 4.1 |

The average cost of construction down to 1886 was £8690 per mile on Government lines and £4700 on companies' lines.

## NORWAY

The first line was opened in 1855, and the miles open since have been as follows :—

| Year           | State | Companies | Total |
|----------------|-------|-----------|-------|
| 1860 . . . . . | ...   | 42        | 42    |
| 1870 . . . . . | 182   | 42        | 224   |
| 1880 . . . . . | 650   | 42        | 692   |
| 1889 . . . . . | 973   | 42        | 1015  |

If we suppose the cost of construction (which is unknown) to have been the same as in Spain, say £15,800 per mile, the cost and net percentage on capital of Portuguese lines will have been thus :—

| Year           | Cost, £    | Net Earnings, £ | Percentage |
|----------------|------------|-----------------|------------|
| 1881 . . . . . | 12,600,000 | 440,000         | 3.5        |
| 1885 . . . . . | 15,800,000 | 490,000         | 3.1        |

The receipts in 1885 were as follows :—

|                      | £       | Average Pence |
|----------------------|---------|---------------|
| Passengers . . . . . | 360,000 | 34 each       |
| Goods . . . . .      | 500,000 | 125 per ton   |
| Total . . . . .      | 860,000 | ...           |

The average fare for each passenger and ton of goods carried is much higher than in other countries. The lines belong to companies which receive State subsidies.

## SWEDEN

Official statement of mileage is as follows :—

| Year           | State | Companies | Total |
|----------------|-------|-----------|-------|
| 1860 . . . . . | 187   | 188       | 375   |
| 1870 . . . . . | 700   | 390       | 1,090 |
| 1880 . . . . . | 1,210 | 2,440     | 3,650 |
| 1888 . . . . . | 1,580 | 3,120     | 4,700 |

Traffic returns in Norway showed as follows :—

| Year           | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £  |
|----------------|-------|------------|-------------|-------------|-------------|---------|
| 1872 . . . . . | 256   | 840,000    | 540,000     | 130,000     | 85,000      | 45,000  |
| 1880 . . . . . | 690   | 1,650,000  | 600,000     | 240,000     | 180,000     | 60,000  |
| 1888 . . . . . | 970   | 3,300,000  | 1,200,000   | 420,000     | 290,000     | 130,000 |

Net returns compared with cost of construction as follows :—

| Year           | Cost, £   | Net Earnings | Percentage |
|----------------|-----------|--------------|------------|
| 1872 . . . . . | 2,000,000 | 45,000       | 2.3        |
| 1880 . . . . . | 4,450,000 | 60,000       | 1.4        |
| 1888 . . . . . | 7,100,000 | 130,000      | 1.8        |

Averages per mile in Norway were as follows :—

| Year | Construction, £ | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £ |
|------|-----------------|------------|-------------|-------------|-------------|--------|
| 1872 | 7,800           | 3,300      | 2,100       | 510         | 340         | 170    |
| 1880 | 6,400           | 2,400      | 900         | 340         | 250         | 90     |
| 1888 | 7,100           | 3,400      | 1,200       | 430         | 300         | 130    |

All are State railways except a short line of forty-two miles.

## DENMARK

The number of miles open was as follows :—

| Year | State | Companies | Total |
|------|-------|-----------|-------|
| 1850 | ...   | 20        | 20    |
| 1860 | ...   | 70        | 70    |
| 1870 | 300   | 170       | 470   |
| 1880 | 770   | 210       | 980   |
| 1888 | 970   | 250       | 1,220 |

Traffic returns were as follows :—

| Year | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £  |
|------|-------|------------|-------------|-------------|-------------|---------|
| 1875 | 780   | 5,600,000  | 1,800,000   | 560,000     | 340,000     | 220,000 |
| 1880 | 830   | 5,900,000  | 2,000,000   | 590,000     | 370,000     | 220,000 |
| 1888 | 1,220 | 8,800,000  | 2,900,000   | 780,000     | 680,000     | 100,000 |

Traffic returns on railways in Holland were as follows :—

| Year | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £    |
|------|-------|------------|-------------|-------------|-------------|-----------|
| 1873 | 830   | 9,300,000  | 1,700,000   | 1,130,000   | 880,000     | 250,000   |
| 1880 | 1,440 | 16,000,000 | 4,400,000   | 1,860,000   | 930,000     | 930,000   |
| 1888 | 1,700 | 18,500,000 | 8,100,000   | 2,290,000   | 1,280,000   | 1,010,000 |

In 1888 the traffic was as follows :—

|           | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £    |
|-----------|-------|------------|-------------|-------------|-------------|-----------|
| State     | 930   | 5,900,000  | 4,600,000   | 1,120,000   | 640,000     | 480,000   |
| Companies | 770   | 12,600,000 | 3,500,000   | 1,170,000   | 640,000     | 530,000   |
| Total     | 1,700 | 18,500,000 | 8,100,000   | 2,290,000   | 1,280,000   | 1,010,000 |

The averages per mile were as follows :—

| Year | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £ |
|------|------------|-------------|-------------|-------------|--------|
| 1873 | 11,200     | 2,050       | 1,360       | 1,050       | 310    |
| 1880 | 11,100     | 3,050       | 1,300       | 650         | 650    |
| 1888 | 10,900     | 4,800       | 1,350       | 750         | 600    |

The return on capital was as follows in 1885 :—

|           | Construction, £ | Net Earnings, £ | Percentage |
|-----------|-----------------|-----------------|------------|
| State     | 15,900,000      | 390,000         | 2.5        |
| Companies | 10,400,000      | 520,000         | 5.0        |

In four years ending 1886 the average was 36 persons killed and 35 injured, but of passengers only 1 killed and 4 injured per annum.

## BELGIUM

A line from Brussels to Malines, opened in 1835, was the first of any importance on the European Continent,

The returns of traffic are exclusive of 100 miles of company's line in Jutland. The mileage traffic on Danish railways showed thus :—

| Year       | Per Mile        |                |                |                  |        |
|------------|-----------------|----------------|----------------|------------------|--------|
|            | Pas-<br>sengers | Goods,<br>Tons | Receipts,<br>£ | Ex-<br>penses, £ | Net, £ |
| 1875 . . . | 7,200           | 2,300          | 720            | 430              | 290    |
| 1880 . . . | 7,100           | 2,400          | 710            | 445              | 265    |
| 1888 . . . | 7,900           | 2,700          | 700            | 600              | 100    |

In 1889 the State lines had a length of 1000 miles, having cost exactly eight millions sterling. At this rate the total outlay on the existing 1210 miles would be £9,700,000. The net earnings in 1888 being £100 per mile, would represent only 1½ per cent. on the cost of construction, against 3.7 in 1875 and 3.3 in 1880.

## HOLLAND

The first line was opened in 1839. Government lines were not begun until 1863. The mileage grew thus :—

| Year | State | Companies | Total |
|------|-------|-----------|-------|
| 1840 | ...   | 11        | 11    |
| 1850 | ...   | 110       | 110   |
| 1860 | ...   | 200       | 200   |
| 1870 | 500   | 280       | 780   |
| 1880 | 670   | 770       | 1,440 |
| 1888 | 930   | 770       | 1,700 |

although the Lyons and St. Etienne preceded it by seven years. The growth of mileage is shown as follows :—

| Year | State | Companies | Total |
|------|-------|-----------|-------|
| 1840 | 210   | ...       | 210   |
| 1850 | 390   | 160       | 550   |
| 1860 | 460   | 610       | 1,070 |
| 1870 | 540   | 1,260     | 1,800 |
| 1880 | 1,730 | 670       | 2,400 |
| 1888 | 1,990 | 770       | 2,760 |

The balance-sheet of the State lines was :—

| Period   | Receipts, £ | Expenses, £ | Profit, £  |
|----------|-------------|-------------|------------|
| 1835-60  | 14,700,000  | 8,200,000   | 6,500,000  |
| 1861-70  | 15,400,000  | 8,200,000   | 7,200,000  |
| 1871-80  | 35,600,000  | 22,300,000  | 13,300,000 |
| 1881-87  | 33,400,000  | 19,800,000  | 13,600,000 |
| 53 years | 99,100,000  | 58,500,000  | 40,600,000 |

The number of passengers on all lines carried, and that of those killed, were :—

| 1835-87.      |             |        |           |
|---------------|-------------|--------|-----------|
| Period        | Number      | Killed | One in    |
| 1835-50 . . . | 45,000,000  | 15     | 3,000,000 |
| 1851-70 . . . | 232,000,000 | 34     | 6,600,000 |
| 1871-80 . . . | 465,000,000 | 77     | 6,100,000 |
| 1881-87 . . . | 445,000,000 | 60     | 7,400,000 |

The return on capital of Belgian lines in 1888 was :—

|                 | Cost, £    | Net Product, £ | Percentage |
|-----------------|------------|----------------|------------|
| State . . .     | 55,300,000 | 2,460,000      | 4.5        |
| Companies . . . | 16,200,000 | 780,000        | 4.8        |
| Total . . .     | 71,500,000 | 3,240,000      | 4.6        |

The traffic returns on all the railways of Belgium in 1888 were as follows :—

|                     | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £    |
|---------------------|-------|------------|-------------|-------------|-------------|-----------|
| State . . . . .     | 1,990 | 57,900,000 | 25,500,000  | 5,260,000   | 2,800,000   | 2,460,000 |
| Companies . . . . . | 770   | 15,500,000 | 15,300,000  | 1,520,000   | 740,000     | 780,000   |
| Total . . . . .     | 2,760 | 73,400,000 | 40,800,000  | 6,780,000   | 3,540,000   | 3,240,000 |

Averages per mile were as follows :—

|                     | Pas-<br>sengers | Goods,<br>Tons | Receipts,<br>£ | Ex-<br>penses, £ | Net, £ |
|---------------------|-----------------|----------------|----------------|------------------|--------|
| State . . . . .     | 29,000          | 12,800         | 2,630          | 1,400            | 1,230  |
| Companies . . . . . | 20,100          | 19,900         | 1,980          | 960              | 1,020  |
| Total . . . . .     | 26,700          | 14,800         | 2,450          | 1,280            | 1,170  |

The average cost of construction was £25,800 per mile, the highest ratio on the Continent except France.

#### SWITZERLAND

Notwithstanding the mountainous character of the country, railways are general; the mileage was :—

| Year           | Miles | Year           | Miles |
|----------------|-------|----------------|-------|
| 1850 . . . . . | 15    | 1870 . . . . . | 890   |
| 1855 . . . . . | 130   | 1880 . . . . . | 1,600 |
| 1860 . . . . . | 650   | 1889 . . . . . | 1,950 |

Traffic returns were as follows :—

| Year           | Miles | Passengers | Goods,<br>Tons | Receipts, £ | Expenses,<br>£ |
|----------------|-------|------------|----------------|-------------|----------------|
| 1875 . . . . . | 1,260 | 21,300,000 | 5,100,000      | 2,300,000   | ...            |
| 1880 . . . . . | 1,600 | 21,600,000 | 5,800,000      | 2,400,000   | 1,260,000      |
| 1888 . . . . . | 1,870 | 27,100,000 | 8,600,000      | 3,300,000   | 1,760,000      |

Averages per mile were as follows :—

| Year           | Passen-<br>gers | Goods,<br>Tons | Receipts,<br>£ | Ex-<br>penses, £ | Net, £ |
|----------------|-----------------|----------------|----------------|------------------|--------|
| 1875 . . . . . | 17,100          | 4,100          | 1,840          | ...              | ...    |
| 1880 . . . . . | 13,500          | 3,600          | 1,500          | 790              | 710    |
| 1888 . . . . . | 14,500          | 4,600          | 1,780          | 940              | 840    |

All the lines belong to companies. The cost of construction down to the end of 1888 was £20,500 a mile.

#### ROUMANIA

Official statements show mileage thus :—

| Year           | Miles | Year           | Miles |
|----------------|-------|----------------|-------|
| 1870 . . . . . | 150   | 1880 . . . . . | 860   |
| 1875 . . . . . | 770   | 1889 . . . . . | 1,530 |

The cost of construction down to 1882 was approximately as follows, according to Census report, and in order to bring the general average up to that of Poor's *Manual*, a percentage must be added as below :—

|                       | Census Report |               |             | Amended Average |             |
|-----------------------|---------------|---------------|-------------|-----------------|-------------|
|                       | Miles         | Cost, £       | Per Mile, £ | Cost, £         | Per Mile, £ |
| New England . . . . . | 6,150         | 64,000,000    | 10,500      | 70,400,000      | 11,500      |
| Middle . . . . .      | 16,440        | 306,000,000   | 18,500      | 337,400,000     | 20,500      |
| South . . . . .       | 15,800        | 112,000,000   | 7,100       | 123,200,000     | 7,800       |
| West . . . . .        | 66,420        | 708,000,000   | 10,500      | 779,000,000     | 11,700      |
| Total . . . . .       | 104,810       | 1,190,000,000 | 11,300      | 1,310,000,000   | 12,500      |

#### GREECE

As late as 1880 there were but seven miles of railways, the length in 1889 being 360 miles, besides 240 miles actually under construction.

#### TURKEY

All the lines belong to companies; mileage as follows :—

| Year           | Miles | Year           | Miles |
|----------------|-------|----------------|-------|
| 1860 . . . . . | 40    | 1880 . . . . . | 730   |
| 1870 . . . . . | 390   | 1888 . . . . . | 1,260 |

In 1888 there were 900 miles of rail in European, and 360 in Asiatic, Turkey.

#### UNITED STATES

The first line was from Boston to Quincy, four miles, opened in 1827. All the lines belong to companies, and the returns of mileage show thus :—

| Year           | Miles  | Year           | Miles   |
|----------------|--------|----------------|---------|
| 1830 . . . . . | 23     | 1870 . . . . . | 53,400  |
| 1840 . . . . . | 2,820  | 1880 . . . . . | 93,670  |
| 1850 . . . . . | 9,020  | 1885 . . . . . | 123,320 |
| 1860 . . . . . | 30,630 | 1889 . . . . . | 161,250 |

The distribution of mileage, according to Poor's *Manual*, at various dates, was as follows :—

| States                | 1850  | 1860   | 1870   | 1880   | 1889    |
|-----------------------|-------|--------|--------|--------|---------|
| New England . . . . . | 2,510 | 3,660  | 4,490  | 5,980  | 6,730   |
| Middle . . . . .      | 3,200 | 6,350  | 10,580 | 15,180 | 19,740  |
| South . . . . .       | 1,280 | 8,540  | 12,560 | 19,570 | 39,240  |
| West . . . . .        | 2,030 | 12,080 | 25,290 | 52,570 | 95,540  |
| Total . . . . .       | 9,020 | 30,630 | 52,920 | 93,300 | 161,250 |

The cost of construction per mile varied as follows :—

| Year           | Miles   | Cost, £       | Per Mile, £ |
|----------------|---------|---------------|-------------|
| 1850 . . . . . | 9,020   | 60,200,000    | 6,600       |
| 1860 . . . . . | 30,640  | 239,000,000   | 7,800       |
| 1871 . . . . . | 60,520  | 555,200,000   | 9,300       |
| 1881 . . . . . | 101,730 | 1,274,100,000 | 12,500      |
| 1888 . . . . . | 156,080 | 1,949,000,000 | 12,490      |

New railways had a marvellous effect in opening up the Western and some of the Southern States as follows:—

|                         | Railways, Miles |        | Increase<br>per Cent. | Farms, Acres |             | Increase<br>per Cent. |
|-------------------------|-----------------|--------|-----------------------|--------------|-------------|-----------------------|
|                         | 1871            | 1880   |                       | 1871         | 1880        |                       |
| Illinois . . . . .      | 5,904           | 8,326  | 41                    | 25,883,000   | 31,674,000  | 21                    |
| Ohio . . . . .          | 3,740           | 6,664  | 78                    | 21,713,000   | 24,529,000  | 13                    |
| Iowa . . . . .          | 3,160           | 6,113  | 93                    | 15,542,000   | 24,753,000  | 61                    |
| Texas . . . . .         | 865             | 5,344  | 520                   | 18,397,000   | 36,292,000  | 98                    |
| Indiana . . . . .       | 3,529           | 4,765  | 36                    | 18,120,000   | 31,674,000  | 74                    |
| Michigan . . . . .      | 2,116           | 4,284  | 102                   | 10,019,000   | 13,807,000  | 38                    |
| Missouri . . . . .      | 2,580           | 4,211  | 62                    | 21,707,000   | 27,879,000  | 27                    |
| Kansas . . . . .        | 1,760           | 3,718  | 111                   | 5,657,000    | 21,417,000  | 282                   |
| Wisconsin . . . . .     | 1,725           | 3,442  | 99                    | 11,715,000   | 15,353,000  | 31                    |
| Minnesota . . . . .     | 1,612           | 3,391  | 110                   | 6,484,000    | 13,403,000  | 106                   |
| Nebraska . . . . .      | 943             | 2,310  | 146                   | 9,945,000    |             | 380                   |
| Eleven States . . . . . | 27,934          | 52,568 | 88                    | 157,311,000  | 250,726,000 | 60                    |

It appears that in the above eleven States the construction of 26,600 miles of railway, at a cost of 280 millions sterling, was accompanied by a spread of farming to an extent of 93,500,000 acres; the value of the increased area amounting to 520 million dollars, or 108 millions sterling, that is, 39 per cent. of the total cost of the new railways.

The annual construction of railways has averaged:—

| Period            | Miles made Yearly |                  |       |       |       |
|-------------------|-------------------|------------------|-------|-------|-------|
|                   | New<br>England    | Middle<br>States | South | West  | Total |
| 1851-60 . . . . . | 115               | 315              | 726   | 1,005 | 2,161 |
| 1861-70 . . . . . | 83                | 423              | 402   | 1,321 | 2,229 |
| 1871-80 . . . . . | 149               | 460              | 701   | 2,728 | 4,038 |
| 1881-89 . . . . . | 75                | 456              | 1,967 | 4,297 | 6,795 |

Averages per mile, on the aggregate, of all railways in the United States were as follows:—

| Year           | Passengers | Goods, Tons | Re-<br>ceipts, £ | Ex-<br>penses, £ | Net, £ |
|----------------|------------|-------------|------------------|------------------|--------|
| 1872 . . . . . | 2,300      | 2,500       | 1,260            | 1,030            | 230    |
| 1875 . . . . . | 2,600      | 2,700       | 1,400            | 880              | 520    |
| 1882 . . . . . | 3,300      | 3,200       | 1,410            | 850              | 560    |
| 1888 . . . . . | 2,900      | 3,800       | 1,290            | 900              | 390    |

Traffic returns for the whole Union show as follows:—

| Year           | Miles   | Passengers  | Goods, Tons | Receipts, £ | Expenses, £ |
|----------------|---------|-------------|-------------|-------------|-------------|
| 1872 . . . . . | 66,200  | 150,000,000 | 170,000,000 | 84,200,000  | 68,800,000  |
| 1875 . . . . . | 74,370  | 191,000,000 | 202,000,000 | 104,800,000 | 66,100,000  |
| 1882 . . . . . | 113,330 | 375,400,000 | 360,500,000 | 160,500,000 | 95,800,000  |
| 1888 . . . . . | 154,280 | 451,400,000 | 589,400,000 | 198,000,000 | 138,000,000 |

The receipts in 1888 were as follows:—

|                      | Amount, £   | Pence per Mile |
|----------------------|-------------|----------------|
| Passengers . . . . . | 52,200,000  | 1.12           |
| Goods . . . . .      | 145,800,000 | 0.52           |
| Total . . . . .      | 198,000,000 | ...            |

£1800, sleeping cars £3500. The railway of greatest passenger traffic was the New York Elevated, carrying 191 million passengers yearly. The construction of this line took 2200 tons of iron per mile, and cost £44 per yard, against £500 for the London Metropolitan.

The return on capital is shown thus:—

| Year           | Cost, £       | Net Product, £ | Percentage |
|----------------|---------------|----------------|------------|
| 1872 . . . . . | 658,300,000   | 15,400,000     | 2.3        |
| 1875 . . . . . | 920,000,000   | 38,700,000     | 4.2        |
| 1882 . . . . . | 1,436,600,000 | 65,300,000     | 4.6        |
| 1888 . . . . . | 1,949,000,000 | 60,000,000     | 3.1        |

The average for each passenger was a journey of 25 miles, for which he paid 28d., and for each ton of goods a haulage of 115 miles, for which the fare was 60d. The value of merchandise carried was estimated at 2950 millions sterling. The average price of locomotives was

The following table for 1888 shows the traffic on the lines actually working in the principal States:—

|                        | Miles<br>Worked | Receipts, £ |             |             | Expenses, £ | Cost of<br>Construction,<br>£ | Net<br>Product, £ | Per-<br>centage |
|------------------------|-----------------|-------------|-------------|-------------|-------------|-------------------------------|-------------------|-----------------|
|                        |                 | Passengers  | Goods       | Total       |             |                               |                   |                 |
| Illinois . . . . .     | 18,055          | 5,200,000   | 15,900,000  | 21,100,000  | 14,600,000  | 155,000,000                   | 6,500,000         | 4.2             |
| Ohio . . . . .         | 10,345          | 4,100,000   | 13,300,000  | 17,400,000  | 12,160,000  | 158,300,000                   | 5,240,000         | 3.3             |
| Minnesota . . . . .    | 8,863           | 2,060,000   | 6,260,000   | 8,320,000   | 5,060,000   | 104,000,000                   | 3,260,000         | 3.1             |
| Missouri . . . . .     | 8,801           | 2,200,000   | 7,300,000   | 9,500,000   | 6,540,000   | 79,000,000                    | 2,960,000         | 3.7             |
| Pennsylvania . . . . . | 7,532           | 4,900,000   | 21,300,000  | 26,200,000  | 15,800,000  | 142,500,000                   | 10,400,000        | 7.3             |
| Wisconsin . . . . .    | 7,482           | 1,600,000   | 5,100,000   | 6,700,000   | 4,620,000   | 56,000,000                    | 2,080,000         | 3.7             |
| New York . . . . .     | 7,429           | 4,900,000   | 12,300,000  | 17,200,000  | 11,940,000  | 178,300,000                   | 5,260,000         | 2.9             |
| Kansas . . . . .       | 7,233           | 1,390,000   | 3,510,000   | 4,900,000   | 3,800,000   | 52,800,000                    | 1,100,000         | 2.1             |
| California . . . . .   | 6,940           | 2,980,000   | 7,580,000   | 10,560,000  | 7,030,000   | 78,300,000                    | 3,530,000         | 4.5             |
| Indiana . . . . .      | 6,116           | 2,060,000   | 5,240,000   | 7,300,000   | 5,550,000   | 51,200,000                    | 1,750,000         | 3.4             |
| Michigan . . . . .     | 5,486           | 1,940,000   | 4,160,000   | 6,100,000   | 4,360,000   | 47,500,000                    | 1,740,000         | 3.7             |
| Texas . . . . .        | 5,019           | 850,000     | 3,050,000   | 3,900,000   | 3,160,000   | 61,800,000                    | 740,000           | 1.2             |
| Various . . . . .      | 45,997          | 18,059,000  | 40,530,000  | 58,589,000  | 41,177,000  | 568,400,000                   | 17,412,000        | 3.1             |
| Total . . . . .        | 145,298         | 52,239,000  | 145,530,000 | 197,769,000 | 135,797,000 | 1,733,100,000                 | 61,972,000        | 3.6             |

## CANADA

Traffic returns were as follows :—

| Year           | Miles  | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Miles Run  |
|----------------|--------|------------|-------------|-------------|-------------|------------|
| 1875 . . . . . | 4,830  | 5,200,000  | 5,700,000   | 4,050,000   | 3,280,000   | 17,700,000 |
| 1880 . . . . . | 6,890  | 6,500,000  | 9,900,000   | 4,900,000   | 3,500,000   | 22,400,000 |
| 1889 . . . . . | 12,630 | 12,200,000 | 17,900,000  | 8,430,000   | 6,210,000   | ...        |

The first line was opened in 1836 to Laprairie, in the province of Quebec, sixteen miles. Mileage open to traffic has been as follows :—

| Year           | Miles | Year           | Miles  |
|----------------|-------|----------------|--------|
| 1840 . . . . . | 16    | 1870 . . . . . | 2,500  |
| 1851 . . . . . | 71    | 1880 . . . . . | 6,890  |
| 1860 . . . . . | 2,090 | 1890 . . . . . | 13,330 |

Averages per mile were as follows :—

| Year           | Passengers | Tons  | Receipts, £ | Expenses, £ | Net, £ |
|----------------|------------|-------|-------------|-------------|--------|
| 1875 . . . . . | 1,100      | 1,200 | 830         | 660         | 170    |
| 1880 . . . . . | 940        | 1,440 | 710         | 500         | 210    |
| 1889 . . . . . | 970        | 1,440 | 670         | 490         | 180    |

The mileage cost of construction and traffic of the several lines in 1887 showed as follows :—

|                         | Miles         | Cost, £            | Receipts, £      | Expenses, £      | Net, £           | Interest on Cost |
|-------------------------|---------------|--------------------|------------------|------------------|------------------|------------------|
| Pacific . . . . .       | 4,320         | 42,800,000         | 2,210,000        | 1,520,000        | 690,000          | 1.6              |
| Grand Trunk . . . . .   | 2,600         | 60,300,000         | 3,330,000        | 2,290,000        | 1,040,000        | 1.7              |
| Intercolonial . . . . . | 900           | 9,200,000          | 540,000          | 580,000          | ...              | ...              |
| Various . . . . .       | 3,870         | 30,200,000         | 2,000,000        | 1,310,000        | 690,000          | 2.3              |
| <b>Total . . . . .</b>  | <b>11,690</b> | <b>142,500,000</b> | <b>8,080,000</b> | <b>5,700,000</b> | <b>2,380,000</b> | <b>1.6</b>       |

|                        | Passengers        | Tons              | Per Mile   |              |             |             |            | Miles Run         |
|------------------------|-------------------|-------------------|------------|--------------|-------------|-------------|------------|-------------------|
|                        |                   |                   | Passengers | Tons         | Receipts, £ | Expenses, £ | Net, £     |                   |
| Pacific . . . . .      | 1,950,000         | 2,120,000         | 450        | 490          | 510         | 350         | 160        | 6,900,000         |
| Grand Trunk . . . . .  | 5,080,000         | 6,460,000         | 1,950      | 2,490        | 1,280       | 880         | 400        | 13,800,000        |
| Various . . . . .      | 3,670,000         | 7,820,000         | 750        | 1,620        | 530         | 390         | 140        | 12,900,000        |
| <b>Total . . . . .</b> | <b>10,700,000</b> | <b>16,400,000</b> | <b>900</b> | <b>1,400</b> | <b>700</b>  | <b>490</b>  | <b>210</b> | <b>33,600,000</b> |

Some of the railways belong to the State, and to most of the others the Government has given subsidies. The mileage and traffic of all were made up in 1887 thus :—

|                        | Miles         | Passengers        | Goods, Tons       | Receipts, £      | Expenses, £      | Net, £           | Miles Run         |
|------------------------|---------------|-------------------|-------------------|------------------|------------------|------------------|-------------------|
| State . . . . .        | 1,200         | 1,100,000         | 1,200,000         | 580,000          | 600,000          | ...              | 4,800,000         |
| Companies . . . . .    | 10,490        | 9,600,000         | 15,200,000        | 7,500,000        | 5,100,000        | 2,400,000        | 28,800,000        |
| <b>Total . . . . .</b> | <b>11,690</b> | <b>10,700,000</b> | <b>16,400,000</b> | <b>8,080,000</b> | <b>5,700,000</b> | <b>2,380,000</b> | <b>33,600,000</b> |

The average cost of construction and earnings per train-mile run were as follows :—

|                        | Cost, £            | Cost £, per Mile | Per Train Mile, Pence |           |           |
|------------------------|--------------------|------------------|-----------------------|-----------|-----------|
|                        |                    |                  | Receipts              | Expenses  | Net       |
| Pacific . . . . .      | 42,800,000         | 9,900            | 77                    | 53        | 24        |
| Grand Trunk . . . . .  | 60,300,000         | 23,100           | 57                    | 39        | 18        |
| Various . . . . .      | 39,400,000         | 8,200            | 47                    | 35        | 12        |
| <b>Total . . . . .</b> | <b>142,500,000</b> | <b>12,200</b>    | <b>58</b>             | <b>41</b> | <b>17</b> |

The paid-up capital on all the lines in 1887 was made up as follows :—

|                               |                    |
|-------------------------------|--------------------|
| Shares . . . . .              | 67,600,000         |
| Debentures . . . . .          | 40,600,000         |
| Dominion Government . . . . . | 26,900,000         |
| Provincial grants . . . . .   | 7,400,000          |
| <b>Total . . . . .</b>        | <b>142,500,000</b> |

Latest returns to the end of 1889 showed 13,330 miles, made at a cost of £152,100,000, say £11,400 per mile.

## MEXICO

Official returns of mileage show as follows :—

| Year           | Miles | Year           | Miles |
|----------------|-------|----------------|-------|
| 1865 . . . . . | 20    | 1880 . . . . . | 660   |
| 1870 . . . . . | 220   | 1889 . . . . . | 5,010 |

In 1889 the traffic was as follows :—

|                        | No.        | Receipts, £      |
|------------------------|------------|------------------|
| Passengers . . . . .   | 12,980,000 | 310,000          |
| Goods, tons . . . . .  | 880,000    | 720,000          |
| <b>Total . . . . .</b> | <b>...</b> | <b>1,030,000</b> |

There are no State railways in Mexico.

## PERU

The number of miles working was as follows :—

| Year           | Miles | Year           | Miles |
|----------------|-------|----------------|-------|
| 1860 . . . . . | 47    | 1880 . . . . . | 1,180 |
| 1870 . . . . . | 250   | 1889 . . . . . | 1,630 |

In 1870-72 the Government borrowed in London 49 millions sterling, and proceeded to make railways up

the Andes. In 1877 the lines then made had cost £35,990,000, of which £25,670,000 came from the State. The Oroya line, with many tunnels, cost £29,000 per mile, say £4,200,000; that from Tacua to Bolivia £34,000 a mile, say £3,700,000.

## CHILI

Mr. Wheelwright began railways in 1851, making a line from Copiapo to Caldera. Mileage progressed as follows:—

| Year | Miles | Year | Miles |
|------|-------|------|-------|
| 1860 | 120   | 1880 | 1,100 |
| 1870 | 450   | 1889 | 1,750 |

Companies own 1000 miles, the State 750, the latter having cost £6,000,000, and the total about 14 millions sterling. The earnings of State lines in 1887 amounted to £800,000, and expenses £520,000, leaving a net gain of £280,000, say 4.7 per cent. on the cost.

## BRAZIL

The first line was made by Baron Mauá to the Organ Mountains, near Rio Janeiro, in 1851. The progress of mileage was as follows:—

| Year | Miles | Year | Miles |
|------|-------|------|-------|
| 1860 | 135   | 1880 | 2,175 |
| 1870 | 505   | 1889 | 5,580 |

The Pedro Segundo is one of the finest in the New World, with a length of 520 miles, mostly through a difficult country, having sixteen great tunnels. It cost £12,200,000 and earns 5½ per cent. net on the outlay. Most of the railways are 5 feet 4 inch gauge, but there are 40-inch gauge in Rio Grande and some other parts.

The total traffic returns on Argentine railways were as follows:—

| Year | Miles | Cost, £    | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £    | Interest on Cost |
|------|-------|------------|------------|-------------|-------------|-------------|-----------|------------------|
| 1872 | 600   | 5,300,000  | 2,300,000  | 330,000     | 680,000     | 400,000     | 280,000   | 5.3              |
| 1876 | 1,370 | 11,400,000 | 2,700,000  | 680,000     | 920,000     | 630,000     | 290,000   | 2.6              |
| 1886 | 3,780 | 32,700,000 | ...        | ...         | 3,060,000   | 1,740,000   | 1,320,000 | 4.1              |
| 1888 | 4,440 | 38,500,000 | ...        | ...         | 2,800,000   | 1,650,000   | 1,150,000 | 3.0              |

In 1889 there were 5550 miles, representing an outlay of about 48 millions sterling. All the lines now belong to companies, the State lines having been recently sold. The number of train-miles run in 1889 was 1,200,000, the Great Southern of Buenos Ayres occupying the first place. The rolling-stock on all the lines comprised 12,000 waggons, capable of carrying 2,400,000 tons yearly.

## URUGUAY

Mileage progressed as follows:—

| Year | Miles | Year | Miles |
|------|-------|------|-------|
| 1870 | 60    | 1880 | 270   |
| 1875 | 190   | 1889 | 450   |

Traffic returns were as follows:—

| Year | Miles | Passengers | Goods, Tons | Receipts, £ | Receipts per Mile, £ |
|------|-------|------------|-------------|-------------|----------------------|
| 1877 | 230   | 270,000    | 77,000      | 95,000      | 410                  |
| 1883 | 300   | 290,000    | 160,000     | 170,000     | 570                  |
| 1887 | 400   | 405,000    | ...         | ...         | ...                  |

The system which Mr. Robert Crawford is pushing forward will, when completed, have a total length of 700 miles. There are no State railways.

## JAPAN

Mileage records are as follows:—

| Year | Miles | Year | Miles |
|------|-------|------|-------|
| 1875 | 40    | 1885 | 260   |
| 1880 | 75    | 1889 | 910   |

The San Paulo line crosses the Serra Cubaton by four successive inclined planes, up which the train is drawn, till attaining a height of 3500 feet over sea-level. The total cost of railways down to 1888 was:—

|             | £          | Miles | £ per Mile |
|-------------|------------|-------|------------|
| State lines | 16,100,000 | 900   | 18,000     |
| Companies   | 32,700,000 | 4,400 | 7,400      |
| Total       | 48,800,000 | 5,300 | 9,200      |

Traffic returns in 1887 showed 7,300,000 passengers and 1,820,000 tons merchandise; receipts, £3,820,000; expenses, £2,540,000; net profit, £1,280,000, being a little over 2½ per cent. (2.6) on the total outlay of capital.

## ARGENTINA

The first line from Buenos Ayres to Flores, six miles, was opened in 1857. Official records of mileage show thus:—

| Year | Miles | Year | Miles |
|------|-------|------|-------|
| 1860 | 15    | 1880 | 1,540 |
| 1870 | 540   | 1889 | 5,530 |

The mileage at various dates was composed thus:—

|           | 1875  | 1884  | 1886  | 1889  |
|-----------|-------|-------|-------|-------|
| State     | 570   | 1,520 | 1,710 | ...   |
| Companies | 600   | 1,520 | 2,070 | 5,530 |
| Total     | 1,170 | 3,040 | 3,780 | 5,530 |

Traffic receipts in Japan were as follows:—

| Year | Miles | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £  |
|------|-------|------------|-------------|-------------|-------------|---------|
| 1886 | 360   | 4,100,000  | 320,000     | 240,000     | 130,000     | 110,000 |
| 1889 | 910   | 11,700,000 | 770,000     | 570,000     | 220,000     | 350,000 |

Averages per mile were as follows:—

| Year | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £ |
|------|------------|-------------|-------------|-------------|--------|
| 1886 | 11,200     | 900         | 670         | 350         | 320    |
| 1889 | 12,900     | 850         | 630         | 240         | 390    |

Two-thirds of the lines belong to the State, one-third to companies.

## INDIA

In 1853 there was but one short line of 22 miles; at subsequent dates we find as follows:—

| Year | Miles | Year | Miles  |
|------|-------|------|--------|
| 1860 | 840   | 1880 | 9,320  |
| 1870 | 4,830 | 1889 | 15,230 |



Traffic returns on Indian railways taking the rupee at 24 pence, were as follows :—

| Year           | Miles  | Passengers  | Goods, Tons | Receipts, £ | Expenses, £ | Net, £    |
|----------------|--------|-------------|-------------|-------------|-------------|-----------|
| 1874 . . . . . | 6,190  | 24,300,000  | 4,800,000   | 7,790,000   | 3,830,000   | 3,960,000 |
| 1888 . . . . . | 14,380 | 103,200,000 | 22,400,000  | 19,700,000  | 9,870,000   | 9,890,000 |

Averages per mile were as follows :—\*

| Year           | Passengers | Tons  | Receipts, £ | Expenses, £ | Net, £ |
|----------------|------------|-------|-------------|-------------|--------|
| 1874 . . . . . | 3,900      | 800   | 1,250       | 620         | 630    |
| 1888 . . . . . | 7,100      | 1,510 | 1,400       | 700         | 700    |

In 1889 there were 10,410 miles of State railways, the rest belonging to companies who had guarantees or subsidies. The total cost to end of 1888 was nominally £193,200,000, taking the rupee at 24 pence, but really about 145 millions sterling.

The receipts in 1888 were made up thus :—

|                   | No.         | Receipts, £ | Each, Pence |
|-------------------|-------------|-------------|-------------|
| Passengers . . .  | 103,200,000 | 6,440,000   | 15          |
| Goods, tons . . . | 22,400,000  | 13,320,000  | 14          |
| Total . . . . .   | ...         | 19,760,000  | ...         |

The return on capital in 1888 was over 5 per cent., viz., 5.2, being the highest average in the World for any country.

\* These returns being on the fictitious basis of 24 pence the rupee, it is necessary to take off at least one-fourth; thus mile-earnings were really £1050, expenses £525.

The cost of construction down to 1888 and traffic in that year were as follows :—

|                           | Cost, £    | Cost, £ per Mile | Receipts, £ | Expenses, £ | Net, £    | Interest on Capital |
|---------------------------|------------|------------------|-------------|-------------|-----------|---------------------|
| New South Wales . . . . . | 26,600,000 | 12,500           | 2,510,000   | 1,580,000   | 930,000   | 3.5                 |
| Victoria . . . . .        | 27,500,000 | 13,600           | 2,750,000   | 1,750,000   | 1,000,000 | 3.6                 |
| Queensland . . . . .      | 13,100,000 | 6,800            | 780,000     | 510,000     | 270,000   | 2.1                 |
| South Australia . . . . . | 9,700,000  | 6,400            | 950,000     | 450,000     | 500,000   | 5.1                 |
| New Zealand . . . . .     | 13,500,000 | 7,600            | 1,000,000   | 650,000     | 350,000   | 2.6                 |
| Tasmania . . . . .        | 2,400,000  | 8,400            | 135,000     | 130,000     | 5,000     | ...                 |
| West Australia . . . . .  | 900,000    | 4,400            | 40,000      | 45,000      | ...       | ...                 |
| Total . . . . .           | 93,700,000 | 9,500            | 8,165,000   | 5,115,000   | 3,050,000 | 3.2                 |

The traffic returns for three of the Colonies in 1888 compare thus :—

|                       | Miles | Passengers | Goods, Tons | Per Mile   |       |             |             |
|-----------------------|-------|------------|-------------|------------|-------|-------------|-------------|
|                       |       |            |             | Passengers | Tons  | Receipts, £ | Expenses, £ |
| New South Wales . . . | 2,206 | 15,900,000 | 3,200,000   | 7,300      | 1,450 | 1,150       | 720         |
| Victoria . . . . .    | 2,018 | 56,000,000 | 3,560,000   | 27,700     | 1,750 | 1,360       | 865         |
| New Zealand . . . . . | 1,865 | 3,100,000  | 1,920,000   | 1,650      | 1,030 | 540         | 350         |

Mr. Coghlan shows that the saving of freight charges in New South Wales in twenty-five years down to 1888 by railways was £4,670,000. This is equal to £240 a mile per annum, and, applied to all Australia, would give the following result :—

| Period            | Saving in Freight Charges |           |            |                 |             |          |                   |
|-------------------|---------------------------|-----------|------------|-----------------|-------------|----------|-------------------|
|                   | New South Wales           | Victoria  | Queensland | South Australia | New Zealand | Tasmania | Western Australia |
| 1855-70 . . . . . | £ 450,000                 | £ 680,000 | £ 200,000  | £ 350,000       | £ 100,000   | £ 30,000 | £ ...             |
| 1871-80 . . . . . | 1,220,000                 | 1,390,000 | 850,000    | 800,000         | 1,200,000   | 240,000  | 60,000            |
| 1881-88 . . . . . | 2,880,000                 | 2,800,000 | 2,400,000  | 2,100,000       | 2,800,000   | 600,000  | 400,000           |
| Total . . . . .   | 4,550,000                 | 4,870,000 | 3,450,000  | 3,250,000       | 4,100,000   | 870,000  | 460,000           |
|                   |                           |           |            |                 |             |          | 21,550,000        |

#### AUSTRALIA

The first line was opened in 1854 from Melbourne to Hobson's Bay, and the growth of mileage has been as follows :—

|                           | 1861 | 1871  | 1881  | 1888   |
|---------------------------|------|-------|-------|--------|
| New South Wales . . . . . | 73   | 358   | 1,041 | 2,206  |
| Victoria . . . . .        | 214  | 329   | 1,247 | 2,018  |
| Queensland . . . . .      | ...  | 218   | 800   | 1,931  |
| South Australia . . . . . | 56   | 134   | 832   | 1,518  |
| New Zealand . . . . .     | ...  | 145   | 1,333 | 1,865  |
| Tasmania . . . . .        | ...  | 45    | 168   | 327    |
| West Australia . . . . .  | ...  | ...   | 122   | 272    |
| Total . . . . .           | 343  | 1,229 | 5,543 | 10,137 |

The gauge is 42 inches in all the Colonies except New South Wales, 56½, and Victoria, 63 inches.

The traffic returns in New South Wales showed thus :—

| Year           | Miles | Passengers | Goods, Tons | Per Mile   |             |
|----------------|-------|------------|-------------|------------|-------------|
|                |       |            |             | Passengers | Goods, Tons |
| 1856 . . . . . | 23    | 350,000    | 2,500       | 15,000     | 110         |
| 1888 . . . . . | 2,206 | 15,900,000 | 3,200,000   | 7,300      | 1,450       |

The above estimate shows that, speaking approximately, the railways of Australia have already in saving of freight charges paid nearly one-fourth of the cost of construction; also that they cause an annual saving to the people of £1,600,000 sterling.

## SOUTH AFRICA

Mileage returns show as follows:—

| Year           | Cape Colony | Natal | Total |
|----------------|-------------|-------|-------|
| 1874 . . . . . | 64          | ...   | 64    |
| 1880 . . . . . | 910         | 100   | 1,010 |
| 1888 . . . . . | 1,780       | 230   | 2,010 |

All the lines belong to the State, except one of 180 miles in Cape Colony. Cape lines in 1880 carried 2,700,000 passengers and 420,000 tons goods, being 1500 passengers and 230 tons per mile. The average cost of construction was £8900. This would give a total outlay of 16 millions sterling. Receipts £1,450,000, expenses £760,000, leaving a net profit of £690,000, say 4.3 on the cost of construction.

The first line was from Cape Town to Wellington, 58 miles, opened in 1860; cost £500,000. The line to Kimberley diamond fields was opened in 1885. In 1888 there were three principal lines: the Western 720, the Midland 590, and the Eastern 290 miles.

## ALGERIA

The official returns are as follows:—

| Year           | Miles | Cost, £    | Passengers | Goods, Tons | Receipts, £ | Expenses, £ | Net, £  |
|----------------|-------|------------|------------|-------------|-------------|-------------|---------|
| 1877 . . . . . | 410   | 7,700,000  | 1,020,000  | 260,000     | 270,000     | 230,000     | 40,000  |
| 1880 . . . . . | 1,160 | 16,000,000 | 2,350,000  | 1,080,000   | 850,000     | 605,000     | 245,000 |
| 1887 . . . . . | 1,580 | ...        | ...        | ...         | 840,000     | ...         | ...     |

Goods tons, as given above, averaged a haulage of 100 kilometres, or 63 miles: official returns give this item under the form of kilometric tons. Including the Tunis lines, 260 miles, the whole system in 1889 reached a length of 1840 miles, representing an approximate outlay of 26 millions sterling.

## EGYPT

The first line was opened in 1856, from Alexandria to Cairo, 130 miles; cost of construction, £8000 per mile. Records of mileage show thus:—

| Year           | Miles | Net Product, £ |
|----------------|-------|----------------|
| 1860 . . . . . | 275   | ...            |
| 1879 . . . . . | 920   | 750,000        |
| 1885 . . . . . | 950   | 930,000        |
| 1889 . . . . . | 956   | 730,000        |

Details of receipts and expenditure showed thus:—

| Year           | Receipts, £ | Expenses, £ | Per Mile    |             |
|----------------|-------------|-------------|-------------|-------------|
|                |             |             | Receipts, £ | Expenses, £ |
| 1885 . . . . . | 1,540,000   | 610,000     | 1,620       | 640         |
| 1889 . . . . . | 1,330,000   | 600,000     | 1,400       | 630         |

In 1888 the lines carried 3,600,000 passengers. The actual length of railways is 1260 miles, but some are not working. The earnings on the total mileage would not exceed £1050, expenses £480 per mile.

Ismail Pachà, during his reign, expended a sum of £13,300,000 in the construction of railways, one line extending along the Nile valley to Siout, in Upper Egypt. Net earnings are 4 per cent. on cost.

## WEST INDIES

The principal railways in this part of the world are:—

|                         | Miles |
|-------------------------|-------|
| Cuba . . . . .          | 930   |
| Jamaica, &c. . . . .    | 160   |
| Santo Domingo . . . . . | 70    |
| Martinique . . . . .    | 120   |
|                         | 1,280 |

The traffic and earnings of these lines are unknown.

## VARIOUS COUNTRIES

The latest returns of mileage in the following countries are:—

|                           | Miles |                            | Miles |
|---------------------------|-------|----------------------------|-------|
| Asia Minor . . . . .      | 360   | Mauritius . . . . .        | 90    |
| Bourbon . . . . .         | 70    | Newfoundland . . . . .     | 90    |
| Central America . . . . . | 570   | Paraguay . . . . .         | 90    |
| Ceylon . . . . .          | 180   | Persia . . . . .           | 10    |
| China . . . . .           | 86    | Sandwich Islands . . . . . | 50    |
| Cochin-China . . . . .    | 40    | Senegal . . . . .          | 250   |
| Malta . . . . .           | 10    | Venezuela . . . . .        | 180   |

Making a total of 2082 miles for which we have no traffic returns.

## RANSOM

In 1360 that of King John of France was fixed at £1,200,000 sterling. In 1521 that of Francis I. of France was fixed by Charles V. the Emperor at £800,000 sterling.

## RELIGION

The following are the latest numbers as well as can be ascertained:—

|                          | Roman Catholics | Protestants | Greeks     | Jews      | Mahometans | Total      |
|--------------------------|-----------------|-------------|------------|-----------|------------|------------|
| England . . . . .        | 1,066,000       | 24,858,000  | ...        | 44,000    | ...        | 25,968,000 |
| Scotland . . . . .       | 318,000         | 3,371,000   | ...        | 6,000     | ...        | 3,695,000  |
| Ireland . . . . .        | 3,952,000       | 1,169,000   | ...        | 1,000     | ...        | 5,122,000  |
| United Kingdom . . . . . | 5,336,000       | 29,398,000  | ...        | 51,000    | ...        | 34,785,000 |
| France . . . . .         | 29,202,000      | 693,000     | ...        | 53,000    | ...        | 29,948,000 |
| Germany . . . . .        | 16,789,000      | 29,370,000  | ...        | 563,000   | ...        | 46,722,000 |
| Russia . . . . .         | 8,300,000       | 2,950,000   | 65,549,000 | 3,000,000 | 2,600,000  | 80,399,000 |
| Austria . . . . .        | 20,227,000      | 400,000     | 493,000    | 1,005,000 | ...        | 22,125,000 |
| Hungary . . . . .        | 9,410,000       | 3,174,000   | 2,447,000  | 641,000   | ...        | 15,672,000 |
| Italy . . . . .          | 28,360,000      | 62,000      | ...        | 38,000    | ...        | 28,460,000 |
| Spain . . . . .          | 17,542,000      | 7,600       | ...        | 400       | ...        | 17,550,000 |

|                           | Roman Catholics | Protestants | Greeks     | Jews      | Mahometans | Total       |
|---------------------------|-----------------|-------------|------------|-----------|------------|-------------|
| Portugal . . . . .        | 4,707,500       | 500         | ...        | ...       | ...        | 4,708,000   |
| Sweden . . . . .          | 1,000           | 4,561,000   | ...        | 3,000     | ...        | 4,565,000   |
| Norway . . . . .          | 500             | 1,806,500   | ...        | ...       | ...        | 1,807,000   |
| Denmark . . . . .         | 3,000           | 1,973,000   | ...        | 4,000     | ...        | 1,980,000   |
| Holland . . . . .         | 1,440,000       | 2,491,000   | ...        | 82,000    | ...        | 4,013,000   |
| Belgium . . . . .         | 6,016,000       | 10,000      | ...        | 4,000     | ...        | 6,030,000   |
| Switzerland . . . . .     | 1,190,000       | 1,724,000   | ...        | 8,000     | ...        | 2,922,000   |
| Greece . . . . .          | 14,000          | 1,000       | 1,903,000  | 6,000     | 24,000     | 1,948,000   |
| Roumania . . . . .        | 114,000         | 14,000      | 4,529,000  | 400,000   | 2,000      | 5,059,000   |
| Servia . . . . .          | 8,000           | 1,000       | 1,874,000  | 4,000     | 15,000     | 1,902,000   |
| Bulgaria . . . . .        | 19,000          | ...         | 2,432,000  | 24,000    | 668,000    | 3,143,000   |
| Turkey . . . . .          | 280,000         | 45,000      | 788,000    | 51,000    | 3,626,000  | 4,790,000   |
| Europe . . . . .          | 148,959,000     | 78,681,600  | 80,015,000 | 5,937,400 | 6,935,000  | 320,528,000 |
| United States . . . . .   | 9,000,000       | 50,890,000  | ...        | 110,000   | ...        | 60,000,000  |
| Canada . . . . .          | 1,792,000       | 2,440,000   | ...        | ...       | ...        | 4,232,000   |
| Spanish America . . . . . | 33,340,000      | 115,000     | ...        | 47,000    | ...        | 33,502,000  |
| Australia . . . . .       | 845,000         | 2,880,000   | ...        | 1,000     | ...        | 3,726,000   |
| West Indies . . . . .     | 2,480,000       | 1,030,000   | ...        | ...       | ...        | 3,510,000   |
| Total . . . . .           | 196,416,000     | 136,036,600 | 80,015,000 | 6,095,400 | 6,935,000  | 425,498,000 |

The creeds of the world may be briefly stated thus :—

|                           | Roman Catholics | Protestants | Greeks     | Jews      | Mahometans  | Various     | Total         |
|---------------------------|-----------------|-------------|------------|-----------|-------------|-------------|---------------|
| Europe . . . . .          | 148,900,000     | 78,700,000  | 80,000,000 | 6,000,000 | 6,900,000   | ...         | 320,500,000   |
| America . . . . .         | 44,100,000      | 55,300,000  | ...        | 100,000   | ...         | ...         | 91,500,000    |
| Australia . . . . .       | 850,000         | 2,900,000   | ...        | ...       | ...         | ...         | 3,750,000     |
| Asia and Africa . . . . . | 6,600,000       | 3,100,000   | ...        | 670,000   | 194,000,000 | 440,000,000 | 644,370,000   |
| Total . . . . .           | 200,450,000     | 140,000,000 | 80,000,000 | 6,770,000 | 200,900,000 | 440,000,000 | 1,060,120,000 |

The 440 millions of pagans in the above table marked "various" are made up, in almost equal proportions, of Buddhists, Brahmins, and followers of Confucius.

## UNITED KINGDOM

In 1881 the classification was as follows :—

|                          | Anglicans  | Roman Catholics | Presbyterians | All Others | Total      |
|--------------------------|------------|-----------------|---------------|------------|------------|
| England . . . . .        | 18,798,000 | 1,066,000       | 114,000       | 5,990,000  | 25,968,000 |
| Scotland . . . . .       | 99,000     | 318,000         | 2,997,000     | 281,000    | 3,695,000  |
| Ireland . . . . .        | 636,000    | 3,952,000       | 486,000       | 48,000     | 5,122,000  |
| United Kingdom . . . . . | 19,533,000 | 5,336,000       | 3,597,000     | 6,319,000  | 34,785,000 |

In 1871 the estimated numbers were :—

|                    | Anglicans  | Roman Catholics | Dissenters | Jews   | Total      |
|--------------------|------------|-----------------|------------|--------|------------|
| England . . . . .  | 17,781,000 | 1,058,000       | 3,971,000  | 39,000 | 22,849,000 |
| Scotland . . . . . | 73,000     | 320,000         | 2,959,000  | 6,000  | 3,358,000  |
| Ireland . . . . .  | 683,000    | 4,142,000       | 577,000    | 1,000  | 5,403,000  |
| U.Kingd. . . . .   | 18,537,000 | 5,520,000       | 7,507,000  | 46,000 | 31,610,000 |

No census as to religion is taken in England or Scotland. The above estimates are according to the ratios resulting from the marriages solemnised yearly in the different churches.

In 1882 a private census of people attending church on Sundays was taken, showing percentage to population as follows :—

|                      |    |                       |    |
|----------------------|----|-----------------------|----|
| Sheffield . . . . .  | 23 | Southampton . . . . . | 38 |
| Nottingham . . . . . | 24 | Hull . . . . .        | 41 |
| Liverpool . . . . .  | 26 | Portsmouth . . . . .  | 41 |
| Bristol . . . . .    | 31 | Bath . . . . .        | 52 |

The above was, however, much in excess of the real percentage, many persons going to church twice. Only 37 per cent. of the total worshippers attended the Church of England, 8 per cent. being Roman Catholics and 55 per cent. Dissenters.

## UNITED STATES.

The number of churches at various dates was :—

|                               | 1830  | 1840  | 1850   | 1860   | 1870   | 1885    |
|-------------------------------|-------|-------|--------|--------|--------|---------|
| Baptist . . . . .             | 4,384 | 7,900 | 9,600  | 12,100 | 13,900 | 31,350  |
| Methodist . . . . .           | ...   | ...   | 13,300 | 19,900 | 21,300 | 29,000  |
| Presby-<br>terian } . . . . . | 2,253 | 2,800 | 4,800  | 6,400  | 7,100  | 10,940  |
| R. Catholic . . . . .         | 210   | 512   | 1,200  | 2,600  | 3,800  | 6,755   |
| Various . . . . .             | 3,170 | 3,450 | 9,200  | 13,020 | 17,000 | 30,100  |
| Total . . . . .               | ...   | ...   | 38,100 | 54,020 | 63,100 | 108,145 |

The value of church property was as follows :—

|                         | 1850       | 1870       | Number of Believers |            |
|-------------------------|------------|------------|---------------------|------------|
|                         | £          | £          | 1835                | 1880       |
| Methodists . . . . .    | 3,100,000  | 14,600,000 | 1,240,000           | 14,667,000 |
| Baptists . . . . .      | 2,300,000  | 8,700,000  | 2,929,000           | 10,464,000 |
| Presbyterians . . . . . | 3,100,000  | 11,000,000 | 2,102,000           | 6,478,000  |
| R. Catholics . . . . .  | 1,900,000  | 12,700,000 | 555,000             | 6,143,000  |
| Various . . . . .       | 7,800,000  | 27,200,000 | 7,532,000           | 12,407,000 |
| Total . . . . .         | 18,200,000 | 74,200,000 | 14,358,000          | 50,159,000 |

In 1888 the Roman Catholics possessed 7424 churches, 650 colleges, 3100 schools, and 520 hospitals and asylums.

The *American Almanac* gives the following statistics for 1883-85 :—

|                                | Churches | Clergy | Sittings  |
|--------------------------------|----------|--------|-----------|
| Baptists . . . . .             | 31,350   | 16,190 | 2,572,000 |
| Episcopal Methodists . . . . . | 17,935   | 11,676 | 1,660,000 |
| Other Methodists . . . . .     | ...      | 10,770 | 2,050,000 |
| Presbyterians . . . . .        | 10,940   | 9,050  | 1,020,000 |
| Roman Catholics . . . . .      | 6,755    | 7,370  | ...       |
| Various . . . . .              | 30,240   | 29,100 | 3,650,000 |
| Total . . . . .                | 97,220   | 84,156 | ...       |

In 1883 the number of Roman Catholics was 6,832,900, but the number of sittings was not known. In 1889 Cardinal Gibbon stated their number at 9,000,000.

## GERMANY

The Census of 1885 compares with 1871 as follows :—

|                           | 1871       | 1885       |
|---------------------------|------------|------------|
| Protestants . . . . .     | 25,582,000 | 29,370,000 |
| Roman Catholics . . . . . | 14,868,000 | 16,789,000 |
| Jews . . . . .            | 512,000    | 563,000    |
| Undefined . . . . .       | 99,000     | 137,000    |
| Total . . . . .           | 41,061,000 | 46,859,000 |

In 1885 the distribution was as follows :—

|                        | Percentage |         |        |             |              |
|------------------------|------------|---------|--------|-------------|--------------|
|                        | Prussia    | Bavaria | Saxony | Wurtem-berg | All Ger-many |
| Protestants . . . . .  | 64.4       | 28.1    | 96.6   | 69.1        | 62.7         |
| R. Catholics . . . . . | 34.0       | 70.8    | 2.8    | 30.0        | 35.8         |
| Jews . . . . .         | 1.3        | 1.0     | 0.2    | 0.7         | 1.2          |
| Undefined . . . . .    | 0.3        | 0.1     | 0.4    | 0.2         | 0.3          |
| Total . . . . .        | 100.0      | 100.0   | 100.0  | 100.0       | 100.0        |

## CANADA

|                           | Number    | Ratio |
|---------------------------|-----------|-------|
| Roman Catholics . . . . . | 1,792,000 | 42.2  |
| Anglicans . . . . .       | 575,000   | 13.6  |
| Presbyterians . . . . .   | 676,000   | 16.0  |
| Methodists . . . . .      | 743,000   | 17.6  |
| Various . . . . .         | 446,000   | 10.6  |
| Total . . . . .           | 4,232,000 | 100.0 |

Roman Catholics count 1,170,000 in Lower Canada, 320,000 in Ontario, and 302,000 in the other provinces, about 1,100,000 being French and 700,000 Irish.

## AUSTRALIA

In 1889 the various congregations stood as follows :—

|                             | Anglicans | R. Catholics | Presbyterians | Methodists | Various | Total     |
|-----------------------------|-----------|--------------|---------------|------------|---------|-----------|
| New South Wales . . . . .   | 503,000   | 306,000      | 107,000       | 95,000     | 95,000  | 1,106,000 |
| Victoria . . . . .          | 399,000   | 261,000      | 170,000       | 139,000    | 135,000 | 1,104,000 |
| Queensland . . . . .        | 139,000   | 95,000       | 46,000        | 31,000     | 86,000  | 397,000   |
| South Australia . . . . .   | 85,000    | 48,000       | 20,000        | 59,000     | 103,000 | 315,000   |
| New Zealand . . . . .       | 216,000   | 85,000       | 138,000       | 58,000     | 85,000  | 612,000   |
| Tasmania . . . . .          | 60,000    | 38,000       | 19,000        | 16,000     | 15,000  | 148,000   |
| Western Australia . . . . . | 23,000    | 12,000       | 1,000         | 3,000      | 4,000   | 43,000    |
| Total . . . . .             | 1,455,000 | 845,000      | 501,000       | 401,000    | 523,000 | 3,725,000 |

## INDIA

The Census of 1881 showed as follows :—

|                      | Christians | Hindoos     | Mahometans | Buddhists | Various    | Total       |
|----------------------|------------|-------------|------------|-----------|------------|-------------|
| Assam . . . . .      | 7,000      | 3,062,000   | 1,317,000  | 6,000     | 489,000    | 4,881,000   |
| Bengal . . . . .     | 128,000    | 45,453,000  | 21,705,000 | 156,000   | 2,095,000  | 69,537,000  |
| Bombay . . . . .     | 145,000    | 17,835,000  | 3,774,000  | ...       | 1,642,000  | 23,396,000  |
| Burmah . . . . .     | 84,000     | 88,000      | 169,000    | 3,252,000 | 144,000    | 3,737,000   |
| Madras . . . . .     | 711,000    | 28,498,000  | 1,934,000  | 2,000     | 26,000     | 31,171,000  |
| Punjab . . . . .     | 34,000     | 9,252,000   | 11,662,000 | 3,000     | 1,761,000  | 22,712,000  |
| Travancore . . . . . | 499,000    | 1,756,000   | 147,000    | ...       | ...        | 2,402,000   |
| Various . . . . .    | 255,000    | 81,993,000  | 9,414,000  | ...       | 4,393,000  | 96,055,000  |
| Total . . . . .      | 1,863,000  | 187,937,000 | 50,122,000 | 3,419,000 | 10,550,000 | 253,891,000 |

"Christians" included 963,000 Roman Catholics, 432,000 Protestants, and 568,000 Syrians, Greeks, &c.

## RIBBONS

The value manufactured was estimated as follows :—

|                           | 1872       | 1881       |
|---------------------------|------------|------------|
| France . . . . .          | 4,920,000  | 5,016,000  |
| Germany . . . . .         | 2,810,000  | 2,420,000  |
| Switzerland . . . . .     | 2,590,000  | 2,230,000  |
| Austria . . . . .         | 920,000    | 710,000    |
| Great Britain . . . . .   | 800,000    | 800,000    |
| United States . . . . .   | 100,000    | 3,430,000  |
| Other countries . . . . . | 400,000    | 900,000    |
| Total . . . . .           | 12,540,000 | 15,506,000 |

## RICE

The ordinary production is approximately as follows :—

|                     | Acres      | Crop, Tons | Consumption | Surplus   |
|---------------------|------------|------------|-------------|-----------|
| India . . . . .     | 22,600,000 | 16,800,000 | 15,400,000  | 1,400,000 |
| Burmah . . . . .    | 3,800,000  | 2,700,000  | 1,700,000   | 1,000,000 |
| Japan . . . . .     | 6,580,000  | 4,800,000  | 4,600,000   | 200,000   |
| Manilla . . . . .   | 3,140,000  | 1,800,000  | 1,750,000   | 50,000    |
| Java . . . . .      | 5,000,000  | 3,000,000  | 2,500,000   | 500,000   |
| Ceylon . . . . .    | 600,000    | 400,000    | 350,000     | 50,000    |
| Italy . . . . .     | 500,000    | 400,000    | 360,000     | 40,000    |
| Spain . . . . .     | 50,000     | 40,000     | 40,000      | ...       |
| U. States . . . . . | 120,000    | 90,000     | 160,000     | ...       |

There are also 1,870,000 acres in Cochinchina, and 500,000 in Siam under this product; no return as to crops.

The consumption in Europe has doubled since 1870, and now exceeds two million tons yearly. Consumption in the United Kingdom has been as follows:—

| Year           | Tons    | Lbs. per Inhab. |
|----------------|---------|-----------------|
| 1860 . . . . . | 18,100  | 1½              |
| 1870 . . . . . | 95,200  | 7               |
| 1880 . . . . . | 221,000 | 14              |
| 1889 . . . . . | 178,000 | 10½             |

It has been grown successfully in the Thames valley near Windsor.

## RIVERS

The magnitude of rivers is best judged by their outflow, which is as follows:—

|                          | Cubic Feet per Second |                     | Cubic Feet per Second |
|--------------------------|-----------------------|---------------------|-----------------------|
| Amazon . . . . .         | 1,030,000             | Dnieper . . . . .   | 120,000               |
| La Plata . . . . .       | 850,000               | Don . . . . .       | 115,000               |
| Mississippi . . . . .    | 570,000               | Euphrates . . . . . | 110,000               |
| St. Lawrence . . . . .   | 470,000               | Rhine . . . . .     | 65,000                |
| Obi . . . . .            | 330,000               | Rhone . . . . .     | 60,000                |
| Volga . . . . .          | 310,000               | Po . . . . .        | 60,000                |
| Yang-tse-kiang . . . . . | 300,000               | Vistula . . . . .   | 45,000                |
| Congo . . . . .          | 250,000               | Loire . . . . .     | 35,000                |
| Danube . . . . .         | 250,000               | Elbe . . . . .      | 30,000                |
| Ganges . . . . .         | 200,000               | Seine . . . . .     | 20,000                |
| Nile . . . . .           | 160,000               | Thames . . . . .    | 10,000                |

The following table shows the length of the more important rivers:—\*

|                       | Miles |                          | Miles |
|-----------------------|-------|--------------------------|-------|
| Amazon . . . . .      | 3,270 | Mississippi . . . . .    | 2,250 |
| Amoor . . . . .       | 2,240 | Murray . . . . .         | 1,703 |
| Brahmaputra . . . . . | 1,560 | Niger . . . . .          | 2,300 |
| Columbia . . . . .    | 1,090 | Nile . . . . .           | 2,750 |
| Congo . . . . .       | 2,700 | Norte . . . . .          | 1,250 |
| Danube . . . . .      | 1,540 | Obi . . . . .            | 2,800 |
| Darling . . . . .     | 2,345 | Orange . . . . .         | 1,000 |
| Dnieper . . . . .     | 1,070 | Orinoco . . . . .        | 1,150 |
| Don . . . . .         | 985   | Oxus . . . . .           | 1,300 |
| Douro . . . . .       | 490   | Plata . . . . .          | 2,130 |
| Ebro . . . . .        | 470   | Po . . . . .             | 356   |
| Elbe . . . . .        | 615   | Rhine . . . . .          | 715   |
| Euphrates . . . . .   | 1,360 | Rhone . . . . .          | 450   |
| Ganges . . . . .      | 1,350 | St. Lawrence . . . . .   | 1,930 |
| Garonne . . . . .     | 400   | Seine . . . . .          | 429   |
| Guadiana . . . . .    | 320   | Senegal . . . . .        | 850   |
| Hoang-ho . . . . .    | 2,400 | Severn . . . . .         | 210   |
| Hadson . . . . .      | 280   | Shannon . . . . .        | 220   |
| Indus . . . . .       | 1,720 | Tagus . . . . .          | 570   |
| Irrawaddy . . . . .   | 900   | Thames . . . . .         | 204   |
| Jenisei . . . . .     | 2,100 | Tiber . . . . .          | 210   |
| Kiang-ku . . . . .    | 1,050 | Vistula . . . . .        | 601   |
| Lena . . . . .        | 2,500 | Volga . . . . .          | 1,990 |
| Loire . . . . .       | 549   | Yang-tse-kiang . . . . . | 2,700 |
| Mackenzie . . . . .   | 1,600 | Zambesi . . . . .        | 950   |
| Magdalena . . . . .   | 820   |                          |       |

The basins drained by the great rivers are as follows:—

|                          | Sq. Miles |                        | Sq. Miles |
|--------------------------|-----------|------------------------|-----------|
| Amazon . . . . .         | 1,920,000 | St. Lawrence . . . . . | 340,000   |
| La Plata . . . . .       | 1,560,000 | Danube . . . . .       | 310,000   |
| Obi . . . . .            | 1,370,000 | Euphrates . . . . .    | 240,000   |
| Congo . . . . .          | 1,300,000 | Don . . . . .          | 220,000   |
| Mississippi . . . . .    | 1,170,000 | Dnieper . . . . .      | 170,000   |
| Yang-tse-kiang . . . . . | 740,000   | Rhine . . . . .        | 90,000    |
| Nile . . . . .           | 710,000   | Vistula . . . . .      | 75,000    |
| Volga . . . . .          | 650,000   | Elbe . . . . .         | 50,000    |
| Ganges . . . . .         | 440,000   | Rhone . . . . .        | 45,000    |

\* The navigable length of rivers has been already given under the heading of *Canals*.

The outflow of European rivers is estimated as follows:—

### Cubic Feet per Second

| Into                |         | Into                    |         |
|---------------------|---------|-------------------------|---------|
| North Sea . . . . . | 336,000 | Mediterranean . . . . . | 310,000 |
| Baltic . . . . .    | 273,000 | Caspian . . . . .       | 365,000 |
| Atlantic . . . . .  | 285,000 | Black Sea . . . . .     | 603,000 |

Making a total of 2,172,000 cubic feet per second, or more than eight times the outflow of the Danube.

The current of certain rivers in ordinary times is as follows:—

|                  | Feet per Minute |                   | Feet per Minute |
|------------------|-----------------|-------------------|-----------------|
| Seine . . . . .  | 135             | Garonne . . . . . | 230             |
| Thames . . . . . | 180             | Rhone . . . . .   | 390             |
| Tiber . . . . .  | 200             | Durance . . . . . | 510             |
| Danube . . . . . | 210             | Rhine . . . . .   | 540             |
| Loire . . . . .  | 220             | Amazon . . . . .  | 780             |

The Amazon falls 2 ft., the Elbe 10 ft., the Paraná 22 ft. per 100 miles. The Danube falls 264 ft. from Vienna to Buda-Pesth, and 216 ft. from the latter place to the sea.

There have been some remarkable floods of the Seine at Paris and the Tiber at Rome, when the height over ordinary level was as follows:—

| Date           | River           | Feet | Date           | River           | Feet |
|----------------|-----------------|------|----------------|-----------------|------|
| 1658 . . . . . | Seine . . . . . | 29   | 1530 . . . . . | Tiber . . . . . | 45   |
| 1740 . . . . . | Seine . . . . . | 26   | 1686 . . . . . | Tiber . . . . . | 35   |
| 1802 . . . . . | Seine . . . . . | 24   | 1742 . . . . . | Tiber . . . . . | 31   |

The outflow of all Italian rivers is estimated thus, in cubic feet per second:—

|                        | Cubic Feet | Basin, Sq. Miles |
|------------------------|------------|------------------|
| Po . . . . .           | 60,000     | 28,000           |
| Tiber . . . . .        | 10,000     | 6,000            |
| Other rivers . . . . . | 45,000     | 51,000           |
| Total . . . . .        | 115,000    | 85,000           |

The basin and outflow of French rivers are as follows:—

|                   | Basin, Sq. Miles | Cubic Feet per Second |
|-------------------|------------------|-----------------------|
| Rhone . . . . .   | 48,000           | 60,000                |
| Gironde . . . . . | 50,000           | 40,000                |
| Loire . . . . .   | 54,000           | 35,000                |
| Seine . . . . .   | 32,000           | 20,000                |
| Various . . . . . | 15,000           | 40,000                |
| Total . . . . .   | 199,000          | 195,000               |

The outflow of the Nile varies from 16,000 cubic feet per second in June to 400,000 in September, the yearly average being at the rate of 160,000 cubic feet per second; Sir John Fowler makes it only 120,000. The ordinary rise of the Nile is shown in the averages for thirteen years thus:—

|                   | Feet. | In. |
|-------------------|-------|-----|
| 1866-70 . . . . . | 25    | 2   |
| 1871-78 . . . . . | 24    | 0   |

The ordinary discharge of the Nile is sixteen times that of the Thames.

## ROADS

The following is a table of resistance for waggons-draughts per ton:—

|                          | Gradients of |             |             |             |             |
|--------------------------|--------------|-------------|-------------|-------------|-------------|
| Description              | Level Road   | 1 per Cent. | 3 per Cent. | 5 per Cent. | 8 per Cent. |
| Pavement . . . . .       | 33           | 63          | 123         | 185         | 278         |
| Macadam . . . . .        | 46           | 87          | 170         | 255         | 382         |
| Stone and clay . . . . . | 65           | 123         | 245         | 368         | 552         |
| Thick gravel . . . . .   | 147          | 280         | 550         | 825         | 1,238       |

M'Neill's mail-coach dynamometer is as follows :—

| Speed,<br>Miles<br>per<br>Hour | Force Required |                          |                         |                         |
|--------------------------------|----------------|--------------------------|-------------------------|-------------------------|
|                                | Level<br>Road  | 2½ per Cent.<br>Gradient | 4 per Cent.<br>Gradient | 5 per Cent.<br>Gradient |
|                                | Lbs.           | Lbs.                     | Lbs.                    | Lbs.                    |
| 6 . .                          | 111            | 160                      | 213                     | 268                     |
| 8 . .                          | 120            | 166                      | 219                     | 296                     |
| 10 . .                         | 128            | 172                      | 225                     | 318                     |

There are practically three kinds of roads—ordinary highways, railways, and rivers or canals. The total length is approximately as follows :—

|                        | Miles         |               |         |           | Miles of<br>Way per<br>100 Sq.<br>Miles |
|------------------------|---------------|---------------|---------|-----------|-----------------------------------------|
|                        | High-<br>ways | Rail-<br>ways | Rivers  | Total     |                                         |
| U. Kingdom             | 118,000       | 19,800        | 3,800   | 141,600   | 120                                     |
| France . .             | 320,000       | 20,900        | 7,700   | 348,600   | 170                                     |
| Germany . .            | 265,000       | 24,300        | 17,100  | 306,400   | 150                                     |
| Russia . .             | 65,000        | 17,700        | 33,900  | 116,600   | 5                                       |
| Austria . .            | 81,000        | 15,600        | 7,200   | 103,800   | 37                                      |
| Italy . .              | 51,000        | 7,800         | 1,300   | 60,100    | 54                                      |
| Spain . .              | 14,000        | 5,900         | 1,100   | 21,000    | 11                                      |
| Portugal . .           | 2,000         | 1,200         | 500     | 3,700     | 10                                      |
| Sweden . .             | 36,200        | 4,700         | 500     | 41,400    | 24                                      |
| Norway . .             | 14,800        | 1,000         | 100     | 15,900    | 12                                      |
| Denmark . .            | 2,000         | 1,200         | 100     | 3,300     | 22                                      |
| Holland . .            | 7,600         | 1,700         | 2,700   | 12,000    | 60                                      |
| Belgium . .            | 5,700         | 2,800         | 1,200   | 9,700     | 85                                      |
| Switzerland            | ...           | 1,900         | 500     | 2,400     | 16                                      |
| Roumania, }<br>&c. . } | ...           | 3,600         | 1,100   | 4,700     | 3                                       |
| Europe . .             | 982,300       | 130,100       | 78,800  | 1,191,200 | 35                                      |
| U. States . .          | 260,100       | 161,200       | 51,800  | 473,100   | 15                                      |
| Canada . .             | 6,000         | 13,300        | 4,000   | 23,300    | 1                                       |
| India . .              | 58,000        | 15,300        | 5,000   | 78,300    | 6                                       |
| Australia . .          | ...           | 10,600        | 3,800   | 14,400    | 1                                       |
| Argentina . .          | ...           | 5,600         | 2,200   | 7,800     | 1                                       |
| Brazil . .             | 700           | 5,600         | 24,300  | 30,700    | 1                                       |
| Total . .              | 1,307,100     | 341,600       | 169,900 | 1,818,700 | 10                                      |

In Switzerland, lake routes are counted as navigable rivers. The term "highways" includes also byways practicable for wheeled vehicles. The ordinary cost of making a road is £800 a mile in England, £1200 in France, £600 in Italy. The cost of maintenance is £18 a mile in England, £33 in France, £38 in Austria.

Macadamised roads are called after a Scotch engineer who began his labours in 1818.

#### UNITED KINGDOM

The mileage of roads in England and Wales increased until the introduction of railways, and then began to decline, viz :—

| Year       | Miles  |          |         |
|------------|--------|----------|---------|
|            | Main   | Ordinary | Total   |
| 1813 . . . | 19,700 | 95,100   | 114,800 |
| 1839 . . . | 21,960 | 104,770  | 126,730 |
| 1870 . . . | 15,125 | 102,615  | 117,740 |
| 1889 . . . | 17,745 | 93,115   | 110,860 |

Expenditure in 1889 was as follows :—

|                | £         | Average per<br>Mile, £ |
|----------------|-----------|------------------------|
| Main . . .     | 802,000   | 45                     |
| Ordinary . . . | 1,222,000 | 13                     |
| Total . . .    | 2,024,000 | 18                     |

The Romans had roads from Brighton to York; these were repaired by Edward I. and subsequent monarchs. In the 18th century Arthur Young wrote of the turnpike road from Preston to Wigan: "This infernal road has ruts four feet deep; in 18 miles I counted three cars broken down." Scotland had no regular roads, at least in the northern parts, before 1745, when General Wade's soldiers made them. Telford resumed the work in 1800, and made 900 miles of road and 1200 bridges in twenty years. In 1887 Scotland had 2530 miles of main and ordinary highways. As for Ireland, it was customary in the 18th century to travel on horseback, Colonel Knox Gore stating recently in the House of Commons that he was the first man who travelled by coach from Connaught to Dublin.

#### FRANCE

Expenditure in 1885 was as follows :—

| Roads              | Miles   | £          | £ per Mile |
|--------------------|---------|------------|------------|
| National . . .     | 23,700  | 1,280,000  | 54         |
| Departmental . . . | 18,900  | 880,000    | 47         |
| Local . . .        | 277,400 | 8,360,000  | 30         |
| Total . . .        | 320,000 | 10,520,000 | 33         |

In 1835 the mileage and value of routes was as follows :—

|                  | Miles  | £          | £ per Mile |
|------------------|--------|------------|------------|
| Canals . . .     | 2,300  | 18,000,000 | 7,800      |
| Highroads . . .  | 21,500 | 21,000,000 | 9,800      |
| Byroads . . .    | 24,000 | 15,000,000 | 6,200      |
| Bridges, No. . . | 1,750  | 7,000,000  | ...        |
| Total value . .  | ...    | 61,000,000 | ...        |

There are four classes of roads in France, viz :—

| Class     | Width, Feet | Cost, £ per Mile |
|-----------|-------------|------------------|
| 1st . . . | 50          | 1,900            |
| 2nd . . . | 40          | 1,200            |
| 3rd . . . | 33          | 800              |
| 4th . . . | 25          | 400              |

In fifty years ending 1880 France spent 180 millions sterling on highroads; those now existing are worth about 240 millions sterling.

#### GERMANY

The main roads of the Empire in 1878 were as follows :—

|                    | Miles  |
|--------------------|--------|
| Prussia . . .      | 25,300 |
| Bavaria . . .      | 6,200  |
| Other States . . . | 33,700 |
| Total . . .        | 65,200 |

There were also 200,000 miles of byroads.

#### AUSTRIA

After the peace of 1815 the Government began to make roads, and in sixty years, down to 1875, no less than 60,000 miles of macadamised roads were laid down, besides sixty passes made over the Alps, with casemates for travellers. The grand trunk road from Verona (then Austrian Italy) to Bukowina was 1000 miles in length. Road-making is still carried on at the rate of 1000 miles yearly.

The returns of Austria proper, without Hungary, show as follows:—

|                   | Mileage |        |
|-------------------|---------|--------|
|                   | 1878    | 1887   |
| Highroads . . . . | 9,700   | 9,800  |
| Byroads . . . . . | 42,300  | 52,300 |
| Total . . . . .   | 52,000  | 62,100 |

Highroads are kept in repair by the State at a cost of £38 per mile per annum, byroads by the local communes. Hungary had 18,800 miles of road in 1886, of which 4,400 were maintained by the State, and 14,400 of minor importance by the communes.

## ITALY

In the last thirty years no less than 28,000 miles of road have been constructed, at an outlay of 17 millions sterling, being an average of £600 per mile. There are at present 5800 miles of main routes maintained by the State, and 45,000 of local roads by the communes.

## SPAIN

The length of highroads at various dates was:—

| Year           | Miles | Year           | Miles  |
|----------------|-------|----------------|--------|
| 1808 . . . . . | 1,860 | 1869 . . . . . | 9,980  |
| 1827 . . . . . | 3,300 | 1880 . . . . . | 13,970 |

In 1827 waggons paid a toll of twopence every 10 miles, and the State expended £91,000 on the maintenance of 3300 miles and thirty-five bridges. The rest of Spain had only mule-tracks. When Church properties were confiscated, a part of the spoil was devoted to making roads, and in this way £7,000,000 were expended between 1846 and 1858. In 1880 there were 12,420 miles of good carriage roads maintained by the State, and 1550 by the local authorities.

## PORTUGAL

In 1840 there were neither roads nor mail-coaches; men travelled on mules, ladies in sedan-chairs borne by hand. At present there are about 2000 miles of road, including the great northern route, 300 miles, to Valenza on the Minho, and the great eastern to Badajoz.

## BELGIUM

The mileage of roads has nearly trebled since 1830:—

| Year           | Highroads | Byroads | Total |
|----------------|-----------|---------|-------|
| 1830 . . . . . | 1,620     | 430     | 2,050 |
| 1850 . . . . . | 2,550     | 1,360   | 3,910 |
| 1870 . . . . . | 3,360     | 1,280   | 4,640 |
| 1887 . . . . . | 4,350     | 1,350   | 5,700 |

## SALT

The following table shows the percentage of salt in various seas:—

| Sea                       | Percentage of Salt | Salt per Ton of Water, lbs. |
|---------------------------|--------------------|-----------------------------|
| Caspian . . . . .         | 0.5                | 11                          |
| Black . . . . .           | 1.2                | 26                          |
| Baltic . . . . .          | 1.3                | 28                          |
| English Channel . . . . . | 3.3                | 72                          |
| Red . . . . .             | 4.3                | 93                          |
| Dead . . . . .            | 8.5                | 187                         |
| Mediterranean . . . . .   | 3.9                | 85                          |
| Atlantic . . . . .        | 3.7                | 81                          |
| Salt Lake . . . . .       | 20.0               | 440                         |

In 1879 the waggons used on the above roads had a carrying power of 470,000 tons.

## UNITED STATES

The length of mail-coach roads at various dates was:—

| Year           | Miles   |
|----------------|---------|
| 1800 . . . . . | 20,820  |
| 1850 . . . . . | 169,700 |
| 1889 . . . . . | 260,100 |

At the period of independence there were not 1000 miles of highroad, the colonies of New England, Virginia, &c., having little other means of communication than by sea.

In 1834 the mail-coach roads of the principal States were as follows:—

|                        | Miles  |                          | Miles |
|------------------------|--------|--------------------------|-------|
| New York . . . . .     | 12,300 | North Carolina . . . . . | 6,500 |
| Pennsylvania . . . . . | 9,800  | Kentucky . . . . .       | 5,600 |
| Virginia . . . . .     | 9,500  | Tennessee . . . . .      | 5,500 |
| Ohio . . . . .         | 8,100  | Vermont . . . . .        | 4,700 |

The other States having an aggregate of 42,500 miles, and thus making up a total of 104,500 for the Union.

## CANADA

In 1826 there was such a want of roads that Major Strickland described a journey of fifty miles near Toronto, which took him three days to accomplish. In 1878 there were 5500 miles of regular mail-coach road.

## BRAZIL

The interior is still destitute of good roads, but there are some admirable ones in the Maritime provinces. Those of Tijuca and Petropolis, near Rio Janeiro, are *chefs d'œuvre*, besides which those in the provinces of San Paulo and Rio Grande are worth mention. Waggon-tracks from Rio Janeiro to Matto Grosso and Goyaz, are in use for freight, the journey taking six months.

## ARGENTINA

Except the routes over the Andes to Chili, roads are almost unknown. President Sarmiento bridged many of the rivers in 1868-74. Railways have meantime rendered roads superfluous. In 1860 the bullock-waggons between Tucuman and Rosario, 600 miles, usually took twelve months on the round trip, going ten miles a day, and making long halts. The distance is now done in one day by rail.

S.

In the Dead Sea the percentage of salt increases with depth, viz:—

| Depth, Feet     | Salt | Water |
|-----------------|------|-------|
| 1 . . . . .     | 93   | 907   |
| 66 . . . . .    | 204  | 796   |
| 400 . . . . .   | 263  | 737   |
| 1,000 . . . . . | 278  | 722   |

The production of salt in Europe and the United States has been approximately as follows, in tons:—

|                         | 1830      | 1889      |
|-------------------------|-----------|-----------|
| Great Britain . . . . . | 400,000   | 1,900,000 |
| Continent . . . . .     | 1,700,000 | 4,350,000 |
| United States . . . . . | 100,000   | 1,050,000 |
| Total . . . . .         | 2,200,000 | 7,300,000 |

The following table shows approximately the present production and consumption yearly:—

|                              | Tons       |             | Lbs. Consumed per Inhabitant |
|------------------------------|------------|-------------|------------------------------|
|                              | Production | Consumption |                              |
| United Kingdom . . . . .     | 1,950,000  | 1,050,000   | 62                           |
| France . . . . .             | 640,000    | 640,000     | 36                           |
| Germany . . . . .            | 910,000    | 755,000     | 35                           |
| Russia . . . . .             | 1,200,000  | 1,310,000   | 33                           |
| Austria . . . . .            | 340,000    | 340,000     | 18                           |
| Italy . . . . .              | 600,000    | 350,000     | 25                           |
| Spain and Portugal . . . . . | 600,000    | 190,000     | 19                           |
| Scandinavia . . . . .        | ...        | 190,000     | 44                           |
| United States . . . . .      | 1,050,000  | 1,360,000   | 48                           |
| Canada . . . . .             | 55,000     | 105,000     | 45                           |
| India . . . . .              | 700,000    | 1,100,000   | 12                           |
| Various . . . . .            | 755,000    | 1,130,000   | ...                          |
| Total . . . . .              | 8,800,000  | 8,520,000   | ...                          |

Whenever the consumption falls below 20 lbs. per inhabitant, it is bad for public health. During the Paraguayan War of 1864-70, it was observed that the men who had been without salt for three months, when wounded, however slightly, died, as their wounds would not heal.

## UNITED KINGDOM

| Period            | Average Production, Tons per Annum | Duty per Ton | Price per Ton | Lbs. Consumed per Inhabitant |
|-------------------|------------------------------------|--------------|---------------|------------------------------|
| 1800-06 . . . . . | 203,000                            | £30          | £32           | 16                           |
| 1807-15 . . . . . | 230,000                            | 30           | 32            | 16                           |
| 1816-23 . . . . . | 257,000                            | 30           | 32            | 16                           |
| 1824-40 . . . . . | 410,000                            | ...          | 1             | 19                           |
| 1841-60 . . . . . | 880,000                            | ...          | 16s.          | 32                           |
| 1861-70 . . . . . | 1,540,000                          | ...          | 14s.          | 58                           |
| 1871-80 . . . . . | 2,020,000                          | ...          | 12s.          | 72                           |

The consumption in the United Kingdom averages 40 lbs. per inhabitant for cooking or condiment, the rest being used for chemicals, manure, &c. Reduced death-rate and higher efficiency of workmen are in some manner the result of increased consumption of salt.

The exportation at various dates has been as follows:—

| Year           | Tons      | Value, £ | Shillings per Ton |
|----------------|-----------|----------|-------------------|
| 1830 . . . . . | 220,000   | ...      | ...               |
| 1853 . . . . . | 520,000   | 270,000  | 10.4              |
| 1860 . . . . . | 700,000   | 360,000  | 10.3              |
| 1870 . . . . . | 760,000   | 380,000  | 10.0              |
| 1880 . . . . . | 1,050,000 | 600,000  | 11.4              |
| 1888 . . . . . | 900,000   | 490,000  | 10.9              |

The number of salt-pans in the United Kingdom rose from 752 in 1867 to 1311 in 1876, the production in the latter year including 1,780,000 tons of white salt made from brine, and 190,000 of rock-salt from Cheshire and Carrickfergus.

## FRANCE

Production at various dates was approximately as follows:—

| Year           | Tons    | Lbs. per Inhabitant |
|----------------|---------|---------------------|
| 1830 . . . . . | 300,000 | 20                  |
| 1840 . . . . . | 400,000 | 25                  |
| 1850 . . . . . | 600,000 | 36                  |
| 1868 . . . . . | 600,000 | 34                  |
| 1886 . . . . . | 640,000 | 36                  |

The quantity made in 1886 was officially valued at £480,000, say 15 shillings a ton. The surplus for exportation is insignificant. The saltworks employ 4000 hands. The amount of salt which paid excise in 1885

was only 330,000 tons, being for cookery and table use; what is used in manufactures is untaxed.

## GERMANY

Official returns show as follows:—

| Year           | Tons       |         |             |
|----------------|------------|---------|-------------|
|                | Production | Export  | Consumption |
| 1870 . . . . . | 430,000    | 40,000  | 390,000     |
| 1880 . . . . . | 660,000    | 100,000 | 560,000     |
| 1887 . . . . . | 910,000    | 155,000 | 755,000     |

Consumption compared with population showed:—

| Year           | Lbs. per Inhabitant |              |       |
|----------------|---------------------|--------------|-------|
|                | Table Use           | Manufactures | Total |
| 1870 . . . . . | 17                  | 8            | 25    |
| 1880 . . . . . | 17                  | 13           | 30    |
| 1887 . . . . . | 17                  | 18           | 35    |

In 1887 Prussia produced 470,000 tons, Wurtemberg 180,000, and the other states 260,000 tons.

## RUSSIA

Production and consumption at various dates were:—

| Year           | Tons       |         |             | Lbs. per Inhabitant |
|----------------|------------|---------|-------------|---------------------|
|                | Production | Imports | Consumption |                     |
| 1840 . . . . . | 440,000    | ...     | 440,000     | 18                  |
| 1860 . . . . . | 420,000    | 150,000 | 570,000     | 20                  |
| 1870 . . . . . | 450,000    | 180,000 | 630,000     | 20                  |
| 1880 . . . . . | 780,000    | 150,000 | 930,000     | 24                  |
| 1888 . . . . . | 1,200,000  | 110,000 | 1,310,000   | 33                  |

## AUSTRIA

The salt-mine of Wieliczka in Galitzia, at the base of the Carpathians, is the greatest in the world, extending 600 miles, and seeming inexhaustible. For six centuries it has given prodigious quantities of salt, and it still occupies 9000 miners. The total tonnage production of the Empire for the years given was estimated thus:—

|                |         |
|----------------|---------|
| 1834 . . . . . | 260,000 |
| 1850 . . . . . | 600,000 |
| 1887 . . . . . | 340,000 |

If the estimate in 1850 was correct, this shows that the industry is declining apace, perhaps owing to the heavy salt-tax, the Government selling it at £1 per ton for exportation, but at £10 per ton for home use.

## HOLLAND

In 1880-83 the average consumption was as follows:—

|                        | Tons   |
|------------------------|--------|
| For food . . . . .     | 39,000 |
| Manufactures . . . . . | 19,000 |

Total . . . . . 58,000

The consumption for food averaged 20 lbs. per head. The salt-tax yields £300,000 per annum, say 18 pence per inhabitant.

## SPAIN AND PORTUGAL

In 1850 Spain was estimated to produce 800,000; Portugal, 520,000 tons. An official report in 1863 gave the production in Spain as 3,800,000 tons, probably ten times the real quantity. Experts were as follows:—

| Year           | Tons    |          |         | Total Value, £ |
|----------------|---------|----------|---------|----------------|
|                | Spain   | Portugal | Total   |                |
| 1872 . . . . . | 220,000 | 180,000  | 400,000 | 410,000        |
| 1880 . . . . . | 320,000 | 190,000  | 510,000 | 320,000        |
| 1888 . . . . . | 240,000 | 170,000  | 410,000 | 200,000        |



The production of the two countries is not thought to exceed 600,000 tons.

## SCANDINAVIA

Imports of salt were as follows:—

| Year       | Tons   |         |         |         |
|------------|--------|---------|---------|---------|
|            | Sweden | Norway  | Denmark | Total   |
| 1860 . . . | 40,000 | 65,000  | 10,000  | 115,000 |
| 1870 . . . | 60,000 | 100,000 | 20,000  | 180,000 |
| 1880 . . . | 60,000 | 70,000  | 20,000  | 150,000 |
| 1888 . . . | 70,000 | 90,000  | 30,000  | 190,000 |

The large consumption in Norway is explained by the fisheries.

## UNITED STATES

Production and consumption at various dates were:—

| Year | Tons       |         |             | Lbs. per Inhabitant |
|------|------------|---------|-------------|---------------------|
|      | Production | Imports | Consumption |                     |
| 1840 | 150,000    | ...     | ...         | ...                 |
| 1870 | 400,000    | ...     | ...         | ...                 |
| 1880 | 670,000    | 430,000 | 1,100,000   | 48                  |
| 1888 | 1,050,000  | 310,000 | 1,360,000   | 48                  |

Saltworks were established at Cape Charles, Virginia, in 1620, and the French began working salt-springs in Illinois in 1720. The principal works in 1850 were at Syracuse, New York, producing 250,000 tons yearly. The method of solar evaporation is by tanks six inches deep, with an area of 300 square feet, each tank producing one ton per annum, worth 8s. Boiling is also practised at Syracuse in kettles of 100 gallons; the consumption of coal being one ton for each ton of salt. The production in 1870 and 1880 was as follows:—

|                 | Saltworks |      | Tons Produced |         |
|-----------------|-----------|------|---------------|---------|
|                 | 1870      | 1880 | 1870          | 1880    |
| Michigan . . .  | 65        | 86   | 90,000        | 280,000 |
| New York . . .  | 93        | 69   | 110,000       | 200,000 |
| Virginia . . .  | 29        | 11   | 100,000       | 70,000  |
| Ohio . . . . .  | 40        | 25   | 65,000        | 60,000  |
| Various . . . . | 55        | 73   | 35,000        | 60,000  |
| Total . . . .   | 282       | 264  | 400,000       | 670,000 |

## CANADA

The importation has been as follows:—

| Year           | Tons   | Value, £ |
|----------------|--------|----------|
| 1874 . . . . . | 60,000 | 90,000   |
| 1887 . . . . . | 50,000 | 65,000   |

Salt-springs were discovered at Goderich, Ontario, in 1865, and a bore of 960 feet was sunk in 1876. The production in 1886 was 55,000 tons, valued at £45,000. The consumption is, therefore, 105,000 tons, equal to 45 lbs. per inhabitant yearly.

## INDIA

About 500,000 tons are made yearly, besides which the importation has been as follows:—

| Year           | Tons    | Value, £ |
|----------------|---------|----------|
| 1873 . . . . . | 280,000 | 830,000  |
| 1880 . . . . . | 350,000 | 760,000  |
| 1888 . . . . . | 430,000 | 800,000  |

The salt-tax is enormous, and weighs heavily on the ryots. In 1876 it was six millions sterling, rising in 1890 to eight millions sterling. Consumption of salt barely averages 10 lbs. per inhabitant, which tends still further to debilitate the inhabitants.

## SANITATION

In 1880 the amount of outstanding loans in Great Britain for sanitary works, such as water-supply, drainage, &c., exceeded 56 millions sterling. In 1888 it was stated that the total outlay on these works in the last thirty years reached 100 millions sterling. The following table of sewage was published in 1882:—

|                  | Sewers, Cost per Mile | Tons of Sewage discharged Weekly |
|------------------|-----------------------|----------------------------------|
| Manchester . . . | £1,240                | 770,000                          |
| Preston . . . .  | 2,000                 | 140,000                          |
| London . . . . . | 5,550                 | 5,500,000                        |
| Blackburn . . .  | 4,700                 | 150,000                          |

The system of sewage-farms requires an acre for 500 inhabitants, say 1000 acres for a city like Manchester or Liverpool. Sewage is supposed to have a market value of 1d. per ton. In 1876 there were 65 towns in England with sewage-farms.

The length of drains or sewers in various cities in 1882 was as follows:—

|                  | Miles |                  | Miles |
|------------------|-------|------------------|-------|
| London . . . . . | 2300  | Bordeaux . . . . | 34    |
| Paris . . . . .  | 440   | Lille . . . . .  | 33    |
| New York . . . . | 200   | Rheims . . . . . | 14    |

The Romans understood the importance of sewers, and in the year 184 B.C. we find that the Senate spent 1000 talents, say £120,000 sterling, on enlarging the drains. Paris under Louis XIV. had nearly two miles of sewers, and under Bonaparte about sixteen miles. Dry refuse in English towns, which is thrown into dust-bins, is found to average 10 lbs. a week per inhabitant. The result of sanitation is shown in the reduced death-rate, by comparing the average for seven years before and seven years after the introduction of water-supply and drainage, viz.:—

|                   | Deaths per 10,000 Pop. |       | Deaths from Typhoid |       |
|-------------------|------------------------|-------|---------------------|-------|
|                   | Before                 | After | Before              | After |
| Cardiff . . . .   | 330                    | 230   | 17                  | 11    |
| Croydon . . . .   | 240                    | 190   | 15                  | 5     |
| Dover . . . . .   | 230                    | 210   | 14                  | 9     |
| Leicester . . . . | 260                    | 250   | 15                  | 8     |
| Merthyr . . . .   | 260                    | 180   | 21                  | 9     |
| Salisbury . . . . | 280                    | 220   | ..                  | ...   |
| Warwick . . . .   | 230                    | 210   | 19                  | 9     |

Deaths from typhoid in various towns showed a similar decline, both here and on the Continent, after the introduction of sanitary works:—

|                   | Per 100,000 Inhabitants |       |
|-------------------|-------------------------|-------|
|                   | Before                  | After |
| Brussels . . . .  | 22                      | 15    |
| Hamburg . . . .   | 48                      | 22    |
| Dantzic . . . . . | 99                      | 27    |
| Frankfort . . . . | 63                      | 24    |
| Bristol . . . . . | 100                     | 65    |
| Cheltenham . . .  | 80                      | 47    |

Buchanan shows that the annual death-rate for twenty-four towns in England fell from 24.7 per thousand inhabitants to 21.9 after the adoption of water-supply and sewers.

## SCIENCE

The learned societies of the United Kingdom in 1880 were 118 in number and counted 66,200 members; but as many of these were repetitions, it is not likely that the cultivators of science were more than 44,000. The aggregate of 15 principal societies at various dates was:—

| Year           | Members |
|----------------|---------|
| 1830 . . . . . | 2,201   |
| 1850 . . . . . | 15,769  |
| 1880 . . . . . | 29,061  |

In 1882 the principal societies showed as follows:—

|                         |       |                               |       |
|-------------------------|-------|-------------------------------|-------|
| Royal . . . . .         | 552   | Pharmaceutical . . . . .      | 3,250 |
| Statistical . . . . .   | 807   | Law . . . . .                 | 1,530 |
| Archæological . . . . . | 580   | Arts . . . . .                | 3,340 |
| Geological . . . . .    | 850   | Agricultural . . . . .        | 7,950 |
| Antiquaries . . . . .   | 640   | Zoological . . . . .          | 2,000 |
| Geographical . . . . .  | 3,430 | British Association . . . . . | 2,400 |
| Botanical . . . . .     | 1,660 | Social Science . . . . .      | 1,550 |

In 1881 the United Kingdom had 1355 schools of science, with 66,600 pupils; annual cost £295,000, or 89 shillings per pupil. In the same year the number of visitors to the different museums was as follows:—

|                            |           |                            |         |
|----------------------------|-----------|----------------------------|---------|
| British Museum . . . . .   | 790,000   | National Gallery . . . . . | 958,000 |
| South Kensington . . . . . | 1,017,000 | Kew Gardens . . . . .      | 612,000 |
| Bethnal Green . . . . .    | 451,000   | Edinburgh . . . . .        | 350,000 |
| Patent Office . . . . .    | 266,000   | Dublin . . . . .           | 192,000 |

## SEAMEN

The number of seafaring men in all countries was in 1882 as follows:—

|                               | Navy    | Merchant | Coast, Fishing | Total     | Ratio to Population, per Cent. |
|-------------------------------|---------|----------|----------------|-----------|--------------------------------|
| U. Kingdom . . . . .          | 45,000  | 193,000  | 167,000        | 405,000   | 1.11                           |
| France . . . . .              | 43,000  | 35,000   | 94,000         | 172,000   | 0.45                           |
| Germany . . . . .             | 8,000   | 40,000   | 27,000         | 75,000    | 0.16                           |
| Russia . . . . .              | 26,000  | 23,000   | 74,000         | 123,000   | 0.15                           |
| Austria . . . . .             | 10,000  | 7,000    | 9,000          | 26,000    | 0.07                           |
| Italy . . . . .               | 15,000  | 52,000   | 74,000         | 141,000   | 0.50                           |
| Spain . . . . .               | 7,000   | 23,000   | 44,000         | 74,000    | 0.45                           |
| Portugal . . . . .            | 4,000   | 5,000    | 4,000          | 13,000    | 0.30                           |
| Holland . . . . .             | 7,000   | 18,000   | 13,000         | 38,000    | 0.95                           |
| Denmark . . . . .             | 1,000   | 7,000    | 5,000          | 13,000    | 0.70                           |
| Sweden and Norway } . . . . . | 9,000   | 79,000   | 143,000        | 231,000   | 3.55                           |
| Greece . . . . .              | 1,000   | 11,000   | 15,000         | 27,000    | 1.52                           |
| Turkey . . . . .              | 4,000   | 10,000   | 3,000          | 17,000    | 0.22                           |
| Europe . . . . .              | 180,000 | 503,000  | 672,000        | 1,355,000 | 0.42                           |
| United States . . . . .       | 8,000   | 120,000  | 54,000         | 182,000   | 0.35                           |
| Canada . . . . .              | ...     | 50,000   | 65,000         | 115,000   | 2.54                           |
| Brazil . . . . .              | 2,000   | 6,000    | 8,000          | 16,000    | 0.18                           |
| Argentina } . . . . .         | 1,000   | 2,000    | 8,000          | 11,000    | 0.55                           |
| Republic                      |         |          |                |           |                                |
| Australia . . . . .           | ...     | 11,000   | 3,000          | 14,000    | 0.48                           |
| Total . . . . .               | 191,000 | 692,000  | 810,000        | 1,693,000 | 0.45                           |

The following is an approximate table of shipping at various dates, the British flag including colonial vessels:—

|                    | 1800      | 1820      | 1842      | 1860       | 1888       |
|--------------------|-----------|-----------|-----------|------------|------------|
| British . . . . .  | 1,856,000 | 2,654,000 | 3,311,000 | 5,713,000  | 9,050,000  |
| French . . . . .   | 250,000   | 350,000   | 634,000   | 930,000    | 960,000    |
| German . . . . .   | 150,000   | 250,000   | 550,000   | 700,000    | 1,230,000  |
| American . . . . . | 970,000   | 1,280,000 | 2,180,000 | 5,350,000  | 4,310,000  |
| Various . . . . .  | 800,000   | 1,300,000 | 2,705,000 | 3,777,000  | 6,100,000  |
| Total . . . . .    | 4,026,000 | 5,834,000 | 9,380,000 | 16,470,000 | 21,650,000 |

If marines and coastguards were added, the total would fall little short of two millions of men, or nearly 3 per cent. of the able-bodied men of the Christian world.

## SEASONS

For medical purposes the seasons are supposed to begin on the following dates:—

|                  | Northern Hemisphere | Southern Hemisphere |
|------------------|---------------------|---------------------|
| Spring . . . . . | March 1st           | September 1st       |
| Summer . . . . . | June 1st            | December 1st        |
| Autumn . . . . . | September 1st       | March 1st           |
| Winter . . . . . | December 1st        | June 1st            |

The mean temperature of the seasons in various countries is as follows, in degrees Fahrenheit:—

|                           | Spring | Summer | Autumn | Winter |
|---------------------------|--------|--------|--------|--------|
| England . . . . .         | 47     | 61     | 51     | 40     |
| France . . . . .          | 54     | 68     | 56     | 41     |
| Germany . . . . .         | 48     | 65     | 48     | 33     |
| Italy . . . . .           | 59     | 75     | 61     | 45     |
| Spain . . . . .           | 61     | 79     | 67     | 51     |
| Canada . . . . .          | 43     | 71     | 47     | 17     |
| Jamaica . . . . .         | 77     | 81     | 79     | 76     |
| New South Wales . . . . . | 63     | 70     | 64     | 54     |
| Cape Colony . . . . .     | 61     | 69     | 63     | 56     |
| Brazil . . . . .          | 73     | 79     | 75     | 69     |

## SERVANTS

Of 1000 families at Berlin there were 194 which kept servants in 1864, and only 173 in 1871. Professor Leone Levi in 1883 computed 1,951,000 domestic servants in the United Kingdom, earning £68,500,000 per annum, say £35 each.

## SHIPPING

The following is Mr. Kiaer's table of the shipping of the world, with a column added for carrying power, in which steamers are counted as four times the power of sailing-vessels:—

| Year           | Steam, Tons | Sail, Tons | Total, Tons | Carrying Power |
|----------------|-------------|------------|-------------|----------------|
| 1816 . . . . . | 1,500       | 3,420,000  | 3,421,500   | 3,426,000      |
| 1820 . . . . . | 6,200       | 3,160,000  | 3,166,200   | 3,185,000      |
| 1830 . . . . . | 30,200      | 3,020,000  | 3,050,200   | 3,140,000      |
| 1840 . . . . . | 97,000      | 4,560,000  | 4,657,000   | 4,950,000      |
| 1850 . . . . . | 217,000     | 6,380,000  | 6,597,000   | 7,850,000      |
| 1860 . . . . . | 764,000     | 10,710,000 | 11,474,000  | 13,770,000     |
| 1870 . . . . . | 1,710,000   | 12,350,000 | 14,060,000  | 19,190,000     |
| 1880 . . . . . | 4,650,000   | 13,270,000 | 17,920,000  | 31,870,000     |
| 1886 . . . . . | 7,400,000   | 12,000,000 | 19,400,000  | 41,600,000     |

Mr. Kiaer's figures doubtless apply only to vessels of "long cours," as they are less than the total shipping. For example, Lloyd's list in 1842 shows for Europe only, no fewer than 88,100 vessels of 6,547,000 tons.

The nominal tonnage of the various flags was approximately as follows (see *Lloyd's List for 1842*):—

|                          | 1842        | 1860        | 1888      |            |            |
|--------------------------|-------------|-------------|-----------|------------|------------|
|                          | All Vessels | All Vessels | Steam     | Sail       | Total      |
| United Kingdom . . . . . | 2,570,000   | 4,660,000   | 4,350,000 | 3,115,000  | 7,465,000  |
| Colonies . . . . .       | 741,000     | 1,053,000   | 265,000   | 1,320,000  | 1,585,000  |
| British . . . . .        | 3,311,000   | 5,713,000   | 4,615,000 | 4,435,000  | 9,050,000  |
| French . . . . .         | 634,000     | 1,010,000   | 510,000   | 450,000    | 960,000    |
| German . . . . .         | 550,000     | 700,000     | 500,000   | 730,000    | 1,230,000  |
| Russian . . . . .        | 240,000     | 400,000     | 140,000   | 610,000    | 750,000    |
| Austrian . . . . .       | 210,000     | 250,000     | 90,000    | 130,000    | 220,000    |
| Italian . . . . .        | 460,000     | 550,000     | 175,000   | 675,000    | 850,000    |
| Spanish . . . . .        | 280,000     | 470,000     | 395,000   | 205,000    | 600,000    |
| Portuguese . . . . .     | 80,000      | 90,000      | 15,000    | 63,000     | 78,000     |
| Scandinavian . . . . .   | 620,000     | 970,000     | 355,000   | 1,950,000  | 2,305,000  |
| Dutch . . . . .          | 270,000     | 300,000     | 105,000   | 140,000    | 245,000    |
| Belgium . . . . .        | 30,000      | 30,000      | 73,000    | 4,000      | 77,000     |
| Turkish . . . . .        | 182,000     | 180,000     | 64,000    | 153,000    | 217,000    |
| Greek . . . . .          | 186,000     | 200,000     | 31,000    | 227,000    | 258,000    |
| United States . . . . .  | 2,180,000   | 5,350,000   | 1,770,000 | 2,540,000  | 4,310,000  |
| Various . . . . .        | 147,000     | 387,000     | 202,000   | 330,000    | 532,000    |
| Total . . . . .          | 9,380,000   | 16,600,000  | 9,040,000 | 12,642,000 | 21,682,000 |

The carrying power of the principal flags in 1888 was as follows:—

| Flag                 | Carrying Power, Tons |            |            | Number of Vessels | Carrying Power per Vessel |
|----------------------|----------------------|------------|------------|-------------------|---------------------------|
|                      | Steam                | Sail       | Total      |                   |                           |
| U.Kingdom            | 17,400,000           | 3,115,000  | 20,515,000 | 21,896            | 930                       |
| Colonies . . . . .   | 1,060,000            | 1,320,000  | 2,380,000  | 6,010             | 400                       |
| British . . . . .    | 18,460,000           | 4,435,000  | 22,895,000 | 27,906            | 820                       |
| French . . . . .     | 2,040,000            | 450,000    | 2,490,000  | 15,278            | 165                       |
| German . . . . .     | 2,000,000            | 730,000    | 2,730,000  | 3,635             | 750                       |
| Russian . . . . .    | 560,000              | 610,000    | 1,170,000  | 4,406             | 270                       |
| Austrian . . . . .   | 360,000              | 130,000    | 490,000    | 367               | 1,320                     |
| Italian . . . . .    | 700,000              | 675,000    | 1,375,000  | 6,810             | 200                       |
| Spanish . . . . .    | 1,580,000            | 205,000    | 1,785,000  | 1,698             | 1,050                     |
| Portuguese . . . . . | 60,000               | 63,000     | 123,000    | 443               | 270                       |
| Swedish . . . . .    | 500,000              | 375,000    | 875,000    | 3,844             | 230                       |
| Norwegian . . . . .  | 540,000              | 1,400,000  | 1,940,000  | 7,233             | 270                       |
| Danish . . . . .     | 380,000              | 175,000    | 555,000    | 3,344             | 165                       |
| Dutch . . . . .      | 420,000              | 140,000    | 560,000    | 609               | 920                       |
| Belgian . . . . .    | 290,000              | 4,000      | 294,000    | 59                | 5,000                     |
| Turkish . . . . .    | 260,000              | 153,000    | 413,000    | 875               | 480                       |
| Greek . . . . .      | 120,000              | 227,000    | 347,000    | 5,157             | 65                        |
| U. States . . . . .  | 7,080,000            | 2,540,000  | 9,620,000  | 22,623            | 425                       |
| Chili . . . . .      | 80,000               | 58,000     | 138,000    | 166               | 820                       |
| Japan . . . . .      | 290,000              | 60,000     | 350,000    | 1,284             | 270                       |
| Brazil . . . . .     | 240,000              | 70,000     | 310,000    | 495               | 630                       |
| China . . . . .      | 100,000              | 10,000     | 110,000    | 135               | 810                       |
| Various . . . . .    | 100,000              | 132,000    | 232,000    | 770               | 300                       |
| The World            | 36,160,000           | 12,642,000 | 48,802,000 | 107,137           | 453                       |

\* Exclusive of junks and canal-boats.

Mr. Kiaer's table of vessels over 100 tons, in 1881, was as follows:—

| Flag of                 | Number   |         |        | Total Tonnage |
|-------------------------|----------|---------|--------|---------------|
|                         | Steamers | Sailing | Total  |               |
| Great Britain . . . . . | 2,869    | 11,893  | 14,762 | 7,010,000     |
| France . . . . .        | 335      | 2,772   | 3,107  | 840,000       |
| Germany . . . . .       | 277      | 3,113   | 3,390  | 1,150,000     |
| United States . . . . . | 548      | 5,938   | 6,506  | 2,370,000     |
| Norway . . . . .        | 148      | 4,160   | 4,308  | 1,460,000     |
| Sweden . . . . .        | 258      | 1,979   | 2,237  | 470,000       |
| Denmark . . . . .       | 109      | 1,172   | 1,281  | 230,000       |
| Italy . . . . .         | 103      | 2,936   | 3,039  | 1,070,000     |
| Spain . . . . .         | 226      | 1,578   | 1,804  | 450,000       |
| Holland . . . . .       | 111      | 1,112   | 1,223  | 420,000       |
| Greece . . . . .        | 20       | 1,672   | 1,692  | 330,000       |
| Canada . . . . .        | 918      | 6,459   | 7,377  | 1,140,000     |
| Various . . . . .       | 470      | 3,780   | 4,250  | 1,385,000     |
| The World . . . . .     | 6,392    | 48,584  | 54,976 | 18,325,000    |

It would appear, therefore, that the whole shipping of the world may be summed up as follows, for 1888:—

|                           | Number  | Tons Register | Carrying Power | Carrying Power per Vessel |
|---------------------------|---------|---------------|----------------|---------------------------|
| Steamers . . . . .        | 19,740  | 9,040,000     | 36,160,000     | 1,820                     |
| Sailing-vessels . . . . . | 25,197  | 11,510,000    | 11,510,000     | 460                       |
| Small craft . . . . .     | 62,200  | 1,132,000     | 1,132,000      | 18                        |
| Total . . . . .           | 107,137 | 21,682,000    | 48,802,000     | 453                       |

Hence it may be said that, excluding 62,200 small craft, the commerce of the world is carried on by 45,000 vessels, of 20,500,000 tons register, with a carrying power of 48 million tons.

The relative amounts of carrying power that corresponded to steam and sail at various dates were as follows:—

| Year           | Nominal Tonnage |            |            | Carrying Power |            |            | Percentage |      |
|----------------|-----------------|------------|------------|----------------|------------|------------|------------|------|
|                | Steam           | Sail       | Total      | Steam          | Sail       | Total      | Steam      | Sail |
| 1820 . . . . . | 20,000          | 5,814,000  | 5,834,000  | 80,000         | 5,814,000  | 5,894,000  | 1.4        | 98.6 |
| 1840 . . . . . | 368,000         | 9,012,000  | 9,380,000  | 1,470,000      | 9,012,000  | 10,482,000 | 14.0       | 86.0 |
| 1860 . . . . . | 1,710,000       | 14,890,000 | 16,600,000 | 6,840,000      | 14,890,000 | 21,730,000 | 31.5       | 68.5 |
| 1870 . . . . . | 3,040,000       | 12,900,000 | 15,940,000 | 12,200,000     | 12,900,000 | 25,100,000 | 48.8       | 51.2 |
| 1880 . . . . . | 5,880,000       | 14,400,000 | 20,280,000 | 23,500,000     | 14,400,000 | 37,900,000 | 61.5       | 38.5 |
| 1888 . . . . . | 9,040,000       | 12,640,000 | 21,680,000 | 36,160,000     | 12,640,000 | 48,800,000 | 74.0       | 26.0 |

The following table shows approximately the merchant steam-navies of the world at various dates :—

|                        | Nominal Tonnage of Steamers |         |           |           |           |           |
|------------------------|-----------------------------|---------|-----------|-----------|-----------|-----------|
|                        | 1840                        | 1850    | 1860      | 1870      | 1880      | 1888      |
| British . . . . .      | 95,000                      | 188,000 | 502,000   | 1,203,000 | 3,105,000 | 4,355,000 |
| American . . . . .     | 198,000                     | 481,000 | 870,000   | 1,075,000 | 1,211,000 | 1,765,000 |
| French . . . . .       | 10,000                      | 27,000  | 84,000    | 170,000   | 278,000   | 510,000   |
| German . . . . .       | 10,000                      | 20,000  | 50,000    | 82,000    | 216,000   | 593,000   |
| Russian . . . . .      | 10,000                      | 20,000  | 40,000    | 70,000    | 100,000   | 142,000   |
| Austrian . . . . .     | 10,000                      | 20,000  | 30,000    | 50,000    | 60,000    | 90,000    |
| Italian . . . . .      | 10,000                      | 15,000  | 20,000    | 35,000    | 77,000    | 175,000   |
| Spanish . . . . .      | 5,000                       | 10,000  | 13,000    | 45,000    | 230,000   | 395,000   |
| Scandinavian . . . . . | 5,000                       | 10,000  | 25,000    | 88,000    | 190,000   | 355,000   |
| Dutch . . . . .        | 5,000                       | 10,000  | 20,000    | 30,000    | 65,000    | 105,000   |
| Various . . . . .      | 10,000                      | 20,000  | 60,000    | 190,000   | 350,000   | 645,000   |
| Total . . . . .        | 368,000                     | 821,000 | 1,714,000 | 3,038,000 | 5,882,000 | 9,040,000 |

The carrying power of the principal flags at various dates was approximately as follows :—

| Flag                     | Tons      |            |            |            |            |
|--------------------------|-----------|------------|------------|------------|------------|
|                          | 1820      | 1840       | 1860       | 1880       | 1888       |
| United Kingdom . . . . . | 2,440,000 | 2,840,000  | 6,025,000  | 14,750,000 | 20,515,000 |
| Colonies . . . . .       | 210,000   | 756,000    | 1,194,000  | 2,060,000  | 2,380,000  |
| British . . . . .        | 2,650,000 | 3,596,000  | 7,219,000  | 16,810,000 | 22,895,000 |
| American . . . . .       | 1,340,000 | 2,780,000  | 7,960,000  | 7,700,000  | 9,620,000  |
| French . . . . .         | 450,000   | 664,000    | 1,265,000  | 1,753,000  | 2,491,000  |
| German . . . . .         | 300,000   | 580,000    | 850,000    | 1,830,000  | 2,743,000  |
| Russian . . . . .        | 150,000   | 270,000    | 520,000    | 1,040,000  | 1,170,000  |
| Spanish . . . . .        | 120,000   | 295,000    | 510,000    | 1,250,000  | 1,785,000  |
| Italian . . . . .        | 200,000   | 490,000    | 610,000    | 1,230,000  | 1,375,000  |
| Norwegian . . . . .      | 110,000   | 260,000    | 850,000    | 1,690,000  | 1,940,000  |
| Dutch . . . . .          | 140,000   | 275,000    | 400,000    | 525,000    | 560,000    |
| Various . . . . .        | 434,000   | 1,272,000  | 1,546,000  | 4,072,000  | 4,221,000  |
| Total . . . . .          | 5,894,000 | 10,482,000 | 21,730,000 | 37,900,000 | 48,800,000 |

The increase of nominal tonnage and of effective carrying power in various periods was approximately as follows :—

|                     | Annual Average of Increase |         |                     |         |
|---------------------|----------------------------|---------|---------------------|---------|
|                     | Tons Register              |         | Tons Carrying Power |         |
|                     | 1841-60                    | 1861-88 | 1841-60             | 1861-88 |
| British . . . . .   | 120,000                    | 119,000 | 180,000             | 560,000 |
| American . . . . .  | 160,000                    | ...     | 259,000             | 60,000  |
| French . . . . .    | 19,000                     | ...     | 30,000              | 45,000  |
| German . . . . .    | 7,500                      | 19,000  | 14,000              | 68,000  |
| Italian . . . . .   | 4,500                      | 10,500  | 6,000               | 27,000  |
| Spanish . . . . .   | 9,500                      | 5,000   | 11,000              | 45,000  |
| Norwegian . . . . . | 29,000                     | 25,000  | 29,000              | 40,000  |
| Russian . . . . .   | 8,000                      | 12,200  | 12,500              | 23,000  |
| Dutch . . . . .     | 1,500                      | ...     | 6,000               | 5,600   |
| Various . . . . .   | 1,000                      | ...     | 14,500              | 94,400  |
| Total . . . . .     | 360,000                    | 179,000 | 562,000             | 968,000 |

The net increase of nominal tonnage from 1861 to 1888 was 179,000 per annum; but this is not the sum of the above column, as several countries showed a decline.

Great as has been the growth of carrying power in the last 30 years it is much less than the increase in the tonnage of port entries, which has been 3½-fold, while the carrying power has little more than doubled, viz. :—

| Year           | Nom. Tonnage | Carrying Power | Port Entries |
|----------------|--------------|----------------|--------------|
| 1860 . . . . . | 16,600,000   | 21,730,000     | 64,100,000   |
| 1870 . . . . . | 15,940,000   | 25,100,000     | 95,400,000   |
| 1880 . . . . . | 20,280,000   | 37,900,000     | 166,300,000  |
| 1888 . . . . . | 21,680,000   | 48,800,000     | 225,200,000  |

The tonnage of port entries of sea-going vessels at various dates was approximately as follows (the item marked "various" not being accurately known) :—

|                               | 1860       | 1870       | 1880        | 1888        |
|-------------------------------|------------|------------|-------------|-------------|
| U. Kingdom . . . . .          | 12,350,000 | 18,120,000 | 29,360,000  | 33,950,000  |
| France . . . . .              | 4,230,000  | 6,800,000  | 12,370,000  | 14,030,000  |
| Germany . . . . .             | 3,730,000  | 6,200,000  | 6,530,000   | 9,440,000   |
| Russia . . . . .              | 2,110,000  | 3,520,000  | 5,020,000   | 7,410,000   |
| Austria . . . . .             | 2,600,000  | 3,430,000  | 4,820,000   | 7,540,000   |
| Italy . . . . .               | 2,400,000  | 3,790,000  | 4,690,000   | 6,670,000   |
| Spain . . . . .               | 1,350,000  | 2,500,000  | 5,700,000   | 11,440,000  |
| Sweden and Norway } . . . . . | 2,100,000  | 3,790,000  | 5,400,000   | 7,320,000   |
| Denmark . . . . .             | 600,000    | 710,000    | 2,230,000   | 3,380,000   |
| Holland . . . . .             | 1,660,000  | 2,310,000  | 3,450,000   | 5,110,000   |
| Belgium . . . . .             | 670,000    | 1,580,000  | 3,570,000   | 4,910,000   |
| Greece . . . . .              | 930,000    | 1,270,000  | 1,790,000   | 2,370,000   |
| United States . . . . .       | 5,005,000  | 6,270,000  | 15,250,000  | 15,390,000  |
| British Colonies } . . . . .  | 10,880,000 | 15,200,000 | 28,260,000  | 41,300,000  |
| Suez Canal . . . . .          | ...        | 440,000    | 4,350,000   | 9,440,000   |
| Various . . . . .             | 13,500,000 | 19,500,000 | 33,500,000  | 45,500,000  |
| Total . . . . .               | 64,115,000 | 95,430,000 | 166,290,000 | 225,200,000 |

Entries in ballast, which are included in the above table, showed tonnage and ratio to total entries thus :—

|            | 1870      | 1880      | 1888      | 1870 | 1880 | 1888 |
|------------|-----------|-----------|-----------|------|------|------|
|            | Tons      | Tons      | Tons      | %    | %    | %    |
| U. Kingdom | 3,200,000 | 5,100,000 | 6,900,000 | 17   | 17   | 21   |
| France     | 200,000   | 400,000   | 460,000   | 3    | 3    | 3    |
| Germany    | 810,000   | 370,000   | 700,000   | 13   | 6    | 8    |
| Russia     | 1,820,000 | 1,860,000 | 4,800,000 | 52   | 36   | 64   |
| Austria    | 840,000   | 820,000   | 700,000   | 25   | 17   | 9    |
| Italy      | 380,000   | 450,000   | 570,000   | 10   | 10   | 8    |
| Spain      | 600,000   | 1,900,000 | 3,800,000 | 24   | 33   | 33   |
| Sweden     | 1,400,000 | 1,900,000 | 2,900,000 | 65   | 55   | 58   |
| Norway     | 1,040,000 | 980,000   | 850,000   | 66   | 50   | 35   |
| Denmark    | ...       | 920,000   | 1,480,000 | ...  | 45   | 44   |
| Holland    | ...       | 100,000   | 210,000   | ...  | 3    | 4    |
| Belgium    | 40,000    | 110,000   | 700,000   | 2    | 3    | 14   |
| U. States  | ...       | 3,140,000 | ...       | ...  | 21   | ...  |

It would seem from the above that as regards European ports the aggregate of entries in ballast has not materially varied, in proportion, since 1870, the ratio being as 21 per cent. of all entries. The following table shows the ratio of entries in each country belonging to the flag of that country, and the ratio corresponding to other or foreign flags :—

|                | National |      |      | Foreign Flags |      |      |
|----------------|----------|------|------|---------------|------|------|
|                | 1870     | 1880 | 1887 | 1870          | 1880 | 1887 |
| United Kingdom | 68.4     | 70.4 | 73.6 | 31.6          | 29.6 | 26.4 |
| Russia         | 11.2     | 11.4 | 7.9  | 88.8          | 88.6 | 92.1 |
| Norway         | 70.0     | 68.2 | 65.5 | 30.0          | 31.8 | 34.5 |
| Sweden         | 31.8     | 37.2 | 35.8 | 68.2          | 62.8 | 64.2 |
| Germany        | 35.9     | 39.1 | 43.3 | 64.1          | 60.9 | 56.7 |
| Holland        | 28.3     | 30.9 | 30.9 | 71.7          | 69.1 | 69.1 |
| France         | 31.5     | 30.0 | 36.2 | 68.5          | 70.0 | 63.8 |
| Spain          | 36.9     | 26.6 | 39.0 | 63.1          | 73.4 | 61.0 |
| Italy          | 36.5     | 34.8 | 23.6 | 63.5          | 65.2 | 76.4 |
| United States  | 38.2     | 18.9 | 21.0 | 61.8          | 81.1 | 79.0 |

The principal commercial ports of the world showed the tonnage of sea-going entries in 1888 as follows :—

|            | Tons      |               | Tons      |
|------------|-----------|---------------|-----------|
| London     | 7,470,000 | Havre         | 1,810,000 |
| New York   | 5,470,000 | Buenos Ayres  | 1,590,000 |
| Liverpool  | 5,370,000 | Alexandria    | 1,590,000 |
| Hamburg    | 4,410,000 | Montevideo    | 1,620,000 |
| Antwerp    | 3,660,000 | Athens        | 1,550,000 |
| Marseilles | 3,360,000 | Genoa         | 1,480,000 |
| Hong-Kong  | 3,330,000 | Bremen        | 1,180,000 |
| Cardiff    | 2,930,000 | Boston        | 1,100,000 |
| Rotterdam  | 2,530,000 | San Francisco | 1,050,000 |
| Sydney     | 2,380,000 | Bordeaux      | 1,050,000 |
| Melbourne  | 2,150,000 | Stettin       | 1,040,000 |
| Newcastle  | 1,900,000 | Philadelphia  | 1,030,000 |
| Hull       | 1,900,000 | Glasgow       | 990,000   |

The above sums up a total of 64 million tons, which is nearly one-third of the commerce of the world, minor ports making up more than two-thirds.

If we compare the value of the imports of all nations with the tonnage of port entries (excluding ballast entries) at various dates, we find :—

| Year | Imports, Millions £ | Port Entries, Tons | Value, £ per Ton |
|------|---------------------|--------------------|------------------|
| 1860 | 707                 | 51,000,000         | 13.9             |
| 1870 | 1,040               | 76,000,000         | 13.8             |
| 1880 | 1,440               | 133,000,000        | 10.8             |
| 1888 | 1,502               | 180,000,000        | 8.3              |

This appears to show that coal, iron, and articles of less value, form every succeeding year a larger ratio of sea-borne merchandise.

The registered shipping belonging to the various ports in 1882 was as follows :—

|               | Sail       | Steam     | Total      | Carrying Power |
|---------------|------------|-----------|------------|----------------|
| Liverpool     | 1,080,000  | 520,000   | 1,600,000  | 3,160,000      |
| London        | 620,000    | 570,000   | 1,190,000  | 2,900,000      |
| Glasgow       | 350,000    | 380,000   | 730,000    | 1,870,000      |
| New York      | 530,000    | 210,000   | 740,000    | 1,370,000      |
| Marseilles    | 60,000     | 160,000   | 220,000    | 700,000        |
| Hull          | 40,000     | 150,000   | 190,000    | 640,000        |
| Newcastle     | 60,000     | 140,000   | 200,000    | 620,000        |
| Sunderland    | 110,000    | 110,000   | 220,000    | 550,000        |
| Hamburg       | 140,000    | 70,000    | 210,000    | 420,000        |
| Bremen        | 160,000    | 60,000    | 220,000    | 400,000        |
| Greenock      | 170,000    | 40,000    | 210,000    | 330,000        |
| San Francisco | 110,000    | 50,000    | 160,000    | 310,000        |
| Philadelphia  | 110,000    | 50,000    | 160,000    | 310,000        |
| Trieste       | 30,000     | 60,000    | 90,000     | 270,000        |
| Leith         | 20,000     | 60,000    | 80,000     | 260,000        |
| Havre         | 70,000     | 50,000    | 120,000    | 270,000        |
| New Brunswick | 270,000    | 10,000    | 280,000    | 310,000        |
| Barcelona     | 100,000    | 40,000    | 140,000    | 260,000        |
| Genoa         | 120,000    | 30,000    | 150,000    | 240,000        |
| Odessa        | 20,000     | 50,000    | 70,000     | 220,000        |
| Amsterdam     | 60,000     | 40,000    | 100,000    | 220,000        |
| Copenhagen    | 40,000     | 40,000    | 80,000     | 200,000        |
| Southampton   | 30,000     | 40,000    | 70,000     | 190,000        |
| Antwerp       | 10,000     | 40,000    | 50,000     | 170,000        |
| Aberdeen      | 100,000    | 20,000    | 120,000    | 180,000        |
| Bergen        | 60,000     | 20,000    | 80,000     | 140,000        |
| Yarmouth      | 160,000    | ...       | 160,000    | 160,000        |
| Other ports   | 10,372,000 | 2,634,000 | 13,006,000 | 20,910,000     |
| The world     | 15,002,000 | 5,644,000 | 20,646,000 | 37,580,000     |

Italian vessels seem to be worked cheaper than others. The following statement was published in 1881 as the monthly average expense of a vessel of 1000 tons with a crew of twenty men :—

|          |      |          |       |
|----------|------|----------|-------|
| Italian  | £ 95 | German   | £ 135 |
| Austrian | 125  | British  | 145   |
| French   | 135  | American | 200   |

The percentage of vessels lost yearly, and the average life of shipping of various flags, as shown by Mr. Kiaer, are :—

|              | Annual Loss |         | Years of a Ship's Life |
|--------------|-------------|---------|------------------------|
|              | Steamer     | Sailing |                        |
| American     | 4.06        | 5.45    | 18                     |
| French       | 2.47        | 4.04    | 20                     |
| Dutch        | 3.84        | 4.49    | 22                     |
| German       | 2.77        | 4.04    | 23                     |
| British      | 2.94        | 3.93    | 26                     |
| Italian      | 1.74        | 2.94    | 28                     |
| Scandinavian | 1.96        | 3.20    | 30                     |

The weight of anchors and chain-cables for vessels is as follows :—

| Vessel, Tons | Anchors, Tons | Heaviest in Cwts. | Cable, Inches | Cable, Length in Fathoms |
|--------------|---------------|-------------------|---------------|--------------------------|
| 200          | 3             | 13                | 1.0           | 180                      |
| 500          | 6             | 25                | 1.5           | 270                      |
| 1,000        | 9½            | 42                | 1.9           | 300                      |
| 2,000        | 18            | 77                | 2.1           | 300                      |

It is usual for vessels to carry seven anchors, four of the maximum weight prescribed above.

The value of shipping and cargoes lost yearly at sea cannot be ascertained precisely. The *Annual Register*

for 1881 published the following statement, but it seems very much exaggerated:—

|               | Vessels Lost |       | Value of Ships and Cargo, £ |            |
|---------------|--------------|-------|-----------------------------|------------|
|               | 1879         | 1880  | 1879                        | 1880       |
| British . . . | ...          | 913   | 19,230,000                  | 47,495,000 |
| Foreign . . . | ...          | 767   | 6,270,000                   | 20,832,000 |
| Total . . .   | 1,688        | 1,680 | 25,500,000                  | 68,327,000 |

*Lloyd's Register* gave the following summary of vessels lost in fifteen years, ending 1880:—

|                         | Number | Annual Average |
|-------------------------|--------|----------------|
| Missing . . .           | 1,403  | 94             |
| Sunk by collision . . . | 2,753  | 183            |
| Burnt . . .             | 2,903  | 194            |
| Stranded . . .          | 17,502 | 1,166          |
| Waterlogged, &c. . .    | 8,026  | 535            |
| Total . . .             | 32,587 | 2,172          |

At Mr. Kiaer's rate of loss of shipping, the total annual loss by shipwreck would be as follows:—

|                    | Shipping, Tons |         |         | Value of   |           |            |
|--------------------|----------------|---------|---------|------------|-----------|------------|
|                    | Steam          | Sail    | Total   | Vessels, £ | Cargo, £  | Total, £   |
| British . . .      | 135,000        | 175,000 | 310,000 | 5,600,000  | 3,000,000 | 8,600,000  |
| French . . .       | 12,000         | 18,000  | 30,000  | 500,000    | 300,000   | 800,000    |
| German . . .       | 14,000         | 29,000  | 43,000  | 650,000    | 400,000   | 1,050,000  |
| Italian . . .      | 3,000          | 20,000  | 23,000  | 300,000    | 200,000   | 500,000    |
| Dutch . . .        | 4,000          | 6,000   | 10,000  | 170,000    | 100,000   | 270,000    |
| American . . .     | 70,000         | 140,000 | 210,000 | 3,400,000  | 2,000,000 | 5,400,000  |
| Scandinavian . . . | 7,000          | 60,000  | 67,000  | 700,000    | 400,000   | 1,100,000  |
| Various . . .      | 25,000         | 62,000  | 87,000  | 1,300,000  | 800,000   | 2,100,000  |
| Total . . .        | 270,000        | 510,000 | 780,000 | 12,620,000 | 7,200,000 | 19,820,000 |

The loss of life among seamen is stated by Mr. Plim-soll, on various official returns, to average thus yearly:—

|               | Per 10,000 |               | Per 10,000 |
|---------------|------------|---------------|------------|
| Britain . . . | 152        | Norway . . .  | 36         |
| Germany . . . | 81         | Italy . . .   | 22         |
| Holland . . . | 43         | Average . . . | 66         |

The shipping of the United Kingdom, excluding colonial, has been as follows:—

| Year | Vessels | Tons      | Seamen  | Tons per |        |
|------|---------|-----------|---------|----------|--------|
|      |         |           |         | Vessel   | Seaman |
| 1810 | 20,253  | 2,211,000 | 145,000 | 105      | 15     |
| 1830 | 19,174  | 2,202,000 | 131,000 | 114      | 17     |
| 1850 | 25,984  | 3,565,000 | 148,000 | 138      | 24     |
| 1870 | 26,367  | 5,691,000 | 196,000 | 215      | 29     |
| 1881 | 24,830  | 6,490,000 | 193,000 | 260      | 33     |
| 1888 | 21,896  | 7,465,000 | 224,000 | 341      | 33     |

#### UNITED KINGDOM

British and Colonial shipping showed as follows:—

| Year | Vessels | Tons      | Sailors | Tons per |        | Reign       |
|------|---------|-----------|---------|----------|--------|-------------|
|      |         |           |         | Ship     | Sailor |             |
| 1588 | 470     | 37,400    | ...     | 80       | ...    | Elizabeth   |
| 1610 | 910     | 83,000    | ...     | 90       | ...    | James I.    |
| 1666 | 1,320   | 120,000   | ...     | 90       | ...    | Charles II. |
| 1688 | 2,620   | 210,000   | ...     | 80       | ...    | James II.   |
| 1702 | 3,260   | 261,000   | ...     | 80       | ...    | Anne        |
| 1760 | 5,730   | 487,000   | ...     | 85       | ...    | George III. |
| 1800 | 17,410  | 1,856,000 | 140,000 | 106      | 14     | George III. |
| 1810 | 23,703  | 2,426,000 | 162,000 | 102      | 15     | George III. |
| 1820 | 25,374  | 2,654,000 | 175,000 | 105      | 15     | George IV.  |
| 1830 | 23,721  | 2,533,000 | 155,000 | 107      | 16     | William IV. |
| 1840 | 28,962  | 3,311,000 | 201,000 | 114      | 17     | Victoria    |
| 1850 | 34,288  | 4,233,000 | 239,000 | 124      | 18     | Victoria    |
| 1860 | 29,469  | 5,713,000 | 230,000 | 193      | 25     | Victoria    |
| 1870 | 32,920  | 7,150,000 | 261,000 | 216      | 27     | Victoria    |
| 1881 | 30,531  | 8,535,000 | 270,000 | 280      | 31     | Victoria    |
| 1887 | 28,212  | 8,936,000 | 280,000 | 320      | 32     | Victoria    |

In 20 years succeeding the war with France our shipping declined in number and tonnage, and in number of men.

In 1808, at the outbreak of the Peninsular War, the merchant navy of the British Empire was composed thus:—

|                | Vessels | Tons      | Sailors |
|----------------|---------|-----------|---------|
| England . . .  | 15,705  | 1,822,000 | 123,400 |
| Scotland . . . | 2,615   | 217,000   | 15,700  |
| Ireland . . .  | 1,098   | 57,000    | 5,200   |
| Colonies . . . | 2,917   | 185,000   | 13,600  |
| Total . . .    | 22,335  | 2,281,000 | 157,900 |

If we discriminate steamers from sailing-vessels, allowing the former a carrying power of four to one, we find as follows:—

| Year       | United Kingdom  |           |                      | British Empire  |           |                      |
|------------|-----------------|-----------|----------------------|-----------------|-----------|----------------------|
|            | Nominal Tonnage |           | Total Carrying Power | Nominal Tonnage |           | Total Carrying Power |
|            | Sail            | Steam     |                      | Sail            | Steam     |                      |
| 1840 . . . | 2,480,000       | 90,000    | 2,840,000            | 3,216,000       | 95,000    | 3,596,000            |
| 1850 . . . | 2,990,000       | 110,000   | 3,430,000            | 4,045,000       | 188,000   | 4,797,000            |
| 1860 . . . | 4,205,000       | 455,000   | 6,025,000            | 5,211,000       | 502,000   | 7,219,000            |
| 1870 . . . | 4,580,000       | 1,110,000 | 9,020,000            | 5,947,000       | 1,203,000 | 10,759,000           |
| 1881 . . . | 3,690,000       | 3,005,000 | 15,710,000           | 5,430,000       | 3,105,000 | 17,890,000           |
| 1887 . . . | 3,250,000       | 4,090,000 | 19,610,000           | 4,581,000       | 4,355,000 | 22,005,000           |
| 1888 . . . | 3,115,000       | 4,350,000 | 20,515,000           | ...             | ...       | ...                  |

The Navigation Laws were repealed in 1849, and since that date our shipping traffic has increased seven times faster than population. The sea-going entries into ports of the United Kingdom were as follows :—

| Year | Tons       |           |            | British Percentage |
|------|------------|-----------|------------|--------------------|
|      | British    | Foreign   | Total      |                    |
| 1840 | 3,245,000  | 1,475,000 | 4,720,000  | 69                 |
| 1850 | 4,720,000  | 2,530,000 | 7,250,000  | 65                 |
| 1860 | 6,960,000  | 5,390,000 | 12,350,000 | 56                 |
| 1870 | 12,540,000 | 5,780,000 | 18,320,000 | 69                 |
| 1880 | 20,670,000 | 8,690,000 | 29,360,000 | 70                 |
| 1888 | 24,945,000 | 9,005,000 | 33,950,000 | 73                 |

Coasting entries with cargoes only were as follows :—

| Year | Tons       |         |            |
|------|------------|---------|------------|
|      | British    | Foreign | Total      |
| 1854 | 15,320,000 | 50,000  | 15,370,000 |
| 1860 | 16,900,000 | 100,000 | 17,000,000 |
| 1870 | 18,210,000 | 90,000  | 18,300,000 |
| 1880 | 25,920,000 | 100,000 | 26,020,000 |
| 1888 | 29,000,000 | 80,000  | 29,080,000 |

The flags of foreign vessels entering British ports in 1878 and 1888 showed as follows :—

| Flag      | Tons      |           |
|-----------|-----------|-----------|
|           | 1878      | 1888      |
| Norwegian | 1,830,000 | 2,050,000 |
| German    | 1,370,000 | 1,790,000 |
| Dutch     | 530,000   | 1,040,000 |
| French    | 740,000   | 990,000   |
| Danish    | 620,000   | 770,000   |
| Swedish   | 670,000   | 710,000   |
| Spanish   | 230,000   | 505,000   |
| Italian   | 630,000   | 280,000   |
| Various   | 1,350,000 | 870,000   |
| Total     | 7,970,000 | 9,005,000 |

The sea-going tonnage entered and cleared at the principal ports in the United Kingdom was as follows :—

|               | Entered    |            | Cleared    |            |
|---------------|------------|------------|------------|------------|
|               | 1878       | 1888       | 1878       | 1888       |
| London        | 5,340,000  | 7,470,000  | 4,390,000  | 5,470,000  |
| Liverpool     | 4,400,000  | 5,370,000  | 4,390,000  | 4,940,000  |
| Cardiff       | 1,480,000  | 2,930,000  | 2,800,000  | 5,150,000  |
| Newcastle     | 1,500,000  | 1,900,000  | 2,570,000  | 3,320,000  |
| Hull          | 1,470,000  | 1,900,000  | 1,310,000  | 1,500,000  |
| Newport       | 420,000    | 960,000    | 640,000    | 1,470,000  |
| Shields       | 480,000    | 920,000    | 450,000    | 1,070,000  |
| Southampton   | 905,000    | 870,000    | 750,000    | 790,000    |
| Sunderland    | 590,000    | 740,000    | 780,000    | 930,000    |
| Middlesbrough | 310,000    | 680,000    | 290,000    | 560,000    |
| Grimsby       | 400,000    | 590,000    | 410,000    | 590,000    |
| Bristol       | 440,000    | 580,000    | 230,000    | 180,000    |
| Glasgow       | 550,000    | 990,000    | 910,000    | 1,550,000  |
| Greenock      | 290,000    | 280,000    | 200,000    | 180,000    |
| Dublin        | 330,000    | 210,000    | 190,000    | 80,000     |
| Belfast       | 210,000    | 190,000    | 140,000    | 70,000     |
| Various       | 6,175,000  | 7,370,000  | 5,850,000  | 6,720,000  |
| Total         | 25,290,000 | 33,950,000 | 26,300,000 | 34,570,000 |

The tonnage of vessels entered at various dates was :—

| Year | Sea-going  | Coasting   | Total      |
|------|------------|------------|------------|
| 1801 | 1,720,000  | 6,000,000  | 7,720,000  |
| 1810 | 2,070,000  | 7,000,000  | 9,070,000  |
| 1820 | 2,110,000  | 8,000,000  | 10,110,000 |
| 1830 | 2,940,000  | 8,240,000  | 11,180,000 |
| 1840 | 4,720,000  | 12,600,000 | 17,320,000 |
| 1850 | 7,250,000  | 21,510,000 | 28,760,000 |
| 1860 | 12,340,000 | 24,400,000 | 36,740,000 |
| 1870 | 18,320,000 | 28,850,000 | 47,170,000 |
| 1880 | 29,070,000 | 36,140,000 | 65,210,000 |
| 1888 | 33,950,000 | 47,570,000 | 81,520,000 |

The service of pilot-boats in 1882 stood thus :—

|                | Boats | Pilots |
|----------------|-------|--------|
| England        | 692   | 2,066  |
| Scotland       | 226   | 432    |
| Ireland        | 132   | 395    |
| United Kingdom | 1,050 | 2,893  |

Some of the merchant steamboat companies are equal in importance to the navies of some European Powers. The Cunard Co., for example, employs 10,000 men. The vessels, moreover, of the first-class companies are unsurpassed. At a recent meeting of the Society of Engineers the chairman said, "The *Teutonic*, 582 feet long, with a gross tonnage of 9680, can carry 1200 passengers, and in time of war twelve five-inch guns, with a range of five miles. The *City of Paris* runs twenty-four miles an hour, is 10,500 tons burthen, and has 18,000 horse-power. The Pacific and Oriental Steamers now use pressure at 160 lbs. with greater safety than they did fifty lbs. thirty years ago." As regards speed, British vessels beat all others. The *City of Paris* has run from Queenstown to New York in 5 days 20 hours, and from New York to Queenstown in 5 days 23 hours: on one day her run of 24 hours reached 511 miles, the highest on record. The *Roslyn Castle* has run from Cape Town to London in 17 days 13 hours. The *Stirling Castle* from Hankow (China) to London in 29 days 22 hours. The fastest steamer in the world appears to be the *Prince of Wales*, which averages twenty-four knots, or twenty-seven statute miles per hour (being three miles faster than the *City of Paris*), plying between Liverpool and Isle of Man. The greatest speed of sailing ships was as follows :—*James Baines*, 420 miles, *Flying Cloud*, 412 miles in 24 hours, being over seventeen miles an hour. The *Red Jacket* ran 2280 miles in seven days, averaging 325 miles a day.

Shipbuilding is carried on more extensively in the United Kingdom than elsewhere; in fact, more than 80 per cent. of the world's shipping is built here. At a meeting in 1890 Mr. Palmer stated that "we were building in this country at the present time about a million tons of shipping, and the normal waste or loss was about 400,000 tons, leaving a surplus of 600,000 tons as an addition to mercantile marine."

The tonnage built in the United Kingdom was :—

| Period   | Sail       | Steam      | Total      | Carrying Power |
|----------|------------|------------|------------|----------------|
| 1801-10  | 520,000    | ...        | 520,000    | 520,000        |
| 1811-20  | 840,000    | 10,000     | 850,000    | 880,000        |
| 1821-30  | 800,000    | 40,000     | 840,000    | 960,000        |
| 1831-40  | 885,000    | 75,000     | 960,000    | 1,185,000      |
| 1841-50  | 990,000    | 160,000    | 1,150,000  | 1,630,000      |
| 1851-60  | 1,530,000  | 810,000    | 2,340,000  | 4,770,000      |
| 1861-70  | 2,100,000  | 1,490,000  | 3,590,000  | 8,100,000      |
| 1871-80  | 1,390,000  | 3,190,000  | 4,580,000  | 14,200,000     |
| 1881-89  | 1,265,000  | 4,555,000  | 5,820,000  | 19,500,000     |
| 89 years | 10,320,000 | 10,330,000 | 20,650,000 | 51,745,000     |

From 1855 the distinction of vessels built for British from those for foreign flags was as follows :—

|                    | Nominal Tonnage British |           |            | Nominal Tonnage Foreign |         |           |
|--------------------|-------------------------|-----------|------------|-------------------------|---------|-----------|
|                    | Steam                   | Sail      | Total      | Steam                   | Sail    | Total     |
| 1855-59 . . . . .  | 283,000                 | 930,000   | 1,213,000  | 144,000                 | 8,000   | 152,000   |
| 1860-69 . . . . .  | 1,080,000               | 2,060,000 | 3,140,000  | 243,000                 | 34,000  | 277,000   |
| 1870-79 . . . . .  | 2,590,000               | 1,390,000 | 3,980,000  | 474,000                 | 40,000  | 514,000   |
| 1880-88 . . . . .  | 3,210,000               | 1,130,000 | 4,340,000  | 670,000                 | 40,000  | 710,000   |
| 34 years . . . . . | 7,163,000               | 5,510,000 | 12,673,000 | 1,531,000               | 122,000 | 1,653,000 |

In ten years ending December 1889 there were built 5,932,000 tons of merchant shipping, of which 930,000 tons were for foreign flags, the rest for the British.

The Clyde is one of the principal seats of this industry :—

| Year           | Vessels Built, Tons |              |           |
|----------------|---------------------|--------------|-----------|
|                | Clyde               | Other Places | Total     |
| 1880 . . . . . | 237,000             | 469,000      | 706,000   |
| 1882 . . . . . | 389,000             | 391,000      | 780,000   |
| 1889 . . . . . | 335,000             | 875,000      | 1,210,000 |

Vessels on the stocks on December 31, 1889, were :—

|                 | Steam |         | Sail |        | Total |         |
|-----------------|-------|---------|------|--------|-------|---------|
|                 | No.   | Tons    | No.  | Tons   | No.   | Tons    |
| Steel . . . . . | 382   | 745,000 | 54   | 87,000 | 436   | 832,000 |
| Iron . . . . .  | 57    | 21,000  | 8    | 6,000  | 65    | 27,000  |
| Wood . . . . .  | 7     | 1,000   | 35   | 3,000  | 42    | 4,000   |
| Total . . . . . | 446   | 767,000 | 97   | 96,000 | 543   | 863,000 |

| Built for          |     |         |     |        |     |         |  |
|--------------------|-----|---------|-----|--------|-----|---------|--|
|                    | No. | Tons    | No. | Tons   | No. | Tons    |  |
| U. Kingdom         | 309 | 560,000 | 53  | 58,000 | 362 | 618,000 |  |
| Colonies . . . . . | 16  | 32,000  | ... | ...    | 16  | 32,000  |  |
| Germany . . . . .  | 16  | 46,000  | 4   | 7,000  | 20  | 53,000  |  |
| Norway . . . . .   | 12  | 12,000  | ... | ...    | 12  | 12,000  |  |
| France . . . . .   | 8   | 13,000  | 2   | 7,000  | 10  | 20,000  |  |
| Various . . . . .  | 85  | 104,000 | 38  | 24,000 | 123 | 128,000 |  |
| Total . . . . .    | 446 | 767,000 | 97  | 96,000 | 543 | 863,000 |  |

The use of steel in shipbuilding was begun in 1879, when the tonnage of steamers built of it was 18,000: at present, as shown above, 95 per cent. of all vessels built are of steel. It is found that a steel vessel can carry 20 per cent. more than an iron one. Improvements in machinery cause a great saving in coal, the average consumption now being 1½ lbs. per indicated horse-power hourly, as compared with 6 lbs. in the year 1837.

Lloyd's estimate of shipping value in 1882 was £30 a ton for steamers, including fittings and furniture, and £10 a ton for sailing vessels. The cost of building has, however, since fallen, and at present a fair valuation of our merchant navy would be as follows :—

|                   | Tons      | Value, £    | £ per Ton |
|-------------------|-----------|-------------|-----------|
| Sailing . . . . . | 3,115,000 | 24,920,000  | 8         |
| Steam . . . . .   | 4,350,000 | 108,750,000 | 25        |
| Total . . . . .   | 7,465,000 | 133,670,000 | 18        |

The tonnage of British vessels lost or broken up in nine years (1880-88) was as follows :—

| Period            | Steam     | Sail      | Total     | Carrying Power |
|-------------------|-----------|-----------|-----------|----------------|
| 1880-84 . . . . . | 810,000   | 1,338,000 | 2,148,000 | 4,578,000      |
| 1885-88 . . . . . | 580,000   | 854,000   | 1,434,000 | 3,174,000      |
| 9 years . . . . . | 1,390,000 | 2,192,000 | 3,582,000 | 7,752,000      |

The death-rate of vessels (that is, the percentage lost or broken up in the same nine years) was :—

|                 |               |
|-----------------|---------------|
| Steam . . . . . | 4.2 per annum |
| Sail . . . . .  | 7.0 per annum |

According to Mr. Kiaer, the losses of British vessels on sea average 3 per cent. of steamers and 4 per cent. of sailing vessels: on this basis the decrease of shipping in 1880-89 would be made up thus :—

|                          | Steam     | Sail      | Total, Tons |
|--------------------------|-----------|-----------|-------------|
| Lost at sea . . . . .    | 990,000   | 1,224,000 | 2,214,000   |
| Broken up . . . . .      | 400,000   | 968,000   | 1,368,000   |
| Total decrease . . . . . | 1,390,000 | 2,192,000 | 3,582,000   |

The loss of life in British vessels was as follows :—

| Year              | Crews  | Passengers | Total  | Yearly Average |
|-------------------|--------|------------|--------|----------------|
| 1871-75 . . . . . | 9,715  | 2,037      | 11,752 | 2,350          |
| 1876-80 . . . . . | 7,965  | 772        | 8,737  | 1,747          |
| 1881-83 . . . . . | 7,376  | 382        | 7,758  | 2,586          |
| Total . . . . .   | 25,056 | 3,191      | 28,247 | 2,173          |

Lifeboats were established on the British coasts in 1824, which in sixty-three years down to 1887 were the means of saving 34,043 lives, an average of 550 yearly. There are at present 272, manned by 12,000 volunteer seamen, the coxswain alone being paid to mind the boat. They are supported by voluntary donations, which average £43,000 yearly.

#### FRANCE

In 1669 the merchant navy comprised 600 vessels, the number rising to 800 in 1720, of 150,000 tons aggregate, and to 1000 in 1788, with an aggregate of 250,000 tons.

| French Shipping in | Number |        |        | Tons    |         |           | Carrying Power |
|--------------------|--------|--------|--------|---------|---------|-----------|----------------|
|                    | Steam  | Sail   | Total  | Steam   | Sail    | Total     |                |
| 1840 . . . . .     | 94     | 14,354 | 14,448 | 10,000  | 624,000 | 634,000   | 664,000        |
| 1850 . . . . .     | 164    | 14,300 | 14,464 | 27,000  | 733,000 | 760,000   | 841,000        |
| 1860 . . . . .     | 346    | 14,823 | 15,169 | 84,000  | 929,000 | 1,013,000 | 1,265,000      |
| 1870 . . . . .     | 486    | 15,020 | 15,506 | 170,000 | 886,000 | 1,056,000 | 1,566,000      |
| 1880 . . . . .     | 652    | 14,406 | 15,058 | 278,000 | 641,000 | 919,000   | 1,753,000      |
| 1888 . . . . .     | 1,015  | 14,263 | 15,278 | 510,000 | 451,000 | 961,000   | 2,491,000      |



The total tonnage entered and cleared at French ports since 1837 showed the following averages :—

| Period            | Annual Average, Tons |           |            |            |           |            | Total Crew |
|-------------------|----------------------|-----------|------------|------------|-----------|------------|------------|
|                   | Steam                | Sail      | Total      | In Ballast | French    | Foreign    |            |
| 1837-46 . . . . . | 680,000              | 3,390,000 | 4,070,000  | 920,000    | 1,470,000 | 2,600,000  | 337,000    |
| 1847-56 . . . . . | 1,270,000            | 4,370,000 | 5,640,000  | 1,260,000  | 2,230,000 | 3,410,000  | 443,000    |
| 1857-66 . . . . . | 3,310,000            | 6,220,000 | 9,530,000  | 1,920,000  | 3,820,000 | 5,710,000  | 662,000    |
| 1867-76 . . . . . | 8,050,000            | 6,850,000 | 14,900,000 | 3,080,000  | 4,950,000 | 9,950,000  | 868,000    |
| 1877-86 . . . . . | 17,820,000           | 6,610,000 | 24,430,000 | 5,330,000  | 8,010,000 | 16,420,000 | 1,070,000  |
| 1886 . . . . .    | 22,480,000           | 4,270,000 | 26,750,000 | 5,030,000  | 9,600,000 | 17,150,000 | 1,096,000  |

Crew and tonnage are doubled in the above table, as it includes vessels both entered and cleared.

The following table shows the tonnage of entries only, that is, the annual average :—

| Period            | Vessels | Tons       | Tons per Ship | Per Seaman |
|-------------------|---------|------------|---------------|------------|
| 1837-46 . . . . . | 18,496  | 2,040,000  | 110           | 12         |
| 1847-56 . . . . . | 22,323  | 2,800,000  | 125           | 13         |
| 1857-66 . . . . . | 30,590  | 4,710,000  | 154           | 14         |
| 1867-76 . . . . . | 34,529  | 7,380,000  | 214           | 17         |
| 1877-86 . . . . . | 34,800  | 12,100,000 | 345           | 23         |
| 1886 . . . . .    | 30,463  | 13,100,000 | 430           | 24         |

The percentage of steam, sail, ballast, French and foreign vessels entered and cleared since 1837 was as follows :—

| Period            | In every 100 Tons of Shipping |         |       |      |         |
|-------------------|-------------------------------|---------|-------|------|---------|
|                   | French                        | Foreign | Steam | Sail | Ballast |
| 1837-46 . . . . . | 36                            | 64      | 17    | 83   | 23      |
| 1847-56 . . . . . | 40                            | 60      | 22    | 78   | 22      |
| 1857-66 . . . . . | 40                            | 60      | 35    | 65   | 20      |
| 1867-76 . . . . . | 33                            | 67      | 54    | 46   | 21      |
| 1877-86 . . . . . | 33                            | 67      | 73    | 27   | 21      |
| 1886 . . . . .    | 36                            | 64      | 84    | 16   | 19      |

The *cabotage* or coasting trade of France since 1837 was as follows :—

| Period            | Annual Average |           |         |            |
|-------------------|----------------|-----------|---------|------------|
|                   | Vessels        | Tonnage   | Men     | Tons Cargo |
| 1837-46 . . . . . | 77,300         | 2,480,000 | 310,000 | 2,010,000  |
| 1847-56 . . . . . | 73,400         | 2,680,000 | 312,000 | 2,250,000  |
| 1857-66 . . . . . | 75,700         | 3,060,000 | 291,000 | 2,340,000  |
| 1867-76 . . . . . | 60,100         | 2,930,000 | 237,000 | 2,030,000  |
| 1877-86 . . . . . | 57,600         | 3,730,000 | 271,000 | 2,035,000  |

In 1886 the coasting trade was made up thus :—

|                         | Vessels | Tonnage   | Men     | Tons Cargo |
|-------------------------|---------|-----------|---------|------------|
| Ocean . . . . .         | 47,030  | 2,460,000 | 181,500 | 1,530,000  |
| Mediterranean . . . . . | 8,870   | 1,980,000 | 112,800 | 700,000    |
| Total . . . . .         | 55,900  | 4,440,000 | 294,300 | 2,230,000  |

The following table shows the total sea-going and coasting tonnage entered and cleared at all ports in 1886 :—

|                      | Tonnage    | Tons Cargo |
|----------------------|------------|------------|
| Marseilles . . . . . | 8,300,000  | 1,190,000  |
| Havre . . . . .      | 4,030,000  | 2,350,000  |
| Bordeaux . . . . .   | 2,930,000  | 2,360,000  |
| Dunkirk . . . . .    | 1,550,000  | 1,760,000  |
| Various . . . . .    | 13,800,000 | 12,800,000 |
| Total . . . . .      | 30,610,000 | 20,460,000 |

The great difference between tonnage of vessels at Marseilles and weight of cargo handled probably arises from the fact that the passenger traffic forms the principal share. The shipping registered at the various ports in 1885 was as follows :—

| Port                 | Tonnage |         |         | Carrying Power |
|----------------------|---------|---------|---------|----------------|
|                      | Sail    | Steam   | Total   |                |
| Havre . . . . .      | 40,000  | 147,000 | 187,000 | 630,000        |
| Bordeaux . . . . .   | 58,000  | 25,000  | 83,000  | 158,000        |
| Marseilles . . . . . | 29,000  | 245,000 | 274,000 | 1,009,000      |
| Various . . . . .    | 365,000 | 84,000  | 449,000 | 701,000        |
| Total . . . . .      | 492,000 | 501,000 | 993,000 | 2,498,000      |

The *Empress Eugenie* introduced lifeboat stations in 1866, of which in 1882 there were 37, at exposed points of the coast. The French merchant navy in 1886 had 93,800 seamen, viz. :—

| Vessels of               | Tonnage | Crew   | Tons per Man |
|--------------------------|---------|--------|--------------|
| Under 100 tons . . . . . | 197,000 | 61,300 | 3            |
| 100-300 . . . . .        | 165,000 | 12,100 | 14           |
| 300-500 . . . . .        | 100,000 | 3,700  | 27           |
| Over 500 . . . . .       | 531,000 | 16,700 | 32           |
| Total . . . . .          | 993,000 | 93,800 | 11           |

The total tonnage entered and cleared at all ports in 1888 was as follows :—

|                   | Tons       |            |            |
|-------------------|------------|------------|------------|
|                   | Entered    | Cleared    | Total      |
| French . . . . .  | 10,980,000 | 11,260,000 | 22,240,000 |
| Foreign . . . . . | 7,150,000  | 9,300,000  | 16,450,000 |
| Total . . . . .   | 18,130,000 | 20,560,000 | 38,690,000 |
| Ballast . . . . . | 1,470,000  | 6,080,000  | 7,550,000  |
| Cargo . . . . .   | 16,660,000 | 14,480,000 | 31,140,000 |
| Total . . . . .   | 18,130,000 | 20,560,000 | 38,690,000 |

Most of the French merchant navy is of small tonnage, there being only 2475 vessels over 50 tons, and 12,803 below that standard.

#### GERMANY

The merchant navy in 1842 consisted of 8200 vessels, with an aggregate of 551,000 tons. Later statistics are as follow :—

| Year           | Vessels, Number |       |       | Tons    |         |           |
|----------------|-----------------|-------|-------|---------|---------|-----------|
|                | Steam           | Sail  | Total | Steam   | Sail    | Total     |
| 1871 . . . . . | 147             | 4,372 | 4,519 | 82,000  | 900,000 | 982,000   |
| 1880 . . . . . | 414             | 4,246 | 4,660 | 216,000 | 966,000 | 1,182,000 |
| 1888 . . . . . | 750             | 2,885 | 3,635 | 503,000 | 731,000 | 1,234,000 |

The size and carrying power of the vessels have grown as follows :—

|      | Vessels | Tons      | Carrying Power | Per Vessel |                |
|------|---------|-----------|----------------|------------|----------------|
|      |         |           |                | Tons       | Carrying Power |
| 1842 | 8,200   | 551,000   | 551,000        | 67         | 67             |
| 1871 | 4,519   | 982,000   | 1,228,000      | 218        | 270            |
| 1888 | 3,635   | 1,234,000 | 2,743,000      | 338        | 751            |

The carrying power compares with the number of seamen as follows :—

| Year | Seamen | Carrying Power | Tons per Man |
|------|--------|----------------|--------------|
| 1871 | 39,500 | 1,228,000      | 31           |
| 1877 | 53,400 | 1,830,000      | 35           |
| 1889 | 36,300 | 2,743,000      | 75           |

The ratio of carrying power per seaman has more than doubled in twelve years. It is now 75 tons per man, against 91 in the British merchant-navy. But in spite of the increased efficiency of German seamen, the carrying trade of German ports is passing into the hands of other maritime nations, the ratio of German entries being less than it was thirty years ago.

The tonnage of entries into all German ports was as follows :—

| Year | German    | Foreign   | Total     | German Ratio per Cent. |
|------|-----------|-----------|-----------|------------------------|
| 1860 | 1,740,000 | 1,990,000 | 3,730,000 | 47                     |
| 1870 | 2,705,000 | 3,500,000 | 6,205,000 | 43                     |
| 1880 | 2,560,000 | 3,970,000 | 6,530,000 | 39                     |
| 1888 | 3,910,000 | 5,530,000 | 9,440,000 | 42                     |

Entries in the ports of the German Empire in 1886 were as follows :—

| From              | Vessels | Tons      | Flag              | Vessels | Tons      |
|-------------------|---------|-----------|-------------------|---------|-----------|
| German ports      | 28,320  | 1,520,000 | German            | 6,967   | 3,740,000 |
| Great Britain     | 7,042   | 3,420,000 | British           | 4,193   | 2,710,000 |
| Denmark           | 4,330   | 520,000   | Danish            | 4,032   | 570,000   |
| Sweden and Norway | 3,238   | 560,000   | Russian           | 457     | 120,000   |
| United States     | 860     | 1,170,000 | Sweden and Norway | 3,054   | 800,000   |
| Various           | 4,057   | 2,030,000 | Various           | 29,203  | 1,280,000 |
| Total             | 47,856  | 9,220,000 | Total             | 47,856  | 9,220,000 |

Entries and clearances in 1888 were as follows :—

| Ports   | Entered, Tons | Cleared, Tons | Total      |
|---------|---------------|---------------|------------|
| Hamburg | 4,410,000     | 4,440,000     | 8,850,000  |
| Bremen  | 1,180,000     | 1,190,000     | 2,370,000  |
| Stettin | 1,040,000     | 1,060,000     | 2,100,000  |
| Dantzig | 630,000       | 640,000       | 1,270,000  |
| Various | 2,180,000     | 2,105,000     | 4,285,000  |
| Total   | 9,440,000     | 9,435,000     | 18,875,000 |

The trade of Hamburg has grown nearly tenfold since 1846, when the entries were 460,000 tons.

The coasting trade in 1885 showed the following entries :—

|             | Vessels | Tons       |
|-------------|---------|------------|
| Hamburg     | 6,489   | 3,633,000  |
| Bremen      | 2,426   | 976,000    |
| Other ports | 52,270  | 5,615,000  |
| Total       | 61,185  | 10,224,000 |

Vessels with cargo formed 92, in ballast 8 per cent. of the above tonnage.

#### RUSSIA AND FINLAND

In 1842 the merchant navy comprised 1000 vessels with 240,000 tons aggregate. In recent years the returns show :—

| Year | Vessels |       |       | Tons    |         |         | Carrying Power |
|------|---------|-------|-------|---------|---------|---------|----------------|
|      | Steam   | Sail  | Total | Steam   | Sail    | Total   |                |
| 1876 | 356     | 3,975 | 4,331 | 82,000  | 600,000 | 682,000 | 930,000        |
| 1880 | 529     | 5,776 | 6,305 | 100,000 | 640,000 | 740,000 | 1,040,000      |
| 1886 | 594     | 3,982 | 4,576 | 142,000 | 605,000 | 747,000 | 1,170,000      |

The tonnage of vessels entered into Russian ports was :—

| Year | Russian | Foreign   | Total     |
|------|---------|-----------|-----------|
| 1837 | 47,000  | 888,000   | 935,000   |
| 1866 | 540,000 | 2,036,000 | 2,576,000 |
| 1871 | 595,000 | 3,400,000 | 3,995,000 |
| 1880 | 580,000 | 4,440,000 | 5,020,000 |
| 1888 | 510,000 | 6,900,000 | 7,410,000 |

The internal navigation in 1880 employed 385 steamers and 13,000 canal-boats. The sea-going and coast traffic in 1888 showed entries as follows :—

|           | Vessels | Tons       |
|-----------|---------|------------|
| Sea-going | 12,575  | 7,410,000  |
| Coast     | 23,978  | 4,753,000  |
| Total     | 36,553  | 12,163,000 |

Sea-going entries were distributed thus :—

|                      | Vessels | Tons      |
|----------------------|---------|-----------|
| Baltic . . . . .     | 6,966   | 3,090,000 |
| Black Sea . . . . .  | 4,921   | 3,730,000 |
| Other seas . . . . . | 688     | 590,000   |
| Total . . . . .      | 12,575  | 7,410,000 |

## AUSTRIA

The first impulse given to Austrian shipping was the establishment of the Austrian Lloyd's Company to trade in the Levant in 1833; the second, the Danube Navigation Company, founded in 1850. The latter has steamers which carry 1,200,000 passengers and 1,400,000 tons of merchandise yearly. The merchant navy of the Empire in 1849 comprised 6083 vessels of 260,000 tons aggregate, manned by 27,000 seamen. In later years we find as follows :—

| Year           | Vessels |      |       | Tons   |         |         | Carrying Power |
|----------------|---------|------|-------|--------|---------|---------|----------------|
|                | Steam   | Sail | Total | Steam  | Sail    | Total   |                |
| 1870 . . . . . | 91      | 702  | 793   | 50,000 | 280,000 | 330,000 | 480,000        |
| 1880 . . . . . | 80      | 526  | 606   | 60,000 | 230,000 | 290,000 | 470,000        |
| 1888 . . . . . | 98      | 269  | 367   | 90,000 | 130,000 | 220,000 | 490,000        |

The tonnage of entries was as follows :—

| Year           | Austrian  | Foreign | Total     |
|----------------|-----------|---------|-----------|
| 1861 . . . . . | 2,400,000 | 420,000 | 2,820,000 |
| 1870 . . . . . | 2,840,000 | 590,000 | 3,430,000 |
| 1880 . . . . . | 4,190,000 | 630,000 | 4,820,000 |
| 1888 . . . . . | 6,740,000 | 805,000 | 7,545,000 |

In later years the returns of shipping of the kingdom of Italy show as follows :—

|                | Vessels |        |        | Tons    |         |           | Carrying Power |
|----------------|---------|--------|--------|---------|---------|-----------|----------------|
|                | Steam   | Sail   | Total  | Steam   | Sail    | Total     |                |
| 1872 . . . . . | 118     | 10,951 | 11,069 | 38,000  | 993,000 | 1,031,000 | 1,145,000      |
| 1880 . . . . . | 158     | 7,822  | 7,980  | 77,000  | 922,000 | 999,000   | 1,230,000      |
| 1888 . . . . . | 266     | 6,544  | 6,810  | 175,000 | 675,000 | 850,000   | 1,375,000      |

Port entries since 1861 have risen as follows in tonnage :—

| Year           | Italian   | Foreign   | Total Sea-going | Coasting   | Total Entries |
|----------------|-----------|-----------|-----------------|------------|---------------|
| 1861 . . . . . | 820,000   | 1,700,000 | 2,520,000       | ...        | ...           |
| 1870 . . . . . | 1,340,000 | 2,450,000 | 3,790,000       | 5,930,000  | 9,720,000     |
| 1880 . . . . . | 1,700,000 | 2,990,000 | 4,690,000       | 8,400,000  | 13,090,000    |
| 1888 . . . . . | 1,720,000 | 4,950,000 | 6,670,000       | 13,380,000 | 20,050,000    |

The above figures show that since 1870 the sea-going trade has risen 75 per cent., and coasting trade 125 per cent.

The total of entries and clearances in 1888 was as follows :—

|                     | Entries, Tons | Cleared, Tons | Total      |
|---------------------|---------------|---------------|------------|
| Sea-going . . . . . | 6,670,000     | 6,400,000     | 13,070,000 |
| Coasting . . . . .  | 13,380,000    | 12,790,000    | 26,170,000 |
| Total . . . . .     | 20,050,000    | 19,190,000    | 39,240,000 |

In 1889 the tonnage of sea-going vessels that entered the Danube was as follows :—

|                   | Tons      |
|-------------------|-----------|
| British . . . . . | 1,001,000 |
| Greek . . . . .   | 128,000   |
| Various . . . . . | 285,000   |
| Total . . . . .   | 1,414,000 |

This table, however, applied only to that part of the Danube outside the Austrian dominions.

The total shipping of the Austrian Empire of all sizes in 1886 was as follows :—

|                     | Vessels | Tons    | Seamen |
|---------------------|---------|---------|--------|
| Sea-going . . . . . | 393     | 250,000 | 5,400  |
| Coasting . . . . .  | 8,975   | 62,000  | 23,400 |
| Total . . . . .     | 9,368   | 312,000 | 28,800 |

The aggregate horse-power of merchant steamers was 23,000.

## ITALY

In 1842 the merchant shipping of all the Italian States summed up 14,680 vessels, with an aggregate of 462,000 tons. In 1850 the marine of the three principal States was as follows :—

|                    | Vessels | Tons    |
|--------------------|---------|---------|
| Naples . . . . .   | 3,600   | 168,000 |
| Sardinia . . . . . | 6,300   | 167,000 |
| Tuscany . . . . .  | 800     | 34,000  |
| Total . . . . .    | 10,700  | 369,000 |

The aggregate of vessels' tonnage entered and cleared was as follows :—

| Year           | Sea-going  | Coasting   | Total      |
|----------------|------------|------------|------------|
| 1861 . . . . . | 5,080,000  | 8,000,000  | 13,080,000 |
| 1870 . . . . . | 7,620,000  | 9,680,000  | 17,300,000 |
| 1888 . . . . . | 11,070,000 | 26,170,000 | 39,240,000 |

This shows that the shipping business of Italy has more than doubled since 1870. The trade of the principal ports in 1888 was as follows :—

|                   | Tons Entered | Tons Cleared | Total      |
|-------------------|--------------|--------------|------------|
| Genoa . . . . .   | 2,810,000    | 2,850,000    | 5,660,000  |
| Naples . . . . .  | 1,750,000    | 1,750,000    | 3,500,000  |
| Palermo . . . . . | 1,390,000    | 1,390,000    | 2,780,000  |
| Leghorn . . . . . | 1,300,000    | 1,290,000    | 2,590,000  |
| Messina . . . . . | 1,080,000    | 1,070,000    | 2,150,000  |
| Venice . . . . .  | 890,000      | 890,000      | 1,780,000  |
| Various . . . . . | 10,830,000   | 9,950,000    | 20,780,000 |
| Total . . . . .   | 20,050,000   | 19,190,000   | 39,240,000 |

## SPAIN

At the death of Charles II., in 1700, the merchant navy had an aggregate of 27,000 tons. In recent years the tonnage was :—

| Year | Steam   | Sail    | Total   | Carrying Power |
|------|---------|---------|---------|----------------|
| 1842 | ...     | 280,000 | 280,000 | 280,000        |
| 1859 | 13,000  | 460,000 | 473,000 | 512,000        |
| 1872 | 45,000  | 340,000 | 385,000 | 520,000        |
| 1880 | 230,000 | 330,000 | 560,000 | 1,250,000      |
| 1888 | 395,000 | 205,000 | 600,000 | 1,785,000      |

Port entries of sea-going vessels showed the following tonnage :—

| Year       | Spanish   | Foreign   | Total      |
|------------|-----------|-----------|------------|
| 1860 . . . | 420,000   | 930,000   | 1,350,000  |
| 1872 . . . | 890,000   | 1,960,000 | 2,850,000  |
| 1880 . . . | 1,300,000 | 4,400,000 | 5,700,000  |
| 1888 . . . | 4,600,000 | 6,850,000 | 11,450,000 |

The total port traffic in 1888 was as follows in tonnage :—

|                 | Entered    | Cleared    | Total      |
|-----------------|------------|------------|------------|
| Sea-going . . . | 11,450,000 | 10,880,000 | 22,330,000 |
| Coasting . . .  | 5,660,000  | 5,240,000  | 10,900,000 |
| Total . . .     | 17,110,000 | 16,120,000 | 33,230,000 |

The returns of coast traffic are for 1885; no later published.

## PORTUGAL

In 1842 the merchant navy counted 798 vessels, with an aggregate of 81,000 tons; in 1889 it comprised only 443 vessels, with an aggregate of 78,000 tons. The tonnage of vessels entered and cleared was as follows :—

| Flag           | Entered   |           | Cleared   |           |
|----------------|-----------|-----------|-----------|-----------|
|                | 1878      | 1888      | 1878      | 1888      |
| Portuguese . . | 170,000   | 210,000   | 160,000   | 190,000   |
| Foreign . . .  | 2,330,000 | 3,750,000 | 2,250,000 | 3,730,000 |
| Total . . .    | 2,500,000 | 3,960,000 | 2,410,000 | 3,920,000 |

Of the foreign entries in 1888, British vessels stood for 2,140,000 tons, or considerably more than half the trade of Portugal.

## SWEDEN

The merchant navy at various dates stood thus :—

| Year | Steam   | Sail    | Total   | Carrying Power |
|------|---------|---------|---------|----------------|
| 1800 | ...     | 64,000  | 64,000  | 64,000         |
| 1837 | ...     | 120,000 | 120,000 | 120,000        |
| 1872 | 48,000  | 340,000 | 388,000 | 530,000        |
| 1880 | 81,000  | 460,000 | 541,000 | 780,000        |
| 1888 | 125,000 | 375,000 | 500,000 | 875,000        |

The tonnage of port entries was as follows :—

| Year       | Swedish   | Foreign   | Total     |
|------------|-----------|-----------|-----------|
| 1830 . . . | 163,000   | 170,000   | 333,000   |
| 1866 . . . | 495,000   | 1,135,000 | 1,630,000 |
| 1870 . . . | 680,000   | 1,480,000 | 2,160,000 |
| 1880 . . . | 1,270,000 | 2,170,000 | 3,440,000 |
| 1888 . . . | 1,760,000 | 3,260,000 | 5,020,000 |

The entries in 1888 were as follows :—

|               | With Cargo | In Ballast | Total     |
|---------------|------------|------------|-----------|
| Swedish . . . | 1,060,000  | 700,000    | 1,760,000 |
| Foreign . . . | 1,010,000  | 2,250,000  | 3,260,000 |
| Total . . .   | 2,070,000  | 2,950,000  | 5,020,000 |

|               | Steamers  | Sailing   | Total     |
|---------------|-----------|-----------|-----------|
| Swedish . . . | 1,110,000 | 650,000   | 1,760,000 |
| Foreign . . . | 2,295,000 | 965,000   | 3,260,000 |
| Total . . .   | 3,405,000 | 1,615,000 | 5,020,000 |

## NORWAY

In 1836 the merchant navy was one of the most considerable in the world, comprising 2430 vessels, with an aggregate of 212,000 tons, and 13,000 seamen. The tonnage at various dates was as follows :—

|            | Sail      | Steam   | Total     | Carrying Power |
|------------|-----------|---------|-----------|----------------|
| 1836 . . . | 212,000   | ...     | 212,000   | 212,000        |
| 1872 . . . | 1,090,000 | 30,000  | 1,120,000 | 1,210,000      |
| 1880 . . . | 1,460,000 | 58,000  | 1,518,000 | 1,690,000      |
| 1888 . . . | 1,400,000 | 135,000 | 1,535,000 | 1,940,000      |

Tonnage of port entries at various dates showed thus :—

| Year       | Norwegian | Foreign | Total     |
|------------|-----------|---------|-----------|
| 1860 . . . | 700,000   | 260,000 | 960,000   |
| 1870 . . . | 1,120,000 | 480,000 | 1,600,000 |
| 1880 . . . | 1,340,000 | 630,000 | 1,970,000 |
| 1888 . . . | 1,450,000 | 850,000 | 2,300,000 |

The sea-going trade in 1887 showed the ports thus :—

|                   | Tons Entered | Tons Cleared |
|-------------------|--------------|--------------|
| Christiania . . . | 740,000      | 560,000      |
| Bergen . . .      | 270,000      | 240,000      |
| Drontheim . . .   | 110,000      | 130,000      |
| Various . . .     | 1,210,000    | 1,500,000    |
| Total . . .       | 2,330,000    | 2,430,000    |

In 1876 the merchant navy of Norway had 56,200 seamen, of whom 43,700 in sea-going vessels, the rest in coasters.

## DENMARK

In 1748 the Danish merchant navy counted 1800 vessels; in 1789 it exceeded 4000, declining in 1825 to 3870, and in 1835 to 3700. The tonnage at various dates showed :—

| Year       | Steam  | Sail    | Total   | Carrying Power |
|------------|--------|---------|---------|----------------|
| 1825 . . . | ...    | 118,000 | 118,000 | 118,000        |
| 1835 . . . | ...    | 144,000 | 144,000 | 144,000        |
| 1850 . . . | ...    | 153,000 | 153,000 | 153,000        |
| 1872 . . . | 15,000 | 175,000 | 190,000 | 235,000        |
| 1880 . . . | 52,000 | 198,000 | 250,000 | 405,000        |
| 1888 . . . | 95,000 | 175,000 | 270,000 | 555,000        |

Tonnage of port entries was as follows :—

| Year       | Danish    | Foreign   | Total     |
|------------|-----------|-----------|-----------|
| 1860 . . . | 260,000   | 340,000   | 600,000   |
| 1870 . . . | 310,000   | 400,000   | 710,000   |
| 1880 . . . | 1,200,000 | 1,030,000 | 2,230,000 |
| 1888 . . . | 1,750,000 | 1,630,000 | 3,380,000 |

The shipping trade of 1888 was as follows in tonnage :—

|               | Steam     | Sail      | Total     |
|---------------|-----------|-----------|-----------|
| Entered . . . | 2,670,000 | 710,000   | 3,380,000 |
| Cleared . . . | 2,650,000 | 720,000   | 3,370,000 |
| Total . . .   | 5,320,000 | 1,430,000 | 6,750,000 |

The Sound dues during fourteen years down to 1799 averaged £150,000 a year from 10,000 vessels, that is, £15 each. In later years we find as follows :—

| Year       | Dues Paid by |               |          | Number of Vessels |
|------------|--------------|---------------|----------|-------------------|
|            | British      | Other Vessels | Total, £ |                   |
| 1821 . . . | 67,000       | 100,000       | 167,000  | 9,200             |
| 1830 . . . | 51,000       | 110,000       | 161,000  | 13,300            |
| 1837 . . . | 54,000       | 160,000       | 214,000  | 13,100            |

The dues were 1 per cent. on the value of the cargo, and were abolished in 1857, when Great Britain paid Denmark £1,200,000 and other nations £2,400,000 as indemnity.

#### HOLLAND

The tonnage of merchant shipping of the Dutch flag was as follows :—

| Year       | Steam   | Sail    | Total   | Carrying Power |
|------------|---------|---------|---------|----------------|
| 1826 . . . | ...     | 148,000 | 148,000 | 148,000        |
| 1842 . . . | ...     | 275,000 | 275,000 | 275,000        |
| 1872 . . . | 34,000  | 350,000 | 384,000 | 490,000        |
| 1880 . . . | 65,000  | 265,000 | 330,000 | 525,000        |
| 1888 . . . | 105,000 | 140,000 | 245,000 | 560,000        |

Tonnage of port entries was as follows :—

| Year       | Dutch     | Foreign   | Total     |
|------------|-----------|-----------|-----------|
| 1828 . . . | 284,000   | 439,000   | 723,000   |
| 1837 . . . | 327,000   | 449,000   | 776,000   |
| 1860 . . . | 650,000   | 1,005,000 | 1,655,000 |
| 1870 . . . | 660,000   | 1,650,000 | 2,310,000 |
| 1880 . . . | 1,055,000 | 2,390,000 | 3,445,000 |
| 1888 . . . | 1,600,000 | 3,510,000 | 5,110,000 |

The trade of 1888 showed as follows :—

|               | With Cargo | In Ballast | Total      |
|---------------|------------|------------|------------|
| Entered . . . | 4,900,000  | 210,000    | 5,110,000  |
| Cleared . . . | 2,960,000  | 2,080,000  | 5,040,000  |
| Total . . .   | 7,860,000  | 2,290,000  | 10,150,000 |

The principal ports showed as follows, cargo only :—

|                | Entered   | Cleared   | Total     |
|----------------|-----------|-----------|-----------|
| Rotterdam . .  | 2,525,000 | 1,420,000 | 3,945,000 |
| Amsterdam . .  | 940,000   | 570,000   | 1,510,000 |
| Flushing . . . | 630,000   | 650,000   | 1,280,000 |
| Various . . .  | 805,000   | 320,000   | 1,125,000 |
| Total . . .    | 4,900,000 | 2,960,000 | 7,860,000 |

In 1670 Sir William Petty estimated that the Dutch possessed one-half the shipping of the world : at present they have less than 1½ per cent. of the total.

BELGIUM  
The merchant navy was as follows, in tonnage :—

| Year       | Steam  | Sail   | Total  | Carrying Power |
|------------|--------|--------|--------|----------------|
| 1842 . . . | ...    | 27,000 | 27,000 | 27,000         |
| 1870 . . . | 10,000 | 20,000 | 30,000 | 60,000         |
| 1880 . . . | 65,000 | 10,000 | 75,000 | 270,000        |
| 1888 . . . | 73,000 | 4,000  | 77,000 | 295,000        |

Tonnage of port entries was as follows :—

| Year       | Steam     | Sail    | Total     |
|------------|-----------|---------|-----------|
| 1840 . . . | ...       | 237,000 | 237,000   |
| 1850 . . . | ...       | 315,000 | 315,000   |
| 1860 . . . | 176,000   | 491,000 | 667,000   |
| 1870 . . . | 839,000   | 736,000 | 1,575,000 |
| 1880 . . . | 2,813,000 | 758,000 | 3,571,000 |
| 1887 . . . | 4,080,000 | 492,000 | 4,572,000 |

The countries from which the tonnage came were :—

|                   | 1840    | 1860    | 1887      |
|-------------------|---------|---------|-----------|
| Great Britain . . | 60,000  | 240,000 | 1,740,000 |
| United States . . | 30,000  | 40,000  | 620,000   |
| Germany . . .     | 30,000  | 75,000  | 370,000   |
| Russia . . .      | 35,000  | 90,000  | 315,000   |
| France . . .      | 10,000  | 20,000  | 190,000   |
| Argentina . . .   | ...     | 20,000  | 190,000   |
| Various . . .     | 72,000  | 182,000 | 1,147,000 |
| Total . . .       | 237,000 | 667,000 | 4,572,000 |

Antwerp stands for 80 per cent. of the shipping trade of the kingdom, viz. :—

|                   | 1840    | 1860    | 1887      |
|-------------------|---------|---------|-----------|
| Antwerp . . .     | 180,000 | 512,000 | 3,665,000 |
| Other ports . . . | 57,000  | 155,000 | 907,000   |
| Total . . .       | 237,000 | 667,000 | 4,572,000 |

#### GREECE

The mercantile marine at various dates had the following tonnage :—

|            | Steam  | Sail    | Total   | Carrying Power |
|------------|--------|---------|---------|----------------|
| 1842 . . . | ...    | 186,000 | 186,000 | 186,000        |
| 1872 . . . | 6,000  | 234,000 | 240,000 | 258,000        |
| 1887 . . . | 31,000 | 227,000 | 258,000 | 350,000        |

Tonnage of port entries was as follows :—

| Year       | Greek   | Foreign   | Total     |
|------------|---------|-----------|-----------|
| 1860 . . . | 430,000 | 500,000   | 930,000   |
| 1870 . . . | 420,000 | 850,000   | 1,270,000 |
| 1888 . . . | 330,000 | 2,040,000 | 2,370,000 |

Piræus (Athens) stood for 1,550,000 tons, or 66 per cent. of the total. The merchant navy of Greece in 1880 had 26,800 sailors.

#### TURKEY

The tonnage of the merchant navy at various dates was as follows :—

| Year       | Sail    | Steam  | Total   | Carrying Power |
|------------|---------|--------|---------|----------------|
| 1842 . . . | 182,000 | ...    | 182,000 | 182,000        |
| 1875 . . . | 170,000 | 10,000 | 180,000 | 210,000        |
| 1889 . . . | 153,000 | 64,000 | 217,000 | 410,000        |

Port entries in 1888 were as follows:—

| At                   | Tons       | Flag         | Tons       |
|----------------------|------------|--------------|------------|
| Constantinople . . . | 8,790,000  | British . .  | 9,270,000  |
| Levant and Black Sea | 18,790,000 | Turkish . .  | 4,810,000  |
| Red Sea . . . . .    | 540,000    | Austrian . . | 3,720,000  |
| Persian Gulf . . .   | 160,000    | Various . .  | 10,480,000 |
| Total . . . . .      | 28,280,000 | Total . . .  | 28,280,000 |

In 1888 no fewer than 15,820 vessels entered the Dardanelles, with an aggregate of 10,460,000 tons, the share of British vessels being 7,030,000 tons.

## EGYPT

The trade returns of the Suez Canal since 1870 will be found under the head of *Canals*, p. 102.

The tonnage of arrivals at Alexandria and that of vessels passing through the Suez Canal in 1888 showed thus:—

|                    | Alexandria, Tons | Canal, Tons |
|--------------------|------------------|-------------|
| British . . . . .  | 690,000          | 7,340,000   |
| Turkish . . . . .  | 250,000          | 30,000      |
| French . . . . .   | 250,000          | 580,000     |
| Austrian . . . . . | 160,000          | 170,000     |
| Russian . . . . .  | 120,000          | 50,000      |
| Italian . . . . .  | 60,000           | 400,000     |
| Various . . . . .  | 60,000           | 870,000     |
| Total . . . . .    | 1,590,000        | 9,440,000   |

## UNITED STATES

The merchant shipping of the Union at various dates was in tonnage as follows:—

| Year           | High Seas | Coasting, &c. | Total     | Sail      | Steam     | Carrying Power |
|----------------|-----------|---------------|-----------|-----------|-----------|----------------|
| 1789 . . . . . | 124,000   | 78,000        | 202,000   | 202,000   | ...       | 202,000        |
| 1795 . . . . . | 530,000   | 218,000       | 748,000   | 748,000   | ...       | 748,000        |
| 1800 . . . . . | 670,000   | 300,000       | 970,000   | 970,000   | ...       | 970,000        |
| 1810 . . . . . | 980,000   | 440,000       | 1,420,000 | 1,420,000 | ...       | 1,420,000      |
| 1820 . . . . . | 580,000   | 700,000       | 1,280,000 | 1,260,000 | 20,000    | 1,340,000      |
| 1830 . . . . . | 540,000   | 650,000       | 1,190,000 | 1,125,000 | 65,000    | 1,385,000      |
| 1840 . . . . . | 760,000   | 1,420,000     | 2,180,000 | 1,980,000 | 200,000   | 2,780,000      |
| 1850 . . . . . | 1,440,000 | 2,095,000     | 3,535,000 | 3,010,000 | 525,000   | 5,110,000      |
| 1860 . . . . . | 2,380,000 | 2,970,000     | 5,350,000 | 4,480,000 | 870,000   | 7,960,000      |
| 1870 . . . . . | 1,450,000 | 2,800,000     | 4,250,000 | 3,175,000 | 1,075,000 | 7,475,000      |
| 1880 . . . . . | 1,310,000 | 2,760,000     | 4,070,000 | 2,800,000 | 1,210,000 | 7,700,000      |
| 1889 . . . . . | 1,000,000 | 3,310,000     | 4,310,000 | 2,540,000 | 1,770,000 | 9,620,000      |

American shipping differs from that of other nations, inasmuch as less than one-fourth is engaged on the high seas: coasting and internal traffic take 77 per cent. of the total merchant-navy. The carrying-power has risen only 20 in the last thirty years. It was less in 1880 than twenty years before, but has since recovered.

The tonnage of vessels built since 1812 was as follows:—

| Period   | Sail       | Steam     | Total      | Carrying Power | Do. per Annum |
|----------|------------|-----------|------------|----------------|---------------|
| 1812-20  | 730,000    | 25,000    | 755,000    | 830,000        | 92,000        |
| 1821-30  | 830,000    | 65,000    | 895,000    | 1,090,000      | 109,000       |
| 1831-40  | 1,010,000  | 175,000   | 1,185,000  | 1,710,000      | 171,000       |
| 1841-50  | 1,480,000  | 370,000   | 1,850,000  | 2,960,000      | 296,000       |
| 1851-60  | 2,930,000  | 730,000   | 3,660,000  | 5,850,000      | 585,000       |
| 1861-70  | 2,110,000  | 910,000   | 3,020,000  | 5,750,000      | 575,000       |
| 1871-80  | 1,770,000  | 760,000   | 2,530,000  | 4,810,000      | 481,000       |
| 1881-89  | 930,000    | 970,000   | 1,900,000  | 4,810,000      | 534,000       |
| 78 years | 11,790,000 | 4,005,000 | 15,795,000 | 27,810,000     | 356,000       |

If we suppose that the vessels which have disappeared from the register in the last nine years were either lost or broken up (since very few have been sold to other flags), we find the death-rate of American vessels as follows:—

|                 | Lost, &c., Tons Yearly | Tonnage of Shipping | Annual Loss per Cent. |
|-----------------|------------------------|---------------------|-----------------------|
| Sail . . . . .  | 140,000                | 2,700,000           | 5.2                   |
| Steam . . . . . | 45,000                 | 1,500,000           | 3.0                   |
| Total . . . . . | 185,000                | 4,200,000           | 4.4                   |

The principal maritime states showed tonnage of vessels belonging to citizens of same in 1850 and 1886 thus:—

| State                  | Tons      |           |
|------------------------|-----------|-----------|
|                        | 1850      | 1886      |
| New York . . . . .     | 944,000   | 1,220,000 |
| Massachusetts . . . .  | 685,000   | 440,000   |
| Maine . . . . .        | 501,000   | 490,000   |
| Pennsylvania . . . . . | 258,000   | 280,000   |
| Louisiana . . . . .    | 250,000   | 70,000    |
| Maryland . . . . .     | 193,000   | 150,000   |
| Various . . . . .      | 704,000   | 1,620,000 |
| Total . . . . .        | 3,535,000 | 4,270,000 |

The proportions of trade—that is, of imports and exports combined—done on American and on foreign bottoms since 1821 are shown as follows:—

| Year | Trade, £           |             |             | Percentage |         |
|------|--------------------|-------------|-------------|------------|---------|
|      | United States Flag | Foreign     | Total       | American   | Foreign |
| 1821 | 23,600,000         | 3,100,000   | 26,700,000  | 89         | 11      |
| 1830 | 27,300,000         | 3,100,000   | 30,400,000  | 90         | 10      |
| 1840 | 41,900,000         | 8,500,000   | 50,400,000  | 83         | 17      |
| 1850 | 50,000,000         | 19,000,000  | 69,000,000  | 72         | 28      |
| 1860 | 105,500,000        | 53,000,000  | 158,500,000 | 66         | 34      |
| 1870 | 62,000,000         | 132,000,000 | 194,000,000 | 32         | 68      |
| 1880 | 58,200,000         | 272,000,000 | 330,800,000 | 17         | 83      |
| 1889 | 54,000,000         | 253,000,000 | 307,000,000 | 17         | 83      |

The tonnage of entries into United States ports under various flags was :—

| Flag                 | Tonnage   |           |            | Ratio |       |       |
|----------------------|-----------|-----------|------------|-------|-------|-------|
|                      | 1860      | 1870      | 1889       | 1860  | 1870  | 1889  |
| American . . . .     | 3,302,000 | 2,452,000 | 3,130,000  | 66.0  | 39.2  | 23.5  |
| British . . . . .    | 1,263,000 | 2,792,000 | 6,820,000  | 25.2  | 44.4  | 51.3  |
| German . . . . .     | 231,000   | 679,000   | 1,130,000  | 4.6   | 10.9  | 8.5   |
| Scandinavian . . . . | 32,000    | 108,000   | 725,000    | 0.6   | 1.7   | 5.4   |
| Italian . . . . .    | 32,000    | 48,000    | 290,000    | 0.6   | 0.8   | 2.2   |
| French . . . . .     | 24,000    | 81,000    | 320,000    | 0.5   | 1.3   | 2.4   |
| Spanish . . . . .    | 63,000    | 31,000    | 260,000    | 1.3   | 0.5   | 1.9   |
| Various . . . . .    | 50,000    | 79,000    | 635,000    | 1.2   | 1.2   | 4.8   |
| Total . . . . .      | 5,003,000 | 6,270,000 | 13,310,000 | 100.0 | 100.0 | 100.0 |

The tonnage entered and cleared at the principal ports was :—

| State                 | Entered   |           |            | Cleared   |           |            |
|-----------------------|-----------|-----------|------------|-----------|-----------|------------|
|                       | 1865      | 1875      | 1889       | 1865      | 1875      | 1889       |
| New York . . . . .    | 2,080,000 | 4,420,000 | 5,600,000  | 2,100,000 | 4,310,000 | 5,450,000  |
| Boston . . . . .      | 660,000   | 770,000   | 1,400,000  | 670,000   | 630,000   | 1,220,000  |
| Philadelphia . . . .  | 160,000   | 580,000   | 1,100,000  | 140,000   | 620,000   | 870,000    |
| San Francisco . . . . | 320,000   | 720,000   | 1,050,000  | 400,000   | 750,000   | 1,060,000  |
| New Orleans . . . . . | 50,000    | 450,000   | 770,000    | 70,000    | 520,000   | 770,000    |
| Various . . . . .     | 560,000   | 2,200,000 | 3,390,000  | 780,000   | 2,510,000 | 4,300,000  |
| Total . . . . .       | 3,830,000 | 9,140,000 | 13,310,000 | 4,160,000 | 9,340,000 | 13,670,000 |

The following table of steamboat traffic was published in 1881 for the preceding year :—

|                         | Steamers | Tonnage   | Passengers  | Goods, Tons | Earnings, £ | Wages, £  |
|-------------------------|----------|-----------|-------------|-------------|-------------|-----------|
| Lakes . . . . .         | 947      | 222,000   | 1,420,000   | 4,380,000   | 2,520,000   | 690,000   |
| Mississippi . . . . .   | 681      | 132,000   | 2,710,000   | 4,820,000   | 2,460,000   | 790,000   |
| Ohio . . . . .          | 473      | 107,000   | 4,030,000   | 2,410,000   | 1,580,000   | 585,000   |
| New England . . . . .   | 463      | 119,000   | 15,470,000  | 2,630,000   | 1,620,000   | 560,000   |
| Middle States . . . . . | 1,459    | 433,000   | 135,720,000 | 7,190,000   | 6,660,000   | 1,830,000 |
| Gulf . . . . .          | 1,116    | 208,000   | 9,160,000   | 4,110,000   | 2,870,000   | 965,000   |
| Total . . . . .         | 5,139    | 1,221,000 | 168,510,000 | 25,540,000  | 17,710,000  | 5,420,000 |

The crews mustered 57,100 men, their wages averaging £85. The steamers carried merchandise 21 times their own tonnage, besides passengers. Each steamer carried in the year 33,000 passengers and 5000 tons of merchandise. One tug on the Mississippi can convey in six days, from St. Louis to New Orleans, boats carrying 10,000 tons of grain, which would require 70 railway trains of 15 waggons each.

The official return of wrecks and casualties shows :—

|                    | Tonnage of Vessels |           |         |         |
|--------------------|--------------------|-----------|---------|---------|
|                    | Lost               |           | Damaged |         |
|                    | 1880               | 1889      | 1880    | 1889    |
|                    | 1880               | 1889      | 1880    | 1889    |
| Atlantic . . . . . | 31,000             | 50,000    | 207,000 | 266,000 |
| Lakes . . . . .    | 11,000             | 13,000    | 111,000 | 146,000 |
| Various . . . . .  | 68,000             | 63,000    | 187,000 | 178,000 |
| Total . . . . .    | 110,000            | 126,000   | 505,000 | 590,000 |
| Loss, £ Sterling   |                    |           |         |         |
| Atlantic . . . . . | 600,000            | 980,000   | 110     | 144     |
| Lakes . . . . .    | 250,000            | 250,000   | 29      | 9       |
| Various . . . . .  | 1,050,000          | 1,130,000 | 330     | 459     |
| Total . . . . .    | 1,900,000          | 2,360,000 | 469     | 612     |

#### CANADA

The merchant navy has grown in tonnage very rapidly, viz :—

| Year | Steam   | Sail      | Total     | Carrying Power |
|------|---------|-----------|-----------|----------------|
| 1841 | 5,000   | 345,000   | 350,000   | 365,000        |
| 1866 | 28,000  | 727,000   | 755,000   | 840,000        |
| 1877 | 77,000  | 1,233,000 | 1,310,000 | 1,540,000      |
| 1888 | 207,000 | 880,000   | 1,087,000 | 1,710,000      |

Although there has been a decline of 220,000 nominal tonnage in the last eleven years, there is an actual increase of 170,000 tons in carrying power owing to steamers taking the place of sailing vessels. Port entries of the high seas show the following tonnage :—

| Year           | Tons      | Year           | Tons      |
|----------------|-----------|----------------|-----------|
| 1829 . . . . . | 430,000   | 1880 . . . . . | 3,690,000 |
| 1860 . . . . . | 2,650,000 | 1885 . . . . . | 3,840,000 |
| 1870 . . . . . | 3,150,000 | 1888 . . . . . | 4,620,000 |

Of the entries in 1888 there were 35 per cent. in ballast.

The provinces which owned the shipping of the Dominion in 1888 were:—

|                       | Vessels | Tons      |
|-----------------------|---------|-----------|
| Nova Scotia . . . .   | 2,851   | 486,000   |
| New Brunswick . . . . | 1,009   | 240,000   |
| Quebec . . . .        | 1,498   | 180,000   |
| Ontario . . . .       | 1,330   | 140,000   |
| Various . . . .       | 454     | 44,000    |
| Total . . . .         | 7,142   | 1,090,000 |

## AUSTRALIA

The tonnage of entries at various dates was as follows:—

| Year         | Sydney    | Melbourne | Various   | Total     |
|--------------|-----------|-----------|-----------|-----------|
| 1822 . . . . | 57,000    | ...       | 17,000    | 74,000    |
| 1841 . . . . | 178,000   | ...       | 98,000    | 276,000   |
| 1851 . . . . | 146,000   | 120,000   | 278,000   | 544,000   |
| 1861 . . . . | 373,000   | 545,000   | 528,000   | 1,446,000 |
| 1871 . . . . | 750,000   | 678,000   | 770,000   | 2,198,000 |
| 1888 . . . . | 2,383,000 | 2,154,000 | 2,808,000 | 7,350,000 |

The average size of vessels has increased very notably, viz.:—

| Year         | Vessels | Tons      | Tons per Vessel |
|--------------|---------|-----------|-----------------|
| 1841 . . . . | 1,288   | 276,000   | 214             |
| 1851 . . . . | 2,670   | 544,000   | 204             |
| 1861 . . . . | 5,383   | 1,446,000 | 269             |
| 1871 . . . . | 6,866   | 2,198,000 | 320             |
| 1881 . . . . | 8,350   | 4,752,000 | 570             |
| 1888 . . . . | 9,306   | 7,345,000 | 790             |

The tonnage of port entries for the several Colonies was:—

|                           | 1860      | 1871      | 1888      |
|---------------------------|-----------|-----------|-----------|
| New South Wales . . . .   | 430,000   | 750,000   | 2,380,000 |
| Victoria . . . .          | 590,000   | 680,000   | 2,150,000 |
| South Australia . . . .   | 105,000   | 190,000   | 990,000   |
| New Zealand . . . .       | 140,000   | 270,000   | 530,000   |
| Queensland . . . .        | 40,000    | 140,000   | 500,000   |
| Tasmania . . . .          | 115,000   | 110,000   | 390,000   |
| Western Australia . . . . | 60,000    | 60,000    | 410,000   |
| Total . . . .             | 1,480,000 | 2,200,000 | 7,350,000 |

## OTHER COLONIES

Port entries at various dates showed tonnage approximately thus:—

|                      | 1860      | 1870      | 1880       | 1887       |
|----------------------|-----------|-----------|------------|------------|
| India . . . .        | 1,470,000 | 2,005,000 | 2,850,000  | 3,580,000  |
| Singapore . . . .    | 680,000   | 820,000   | 2,400,000  | 4,180,000  |
| Ceylon . . . .       | 400,000   | 710,000   | 1,450,000  | 2,070,000  |
| Mauritius . . . .    | 300,000   | 230,000   | 270,000    | 310,000    |
| Hong-Kong . . . .    | 780,000   | 1,320,000 | 3,040,000  | 4,580,000  |
| South Africa . . . . | 290,000   | 210,000   | 1,005,000  | 1,070,000  |
| West Indies . . . .  | 540,000   | 770,000   | 1,785,000  | 3,130,000  |
| Gibraltar . . . .    | 980,000   | 1,480,000 | 3,220,000  | 5,250,000  |
| Malta . . . .        | 930,000   | 1,490,000 | 3,070,000  | 3,410,000  |
| Various . . . .      | 410,000   | 920,000   | 1,190,000  | 1,760,000  |
| Total . . . .        | 6,780,000 | 9,955,000 | 20,280,000 | 29,340,000 |

## CHILI

The merchant navy is made up thus:—

|               | Vessels | Tons   |
|---------------|---------|--------|
| Steam . . . . | 38      | 19,000 |
| Sail . . . .  | 139     | 58,000 |
| Total . . . . | 177     | 77,000 |

Tonnage of entries was as follows:—

| Year         | Chilian | Foreign   | Total     |
|--------------|---------|-----------|-----------|
| 1878 . . . . | 150,000 | 1,070,000 | 1,220,000 |
| 1888 . . . . | 250,000 | 1,820,000 | 2,070,000 |

There is a very large coasting trade, the entries of which amount to 6,700,000 tons yearly.

## ARGENTINA

Port entries showed tonnage as follows:—

| Flag              | 1872      | 1882      | 1886      |
|-------------------|-----------|-----------|-----------|
| Argentine . . . . | 159,000   | 240,000   | 1,150,000 |
| British . . . .   | 361,000   | 342,000   | 960,000   |
| French . . . .    | 146,000   | 202,000   | 430,000   |
| Italian . . . .   | 131,000   | 125,000   | 215,000   |
| German . . . .    | 57,000    | 90,000    | 240,000   |
| Spanish . . . .   | 9,000     | 40,000    | 30,000    |
| Various . . . .   | 251,000   | 174,000   | 490,000   |
| Total . . . .     | 1,114,000 | 1,213,000 | 3,515,000 |

The total sea-going and coast entries in 1886 had tonnage thus:—

| At                    | Sea-Going | Coast     | Total     |
|-----------------------|-----------|-----------|-----------|
| Buenos Ayres . . . .  | 1,590,000 | 810,000   | 2,400,000 |
| Rosario . . . .       | 410,000   | 580,000   | 990,000   |
| Concordia . . . .     | 220,000   | 25,000    | 245,000   |
| Concepcion . . . .    | 180,000   | 65,000    | 245,000   |
| Guaileguaychu . . . . | 170,000   | 10,000    | 180,000   |
| Various . . . .       | 945,000   | 620,000   | 1,565,000 |
| Total . . . .         | 3,515,000 | 2,110,000 | 5,625,000 |

The high-seas entries in 1888 were as follows:—

|               | With Cargo | In Ballast | Total     |
|---------------|------------|------------|-----------|
| Sail . . . .  | 1,160,000  | 40,000     | 1,200,000 |
| Steam . . . . | 2,640,000  | 1,040,000  | 3,680,000 |
| Total . . . . | 3,800,000  | 1,080,000  | 4,880,000 |

Tonnage of vessels cleared showed thus:—

|               | With Cargo | In Ballast | Total     |
|---------------|------------|------------|-----------|
| Sail . . . .  | 270,000    | 730,000    | 1,000,000 |
| Steam . . . . | 2,280,000  | 1,030,000  | 3,310,000 |
| Total . . . . | 2,550,000  | 1,760,000  | 4,310,000 |

## URUGUAY

Tonnage of port entries was as follows:—

| Year         | Uruguayan | Foreign   | Total     |
|--------------|-----------|-----------|-----------|
| 1876 . . . . | 2,000     | 1,080,000 | 1,082,000 |
| 1888 . . . . | 1,000     | 1,620,000 | 1,621,000 |



In 1888 the returns of entries showed :—

| At              | Vessels | Tons      |
|-----------------|---------|-----------|
| Montevideo . .  | 1,357   | 1,620,000 |
| Other ports . . | 3,540   | 1,550,000 |
| Total . .       | 4,897   | 3,170,000 |

All the trade of the high seas was done at Montevideo ; the other ports had only coast traffic.

#### CHINA

Port entries had the following tonnage :—

| Year       | Chinese | Foreign   | Total     |
|------------|---------|-----------|-----------|
| 1878 . . . | 3,000   | 1,540,000 | 1,543,000 |
| 1888 . . . | 93,000  | 2,737,000 | 2,830,000 |

The above was the traffic of the high seas : the total of tonnage entered and cleared, including coast trade, in 1888 was as follows :—

|               | Vessels | Tons       |
|---------------|---------|------------|
| British . . . | 15,115  | 14,070,000 |
| Chinese . . . | 9,054   | 5,740,000  |
| German . . .  | 2,762   | 1,570,000  |
| Various . . . | 1,230   | 928,000    |
| Total . . .   | 28,161  | 22,308,000 |

Of the total tonnage, 95 per cent. was steam.

The tonnage of entries only in 1889 (sea-going and coast trade) showed as follows :—

|               |            |
|---------------|------------|
| British . . . | 7,500,000  |
| Chinese . . . | 3,000,000  |
| Various . . . | 1,300,000  |
| Total . . .   | 11,800,000 |

#### JAPAN

The tonnage of the merchant navy was as follows :—

| Year | Steam  | Sail   | Total   | Carrying Power |
|------|--------|--------|---------|----------------|
| 1878 | 44,000 | 20,000 | 64,000  | 196,000        |
| 1887 | 72,000 | 61,000 | 133,000 | 350,000        |

Port entries showed tonnage as follows :—

| Year       | Japanese | Foreign   | Total     |
|------------|----------|-----------|-----------|
| 1881 . . . | 130,000  | 470,000   | 600,000   |
| 1888 . . . | 230,000  | 1,100,000 | 1,330,000 |

Entries in 1888 were as follows :—

| Port           | Tons      | Flag           | Tons      |
|----------------|-----------|----------------|-----------|
| Nagasaki . . . | 640,000   | British . . .  | 590,000   |
| Yokohama . . . | 420,000   | German . . .   | 220,000   |
| Kobe . . .     | 260,000   | American . . . | 130,000   |
| Various . . .  | 10,000    | Various . . .  | 390,000   |
| Total . . .    | 1,330,000 | Total . . .    | 1,330,000 |

#### ALGERIA

In 1886 the port entries were as follows :—

| Flag          | Vessels | Tons      | Crew    |
|---------------|---------|-----------|---------|
| French . . .  | 2,001   | 1,170,000 | 63,300  |
| British . . . | 580     | 510,000   | 12,200  |
| Spanish . . . | 1,581   | 150,000   | 17,800  |
| Various . . . | 800     | 150,000   | 7,500   |
| Total . . .   | 4,962   | 1,980,000 | 100,800 |

In 1888 the entries reached 2,170,000 tons.

## SICKNESS

Neison and Finlayson (contributions to *Vital Statistics*) find that two persons are constantly sick for one death during the year. The Board of Health of Massachusetts finds that each inhabitant loses 13 days yearly by sickness. According to Dr. Farr at the State Congress of 1860, you may expect to find 2 per cent. of people aged 30, and 10 per cent. of those aged 75 constantly sick any day of the year. Sir William Wilde found 2½ per cent. of the people of Dublin confined to bed. International statistics of sickness are only to be found in the armies of the different powers. The following table, published in 1875, is for various years, showing the annual averages thus :—

|                     | Loss of Days<br>per Soldier | Men in Hos-<br>pital per 1000 | Invalided per<br>1000 |
|---------------------|-----------------------------|-------------------------------|-----------------------|
| British . . .       | 18                          | 50                            | 36                    |
| French . . .        | 18                          | 47                            | 7                     |
| German . . .        | 15                          | 41                            | 23                    |
| Austrian . . .      | 13                          | 36                            | 21                    |
| Italian . . .       | 15                          | 40                            | ...                   |
| Portuguese . . .    | 13                          | 34                            | ...                   |
| Belgian . . .       | 18                          | 51                            | 9                     |
| United States . . . | 21                          | 58                            | 25                    |
| Do. coloured . . .  | 19                          | 53                            | ...                   |
| Russian . . .       | 28                          | 78                            | ...                   |

In the Crimean war the hospital entries of British and French were :—

| Cause          | Number  |         | Ratio   |        |
|----------------|---------|---------|---------|--------|
|                | British | French  | British | French |
| Wounds . . .   | 18,300  | 116,000 | 11.3    | 26.7   |
| Fever, &c. . . | 144,400 | 320,000 | 88.7    | 73.3   |
| Total . . .    | 162,700 | 436,000 | 100.0   | 100.0  |

At the siege of Metz the French in hospital averaged 17,000 men, being more than 10 per cent. the garrison numbering 168,000. Towards the close of the siege, when the garrison was only 105,000, there were 21,000 in hospital.

In the American war of 1861-65, the Federal army enrolled 2,252,000 men, of whom 179,000 were coloured, and the average strength was 431,000 men : the average number in hospital was 37,000 or 9 per cent.

The following table shows the distribution of sickness according to months in various places as judged by hospital entries :—

|                 | Paris | Rome  | Algiers | Geneva |
|-----------------|-------|-------|---------|--------|
| January . . .   | 101   | 99    | 65      | 116    |
| February . . .  | 102   | 114   | 48      | 112    |
| March . . .     | 132   | 85    | 49      | 121    |
| April . . .     | 125   | 71    | 71      | 108    |
| May . . .       | 114   | 60    | 70      | 110    |
| June . . .      | 97    | 48    | 113     | 95     |
| July . . .      | 85    | 81    | 170     | 93     |
| August . . .    | 80    | 150   | 138     | 98     |
| September . . . | 102   | 139   | 134     | 89     |
| October . . .   | 91    | 121   | 164     | 83     |
| November . . .  | 86    | 128   | 107     | 88     |
| December . . .  | 85    | 104   | 71      | 87     |
| Year . . .      | 1,200 | 1,200 | 1,200   | 1,200  |

#### UNITED KINGDOM

Finklyson's tables as regards the sick ratios at various ages in England give the following results, that is, the percentage who become sick during the year, the duration

of sickness, and the loss in days on the whole number of workpeople at each age :—

| Age | Per Cent. Sick |         | Days of Illness |         | Loss of Days on Whole Number |         |
|-----|----------------|---------|-----------------|---------|------------------------------|---------|
|     | Indoor         | Outdoor | Indoor          | Outdoor | Indoor                       | Outdoor |
| 20  | 24.6           | 26.2    | 27              | 25      | 6.6                          | 7.0     |
| 25  | 22.5           | 23.7    | 29              | 28      | 6.4                          | 6.7     |
| 30  | 21.0           | 22.7    | 31              | 30      | 6.5                          | 6.8     |
| 35  | 21.2           | 22.3    | 32              | 31      | 6.8                          | 6.9     |
| 40  | 21.9           | 23.5    | 35              | 36      | 7.6                          | 8.0     |
| 45  | 22.8           | 23.7    | 39              | 39      | 8.9                          | 9.1     |
| 50  | 25.6           | 25.0    | 44              | 46      | 11.3                         | 11.3    |
| 55  | 28.5           | 26.5    | 52              | 47      | 14.9                         | 12.5    |
| 60  | 30.8           | 29.1    | 61              | 55      | 18.7                         | 16.5    |
| 65  | 35.5           | 32.5    | 75              | 70      | 26.6                         | 24.8    |

The ratio of sick has naturally declined with death-rate, the tables published in 1870 for England and Wales comparing with those of 1845 as follows :—

*Days of Sickness per Inhabitant.*

| Age        | Urban |      | Rural |      | All England |      | Scotland |
|------------|-------|------|-------|------|-------------|------|----------|
|            | 1845  | 1870 | 1845  | 1870 | 1845        | 1870 | 1845     |
|            |       |      |       |      |             |      |          |
| 21-30 . .  | 6.3   | 5.6  | 6.0   | 5.4  | 6.1         | 5.5  | 6.0      |
| 31-40 . .  | 11.4  | 7.1  | 6.4   | 7.1  | 8.9         | 7.1  | 6.2      |
| 41-50 . .  | 13.4  | 11.2 | 9.0   | 10.4 | 11.2        | 10.8 | 9.5      |
| 51-60 . .  | 23.2  | 20.3 | 17.8  | 20.1 | 20.5        | 20.2 | 19.9     |
| 40 years . | 13.8  | 11.1 | 9.8   | 10.7 | 11.7        | 10.9 | 10.4     |

The Census returns taken of sickness in Ireland show thus :—

| Diseases        | Sick per 10,000 Inhabitants |      |      |        |
|-----------------|-----------------------------|------|------|--------|
|                 | 1851                        | 1861 | 1871 | Medium |
| Zymotic . . .   | 53                          | 17   | 9    | 26     |
| Brain . . . .   | 37                          | 50   | 58   | 48     |
| Respiratory . . | 16                          | 16   | 17   | 16     |
| Various . . . . | 53                          | 48   | 48   | 50     |
| Total . . . .   | 159                         | 131  | 132  | 140    |

**FRANCE**

A report was published in 1856 showing the working during three years of friendly societies among workmen, that is, the percentage falling sick during the year, the duration of illness, and the loss in days on the whole number of workers of each age, viz. :—

| Age         | Sick Percentage | Days of Illness | Loss of Days on Whole Number |
|-------------|-----------------|-----------------|------------------------------|
| 16-35 . . . | 29.0            | 17              | 4.9                          |
| 36-55 . . . | 30.0            | 21              | 6.2                          |
| 56-75 . . . | 33.0            | 27              | 9.2                          |

Another report in 1886 for fifteen years gave the following averages, that is, the ratio falling sick during each year, and the average duration of illness :—

| Period         | Percentage Sick |       | Days of Illness |       |
|----------------|-----------------|-------|-----------------|-------|
|                | Men             | Women | Men             | Women |
| 1871-80 . . .  | 26.0            | 29.0  | 20              | 14    |
| 1881-85 . . .  | 26.0            | 27.0  | 18              | 13    |
| 15 years . . . | 26.0            | 28.3  | 19              | 13½   |

The number of convicts sent to hospital daily in ten years ending 1880, that is, the ratio per 100,000 of each class, was as follows :—

| Year in Prison     | Per 100,000 |        |
|--------------------|-------------|--------|
|                    | Male        | Female |
| First . . . . .    | 154         | 136    |
| Second . . . . .   | 170         | 154    |
| Third . . . . .    | 190         | 190    |
| Fourth . . . . .   | 220         | 172    |
| Fifth . . . . .    | 190         | 220    |
| Over fifth . . . . | 160         | 150    |

**GERMANY**

Mr. Heym's investigations during twenty years down to 1870 at Leipzig, resulted in the following percentage of persons sick during the year, the average length of illness, and the loss of days in each year from illness, to the whole population of each age :—

| Age               | Per Cent. Sick in Year |       | Days of Illness |       | Loss of Days in Whole Number |       |
|-------------------|------------------------|-------|-----------------|-------|------------------------------|-------|
|                   | Men                    | Women | Men             | Women | Men                          | Women |
| 15-24             | 26.5                   | 18.8  | 23              | 27    | 6.0                          | 5.1   |
| 25-34             | 21.4                   | 17.7  | 25              | 36    | 5.4                          | 6.4   |
| 35-44             | 22.0                   | 18.0  | 32              | 41    | 7.0                          | 7.4   |
| 45-54             | 21.4                   | 17.5  | 38              | 43    | 8.1                          | 7.6   |
| 55-64             | 26.5                   | 20.0  | 54              | 57    | 14.4                         | 14.6  |
| 65-74             | 32.7                   | 18.0  | 58              | 48    | 19.0                         | 8.6   |
| General average } | 22.1                   | 18.1  | 31              | 39    | 6.8                          | 8.7   |

The associated clubs of workmen and others in Germany showed the number of sick during the year and other particulars as follows :—

|                     | 1885      | 1886      |
|---------------------|-----------|-----------|
| Associates . . . .  | 4,294,000 | 4,570,000 |
| Sick in year . . .  | 1,805,000 | 1,713,000 |
| Constantly sick . . | 69,400    | 71,400    |

The loss by sickness was less than six days on the whole number, namely, 5.9 in 1885, and 5.7 in 1886, which is much less than the average in Dr. Heym's table; but his probably includes older people.

**SILK**

The consumption of silk and the approximate value of manufactures are shown as follows :—

|                   | Annual Average, Lbs. Silk |            | Value of Manufactures, £ |            |
|-------------------|---------------------------|------------|--------------------------|------------|
|                   | 1861-70                   | 1881-87    | 1861-70                  | 1881-87    |
| U. Kingdom        | 4,900,000                 | 3,200,000  | 9,600,000                | 6,400,000  |
| France . . . .    | 15,000,000                | 14,800,000 | 29,800,000               | 29,400,000 |
| Germany . . .     | 2,100,000                 | 6,800,000  | 4,100,000                | 14,500,000 |
| Russia . . . .    | 300,000                   | 900,000    | 600,000                  | 1,800,000  |
| Austria . . .     | 1,100,000                 | 1,800,000  | 2,000,000                | 3,700,000  |
| Italy . . . .     | 1,000,000                 | 800,000    | 2,100,000                | 1,600,000  |
| Spain . . . .     | 300,000                   | 600,000    | 600,000                  | 1,200,000  |
| Switzerland       | 1,600,000                 | 3,100,000  | 3,300,000                | 6,000,000  |
| Europe . . . .    | 26,300,000                | 32,000,000 | 52,100,000               | 64,600,000 |
| U. States . . .   | 1,200,000                 | 3,500,000  | 2,500,000                | 7,200,000  |
| China . . . .     | 12,000,000                | 12,000,000 | 18,000,000               | 18,000,000 |
| Japan . . . .     | 3,300,000                 | 3,300,000  | 7,000,000                | 6,000,000  |
| Other countries } | 1,200,000                 | 1,200,000  | 2,400,000                | 2,200,000  |
| Total . . . .     | 44,000,000                | 52,000,000 | 82,000,000               | 98,000,000 |

The annual production is estimated at 300,000 tons of cocoons or 52,000,000 lbs. raw silk, viz. :—

|                             | Lbs.              |
|-----------------------------|-------------------|
| China . . . . .             | 21,000,000        |
| Japan . . . . .             | 6,800,000         |
| Italy . . . . .             | 10,600,000        |
| France, Turkey, &c. . . . . | 13,600,000        |
| <b>Total . . . . .</b>      | <b>52,000,000</b> |

#### UNITED KINGDOM

Silk has been manufactured since the time of Edward III., the industry having been introduced by some French prisoners after the battle of Crecy. The consumption of raw silk since 1770 has been as follows :—

| Period            | Lbs. per Annum | Value of Manufactures, £ |
|-------------------|----------------|--------------------------|
| 1770-90 . . . . . | 790,000        | 3,400,000                |
| 1800-20 . . . . . | 1,280,000      | 4,500,000                |
| 1830-50 . . . . . | 5,500,000      | 10,800,000               |
| 1851-60 . . . . . | 6,100,000      | 11,500,000               |
| 1861-70 . . . . . | 4,900,000      | 9,600,000                |
| 1871-80 . . . . . | 3,500,000      | 7,100,000                |
| 1881-88 . . . . . | 3,200,000      | 6,400,000                |

The imports and exports of silk manufactures were as follows :—

| Year           | Imports, £ | Exports, £ | Surplus Imports, £ |
|----------------|------------|------------|--------------------|
| 1854 . . . . . | 2,280,000  | 1,440,000  | 840,000            |
| 1860 . . . . . | 3,200,000  | 1,690,000  | 1,510,000          |
| 1870 . . . . . | 15,250,000 | 1,700,000  | 13,550,000         |
| 1880 . . . . . | 13,320,000 | 2,300,000  | 11,020,000         |
| 1888 . . . . . | 10,470,000 | 3,400,000  | 7,070,000          |

The value of silk goods consumed in thirty-five years was as follows :—

| Period             | Millions £ Sterling Aggregate |         |       | Shillings Yearly per Inhabitant |
|--------------------|-------------------------------|---------|-------|---------------------------------|
|                    | British                       | Foreign | Total |                                 |
| 1854-60 . . . . .  | 70                            | 18      | 88    | 10                              |
| 1861-70 . . . . .  | 79                            | 91      | 170   | 11                              |
| 1871-80 . . . . .  | 51                            | 114     | 165   | 10                              |
| 1881-88 . . . . .  | 32                            | 88      | 120   | 8                               |
| 35 years . . . . . | 232                           | 311     | 543   | ...                             |

The balance-sheet since 1840 shows the silk industry thus :—

| Period             | Millions £ Sterling |              |            |
|--------------------|---------------------|--------------|------------|
|                    | Raw Silk            | Manufactures | Net Result |
| 1841-50 . . . . .  | 65                  | 108          | 43         |
| 1851-60 . . . . .  | 68                  | 115          | 47         |
| 1861-70 . . . . .  | 55                  | 96           | 41         |
| 1871-80 . . . . .  | 32                  | 71           | 39         |
| 1881-88 . . . . .  | 18                  | 50           | 32         |
| 48 years . . . . . | 238                 | 440          | 202        |

The silk-factories of the United Kingdom were as follows :—

| Year           | Factories | Operatives | Spindles  | Looms  |
|----------------|-----------|------------|-----------|--------|
| 1838 . . . . . | 268       | 34,000     | ...       | ...    |
| 1856 . . . . . | ...       | 56,000     | ...       | 8,000  |
| 1870 . . . . . | 696       | 48,000     | 1,130,000 | 12,400 |
| 1885 . . . . . | 691       | 43,000     | 1,060,000 | 12,000 |

The Census returns show still more emphatically the decline of this industry, viz. :—

#### Silk Operatives in England and Wales

| Year           | Number  | Year           | Number |
|----------------|---------|----------------|--------|
| 1841 . . . . . | 54,000  | 1871 . . . . . | 77,000 |
| 1851 . . . . . | 117,000 | 1881 . . . . . | 64,000 |

The use of silk decreases notwithstanding the increase of wealth.

#### FRANCE

The consumption of silk has been approximately as follows :—

| Period            | Raw Silk, Lbs. Yearly |            |            | Value of Manufactures, £ |
|-------------------|-----------------------|------------|------------|--------------------------|
|                   | French                | Imported   | Total      |                          |
| 1830-32 . . . . . | 1,620,000             | 1,140,000  | 2,760,000  | 5,200,000                |
| 1842-46 . . . . . | 2,770,000             | 4,070,000  | 6,840,000  | 12,700,000               |
| 1850-52 . . . . . | 3,830,000             | 6,370,000  | 10,200,000 | 18,200,000               |
| 1868-73 . . . . . | 1,200,000             | 15,400,000 | 16,600,000 | 34,600,000               |
| 1881-87 . . . . . | 1,200,000             | 13,600,000 | 14,800,000 | 29,400,000               |

The output of the factories was approximately as follows :—

| Period             | Millions £ Sterling Aggregate |          |       |
|--------------------|-------------------------------|----------|-------|
|                    | Exported                      | Home Use | Total |
| 1831-40 . . . . .  | 33                            | 47       | 80    |
| 1841-50 . . . . .  | 70                            | 70       | 140   |
| 1851-60 . . . . .  | 110                           | 90       | 200   |
| 1861-70 . . . . .  | 168                           | 130      | 298   |
| 1871-80 . . . . .  | 138                           | 150      | 288   |
| 1881-87 . . . . .  | 70                            | 136      | 206   |
| 57 years . . . . . | 589                           | 623      | 1,212 |

The value of silk manufactures consumed in France was approximately as follows :—

| Period             | Millions £ Sterling Aggregate |          |       | Shillings Yearly per Inhabitant |
|--------------------|-------------------------------|----------|-------|---------------------------------|
|                    | French                        | Imported | Total |                                 |
| 1831-40 . . . . .  | 47                            | ...      | 47    | 3                               |
| 1841-50 . . . . .  | 70                            | ...      | 70    | 4                               |
| 1851-60 . . . . .  | 90                            | ...      | 90    | 5                               |
| 1861-70 . . . . .  | 130                           | 10       | 140   | 8                               |
| 1871-80 . . . . .  | 150                           | 15       | 165   | 9                               |
| 1881-87 . . . . .  | 136                           | 14       | 150   | 11                              |
| 57 years . . . . . | 623                           | 39       | 662   | ...                             |

About the year 1620 the mulberry tree was first cultivated for the rearing of silkworms, and in 1780 the cocoons weighed 6600 tons, valued at £660,000 sterling. The farmers have recently been cutting down the mulberry trees for fuel, as the following table shows :—

| Year           | Mulberry Trees | Cocoons, Tons | Lbs. Silk Produced |
|----------------|----------------|---------------|--------------------|
| 1810 . . . . . | ...            | 3,900         | 770,000            |
| 1820 . . . . . | 9,632,000      | 5,230         | 1,010,000          |
| 1835 . . . . . | 14,880,000     | 9,010         | 1,950,000          |
| 1853 . . . . . | ...            | 26,100        | 4,300,000          |
| 1884 . . . . . | 6,100,000      | 9,700         | 1,600,000          |

The price of cocoons was 1s. per lb. in the 18th century, and rose to 2s. about 1850. A few years later a disease carried off two-thirds of the silkworms, which were badly housed and overcrowded, causing the cocoons to rise to 4s.; but the price fell owing to large importations, and is now hardly remunerative. In 1884 the total yield of cocoons sold for £1,500,000, and was divided among 141,400 cultivators, giving a little over £10 to each.

The balance-sheet of the silk industry since 1830 was approximately as follows :—

| Period         | Millions £ Sterling Aggregate |              |            |
|----------------|-------------------------------|--------------|------------|
|                | Raw Silk                      | Manufactures | Net Result |
| 1831-40 . . .  | 48                            | 80           | 32         |
| 1841-50 . . .  | 86                            | 140          | 54         |
| 1851-60 . . .  | 120                           | 200          | 80         |
| 1861-70 . . .  | 166                           | 298          | 132        |
| 1871-80 . . .  | 125                           | 288          | 163        |
| 1881-87 . . .  | 72                            | 206          | 134        |
| 57 years . . . | 617                           | 1,212        | 595        |

In the 18th century Lyons counted 15,000 silk-factories, but the industry suffered so much during the Revolution that in 1800 there were only 3500 left. It revived in later years, Lyons consuming one-sixth of the silk crop of the world, or 50,000 tons of cocoons, one-half of which was imported from Italy until the recent rupture of commercial relations. In 1840 the silk-factories had 1790 steam-engines, of 36,000 aggregate horse-power. In 1866 France had 1172 mills, with 110,000 operatives, 1,080,000 spindles, and 50,000 power-loom, turning out silks to the value of 29 millions sterling.

#### GERMANY

In 1800 Oddy valued the silk manufactures of Prussia at £700,000 a year, and in 1840 the factories had 14,000 operatives with 12,000 looms, consuming 700,000 lbs. of raw silk per annum, the output being valued at £1,600,000 sterling. The consumption of raw silk in all Germany was approximately as follows :—

| Period        | Lbs. Yearly | Value of Manufactures, £ |
|---------------|-------------|--------------------------|
| 1841-50 . . . | 1,100,000   | 2,200,000                |
| 1851-60 . . . | 1,500,000   | 3,000,000                |
| 1861-70 . . . | 2,100,000   | 4,100,000                |
| 1871-80 . . . | 4,200,000   | 8,500,000                |
| 1881-87 . . . | 6,800,000   | 14,500,000               |

The consumption and export were approximately thus :—

| Period        | Average per Annum |             |             |
|---------------|-------------------|-------------|-------------|
|               | Home Use          | Exported    | Total Make  |
| 1873-80 . . . | £ 4,900,000       | £ 3,600,000 | £ 8,500,000 |
| 1881-87 . . . | 5,800,000         | 8,700,000   | 14,500,000  |

The balance-sheet of the industry was approximately as follows :—

| Period         | Millions £ Sterling Aggregate |              |            |
|----------------|-------------------------------|--------------|------------|
|                | Raw Silk                      | Manufactures | Net Result |
| 1841-50 . . .  | 13                            | 22           | 9          |
| 1851-60 . . .  | 18                            | 30           | 12         |
| 1861-70 . . .  | 23                            | 41           | 18         |
| 1871-80 . . .  | 40                            | 85           | 45         |
| 1881-87 . . .  | 38                            | 102          | 64         |
| 47 years . . . | 132                           | 280          | 148        |

In 1884 the silk-factories counted 87,000 operatives, the chief seat of this industry being Crefeld, in Prussia.

#### RUSSIA

In 1828 Schubert found 184 silk-factories, the output of which he estimated much too high, at £800,000. In

1864 Buschen counted 326 factories, with 9000 operatives. The consumption of silk was as follows :—

| Period        | Lbs.    | Value of Manufactures, £ |
|---------------|---------|--------------------------|
| 1861-70 . . . | 330,000 | 600,000                  |
| 1871-80 . . . | 580,000 | 1,200,000                |
| 1881-87 . . . | 900,000 | 1,800,000                |

The consumption of silk manufactures was as follows :—

| Period        | Yearly Average |           |             | Pence per inhabitant |
|---------------|----------------|-----------|-------------|----------------------|
|               | Russian        | Imported  | Total       |                      |
| 1861-70 . . . | £ 600,000      | £ 500,000 | £ 1,100,000 | 4                    |
| 1871-80 . . . | 1,200,000      | 400,000   | 1,600,000   | 5                    |
| 1881-87 . . . | 1,800,000      | 200,000   | 2,000,000   | 6                    |

The balance-sheet of the industry was approximately as follows :—

| Period         | Millions £ Sterling Aggregate |              |            |
|----------------|-------------------------------|--------------|------------|
|                | Raw Silk                      | Manufactures | Net Result |
| 1861-70 . . .  | 4                             | 6            | 2          |
| 1871-80 . . .  | 6                             | 12           | 6          |
| 1881-87 . . .  | 5                             | 13           | 8          |
| 27 years . . . | 15                            | 31           | 16         |

According to the *Bulletin Statistique* for 1884, Russia had 20,000 operatives engaged in silk-factories, turning out goods to the value of three millions sterling per annum; but this estimate is too high; probably paper roubles were mistaken for silver.

#### AUSTRIA

In 1834 the Empire counted 3990 silk-factories, with 160,000 operatives, producing manufactures worth £3,000,000 per annum; but this included the Italian provinces. The consumption of silk since 1860 has been as follows :—

| Period        | Lbs. Yearly |         |           | Value of Manufactures, £ |
|---------------|-------------|---------|-----------|--------------------------|
|               | Imported    | Native  | Total     |                          |
| 1861-70 . . . | 800,000     | 300,000 | 1,100,000 | 2,000,000                |
| 1871-80 . . . | 1,100,000   | 300,000 | 1,400,000 | 2,800,000                |
| 1881-87 . . . | 1,540,000   | 300,000 | 1,840,000 | 3,700,000                |

The consumption of silk manufactures was as follows :—

| Period        | Yearly Average, £ |           |           | Pence per inhabitant |
|---------------|-------------------|-----------|-----------|----------------------|
|               | Austrian          | Imported  | Total     |                      |
| 1861-70 . . . | 2,000,000         | 300,000   | 2,300,000 | 17                   |
| 1871-80 . . . | 2,800,000         | 1,100,000 | 3,900,000 | 26                   |
| 1881-87 . . . | 3,700,000         | 300,000   | 4,000,000 | 25                   |

The balance-sheet of the industry may be summed up thus :—

| Period         | Millions £ Aggregate |              |       |
|----------------|----------------------|--------------|-------|
|                | Raw Silk             | Manufactures | Total |
| 1861-70 . . .  | 11                   | 20           | 9     |
| 1871-80 . . .  | 14                   | 28           | 14    |
| 1881-87 . . .  | 10                   | 26           | 16    |
| 27 years . . . | 35                   | 74           | 39    |

In 1884 the factories had 15,000 operatives engaged in this industry.

## ITALY

Silk is one of the most valuable of Italian products, the exportation averaging 10 millions sterling per annum. Lombardy is the chief seat of silk-growing, and until recently 90 per cent. of the quantity was from Japanese eggs imported on cards from Japan. These cards are worth 7s. per ounce, or £12,000 a ton, about ten tons being now imported yearly. Formerly the eggs yielded 50 lbs. cocoons per ounce, but latterly only 35 lbs., representing a value of 50s., or seven times the original cost of the eggs. The province of Lombardy raises yearly 11,000 tons of cocoons, worth £200 a ton.

There are factories for throwing silk at Milan and Turin, and some of the fibre is consumed at home for velvets and damasks, but the greatest part is usually exported to France for the Lyons factories. The production and export of silk approximated yearly as follows:—

| Period        | Production, Lbs. | Export, Lbs. | Home Use, Lbs. |
|---------------|------------------|--------------|----------------|
| 1861-70 . . . | 5,600,000        | 4,600,000    | 1,000,000      |
| 1871-80 . . . | 7,400,000        | 6,600,000    | 800,000        |
| 1881-87 . . . | 10,600,000       | 9,800,000    | 800,000        |

The import and export of manufactured silks were as follows:—

| Period        | Yearly Average |           |                    |
|---------------|----------------|-----------|--------------------|
|               | Import, £      | Export, £ | Surplus Imports, £ |
| 1861-70 . . . | 400,000        | 220,000   | 180,000            |
| 1871-80 . . . | 880,000        | 600,000   | 280,000            |
| 1881-87 . . . | 960,000        | 600,000   | 360,000            |

The consumption of silk manufactures was as follows:—

| Period        | Yearly Average |           |             | Pence per Inhabitant |
|---------------|----------------|-----------|-------------|----------------------|
|               | Italian        | Imported  | Total       |                      |
| 1861-70 . . . | £ 2,000,000    | £ 180,000 | £ 2,180,000 | 23                   |
| 1871-80 . . . | £ 1,600,000    | £ 280,000 | £ 1,880,000 | 20                   |
| 1881-87 . . . | £ 1,600,000    | £ 360,000 | £ 1,960,000 | 18                   |

The value of silk industry to Italy may be summed up thus:—

| Period         | Millions £ Sterling Aggregate |               |              |               |             |             |
|----------------|-------------------------------|---------------|--------------|---------------|-------------|-------------|
|                | Cost of Japan Eggs            | Silk Exported | Manufactures | Total Product | Deduct Eggs | Net Product |
| 1861-70 . . .  | 10                            | 84            | 20           | 104           | 10          | 94          |
| 1871-80 . . .  | 8                             | 122           | 16           | 138           | 8           | 130         |
| 1881-87 . . .  | 2                             | 80            | 11           | 91            | 2           | 89          |
| 27 years . . . | 20                            | 286           | 47           | 333           | 20          | 313         |

In 1878 Italy had 2030 silk-factories, with 2,100,000 spindles, giving employment to 16,000 men; there were also 120,000 women and 76,000 children engaged in attending to the silk-worms.

In 1840 the kingdom of Sardinia had several silk-factories, with an aggregate of 14,900 operatives. The cocoon crop of Italy for the years 1881-88 averaged 86 million pounds.

## SPAIN

Silk manufacture flourished under the Moors for some centuries before the industry was known in France. It

even survived their expulsion, for Seville had 16,000 silk-loom in 1550, but a hundred years later there were only sixty. Coming down to our own time, we find that in 1870 Spain had silk-factories with an aggregate of 3000 looms and 9000 operatives; the number of the latter in 1884 was only 8000, and the output was valued at £1,000,000 in the *Bulletin Statistique*, although Spanish writers (prone to exaggerate) claim a value of £2,800,000 sterling. The silkworm thrives in the south, the production of native silk averaging 300,000 lbs. yearly.

The consumption in the factories averaged as follows:—

| Period        | Silk, Lbs. Yearly |          |         | Value of Manufactures, £ |
|---------------|-------------------|----------|---------|--------------------------|
|               | Spanish           | Imported | Total   |                          |
| 1861-70 . . . | 300,000           | ...      | 300,000 | 600,000                  |
| 1871-80 . . . | 300,000           | 140,000  | 440,000 | 900,000                  |
| 1881-87 . . . | 300,000           | 290,000  | 590,000 | 1,200,000                |

The consumption of silk manufactures was as follows:—

| Period        | Yearly Average |           |             | Pence per Inhabitant |
|---------------|----------------|-----------|-------------|----------------------|
|               | Spanish        | Imported  | Total       |                      |
| 1861-70 . . . | £ 600,000      | £ 300,000 | £ 900,000   | 15                   |
| 1871-80 . . . | £ 900,000      | £ 200,000 | £ 1,100,000 | 17                   |
| 1881-87 . . . | £ 1,200,000    | £ 400,000 | £ 1,600,000 | 22                   |

The balance-sheet of the industry was approximately as follows:—

| Period         | Millions £ Aggregate |              |             |
|----------------|----------------------|--------------|-------------|
|                | Raw Silk             | Manufactures | Net Product |
| 1861-70 . . .  | 3                    | 6            | 3           |
| 1871-80 . . .  | 4                    | 9            | 5           |
| 1881-87 . . .  | 3                    | 8            | 5           |
| 27 years . . . | 10                   | 23           | 13          |

## BELGIUM

Silk manufacture is declining, the average consumption since 1880 being only 400,000 lbs. raw silk yearly, and the output of the mills £800,000. Belgium, moreover, consumes imported silk goods to the value of £400,000 a year.

## SWITZERLAND

Silk manufacture holds the foremost rank in Switzerland, the output averaging six millions sterling, nearly all of which is exported.

## UNITED STATES

The Census returns show as follows:—

| Year | Factories | Operatives | Capital, £ | Manufactures, £ |
|------|-----------|------------|------------|-----------------|
| 1850 | 67        | 2,000      | 200,000    | 400,000         |
| 1870 | 86        | 7,000      | 1,000,000  | 2,000,000       |
| 1880 | 322       | 31,000     | 4,000,000  | 7,300,000       |

The consumption of silk was as follows:—

| Period        | Lbs. Yearly | Value of Textures, £ |
|---------------|-------------|----------------------|
| 1861-70 . . . | 1,200,000   | 2,500,000            |
| 1871-80 . . . | 1,400,000   | 3,000,000            |
| 1881-87 . . . | 3,500,000   | 7,200,000            |

The value of all silk manufactures consumed was :—

| Period  | Yearly Average |                |            | Shillings<br>per<br>Inhabitant |
|---------|----------------|----------------|------------|--------------------------------|
|         | American,<br>£ | Imported,<br>£ | Total, £   |                                |
| 1861-70 | 2,500,000      | 3,100,000      | 5,600,000  | 3                              |
| 1871-80 | 3,000,000      | 5,100,000      | 8,100,000  | 4                              |
| 1881-87 | 7,200,000      | 6,800,000      | 14,000,000 | 5                              |

The balance-sheet was approximately as follows :—

| Period         | Millions £ Aggregate |              |            |
|----------------|----------------------|--------------|------------|
|                | Raw Silk             | Manufactures | Net Result |
| 1861-70 . . .  | 14                   | 25           | 11         |
| 1871-80 . . .  | 15                   | 30           | 15         |
| 1881-87 . . .  | 20                   | 50           | 30         |
| 27 years . . . | 49                   | 105          | 56         |

#### CHINA

Silk is known to have been cultivated for 3000 years, the best coming from the province of Kwantung. The ordinary crop is 21,000,000 lbs., of which 60 per cent. is consumed in China. The quantities exported have been :—

| Period        | Annual Average, Lbs. |
|---------------|----------------------|
| 1873-80 . . . | 9,300,000            |
| 1881-87 . . . | 8,100,000            |

The values of all silk exports have been as follows :—

| Period        | Raw Silk  | Manufactures | Total     |
|---------------|-----------|--------------|-----------|
|               | £ Yearly  | £ Yearly     | £ Yearly  |
| 1873-80 . . . | 3,900,000 | 700,000      | 4,600,000 |
| 1881-87 . . . | 3,100,000 | 800,000      | 3,900,000 |

About 60 per cent. of the raw silk exported is from Shanghai, and 50 per cent. of manufactured silks from Canton.

#### JAPAN

Official returns for the years 1884-87 show an average production of 6,800,000 lbs. raw silk, disposed of in this manner :—

|                        | Lbs.      | Value, £  |
|------------------------|-----------|-----------|
| Home manufacture . . . | 3,300,000 | 6,000,000 |
| Exported raw . . .     | 3,500,000 | 2,400,000 |
| Total . . .            | 6,800,000 | 8,400,000 |

Of the silk goods manufactured in the country, about £250,000 worth is exported yearly, the rest consumed in Japan.

#### TURKEY

The annual production of silk averages about 1,200,000 lbs., of which five-sixths are exported.

The value of silk and cocoons exported in 1888 was £1,100,000 sterling. Local manufactures probably attain a value of £350,000 per annum.

#### INDIA

The imports and exports of raw silk have been :—

| Period        | Annual Average, Lbs. |           |                 |                 |
|---------------|----------------------|-----------|-----------------|-----------------|
|               | Imports              | Exports   | Surplus Imports | Surplus Exports |
| 1867-70 . . . | 1,800,000            | 2,300,000 | ...             | 500,000         |
| 1871-75 . . . | 2,100,000            | 2,200,000 | ...             | 100,000         |
| 1876-80 . . . | 2,000,000            | 1,600,000 | 400,000         | ...             |
| 1881-88 . . . | 2,100,000            | 1,600,000 | 500,000         | ...             |

The value of silk manufactures imported and exported was as follows :—

| Period        | Annual Average |         |                    |
|---------------|----------------|---------|--------------------|
|               | Imports, £     | Exports | Surplus Imports, £ |
| 1867-70 . . . | 450,000        | 120,000 | 330,000            |
| 1871-80 . . . | 600,000        | 210,000 | 450,000            |
| 1881-88 . . . | 1,300,000      | 320,000 | 980,000            |

The value of Indian silk manufactures is unknown.

#### SLAVERY

In ancient Greece and Rome the ordinary wages of a slave and his market value were as follows :—

##### GREECE

|                | Day's Wage,<br>Pence | Value,<br>£ |
|----------------|----------------------|-------------|
| Labourer . . . | 6                    | 56          |
| Farmer . . .   | 10                   | 103         |
| Cutler . . .   | 8                    | 77          |
| Boatman . . .  | 6                    | 60          |

##### ROME

|                  | Day's Wage,<br>Pence | Value,<br>£ |
|------------------|----------------------|-------------|
| Gardener . . .   | 8                    | 65          |
| Carpenter . . .  | 20                   | 148         |
| Blacksmith . . . | 20                   | 145         |
| Shepherd . . .   | 6                    | 51          |
| Baker . . .      | 19                   | 140         |
| Cook . . .       | ...                  | 430         |
| Actress . . .    | ...                  | 820         |
| Physician . . .  | ...                  | 1,100       |

Some of the wealthy Romans had 10,000 slaves. After great victories they could often be bought for a few shillings on the battle-field.

#### SLAVE-TRADE

The *Journal des Economistes* gives the following table of the number of slaves shipped from Africa in sixty years ending 1847 :—

| Period          | Shipped   | Died    | Landed in America |
|-----------------|-----------|---------|-------------------|
| 1788-98 . . .   | 100,000   | 14,000  | 86,000            |
| 1798-1805 . . . | 85,000    | 12,000  | 73,000            |
| 1805-15 . . .   | 178,000   | 25,000  | 153,000           |
| 1815-30 . . .   | 441,000   | 110,000 | 331,000           |
| 1830-40 . . .   | 214,000   | 54,000  | 160,000           |
| 1840-47 . . .   | 444,000   | 112,000 | 332,000           |
| 60 years . . .  | 1,462,000 | 327,000 | 1,135,000         |

About 22 per cent. perished on the voyage.

There are no records of the number of slaves carried by English and other dealers in the 16th, 17th, and 18th centuries to America, but it is believed to exceed 3,000,000, the Treaty of Utrecht securing great advantages in 1713 to the British flag in this trade. The records for the year 1787 showed the number of African slaves landed alive in America as follows :—

| Carried by            | Number |
|-----------------------|--------|
| British . . .         | 38,000 |
| French . . .          | 31,000 |
| Portuguese . . .      | 25,000 |
| Dutch, Danes, &c. . . | 6,500  |

Total . . . 100,500

The Danes were the first to abolish slavery in their West Indian islands. The emancipation of slaves in the

British West Indies and other colonies in 1834 gave liberty to 780,000, viz. :—

|                   | Number  | Indemnity, £ | Per Head, £ |
|-------------------|---------|--------------|-------------|
| Jamaica . . . .   | 311,700 | 6,152,000    | 20          |
| Barbadoes . . .   | 83,000  | 1,721,000    | 21          |
| Trinidad . . . .  | 22,300  | 1,039,000    | 50          |
| Antigua, &c. . .  | 172,093 | 3,421,000    | 20          |
| Guyana . . . . .  | 84,900  | 4,297,000    | 53          |
| Mauritius . . . . | 68,600  | 2,113,000    | 31          |
| Cape of Good Hope | 38,400  | 1,247,000    | 33          |
| Total . . . . .   | 780,993 | 20,000,000   | 26          |

The difference paid per head in the above colonies is very remarkable.

The French freed their West Indian slaves in 1848, the Dutch in 1863, the latter emancipating 46,000 at £32 per head paid to their masters.

Slavery was abolished in the United States in 1861, the number of slaves in that country having been as follows :—

| Year           | Number    | Year           | Number    |
|----------------|-----------|----------------|-----------|
| 1790 . . . . . | 697,900   | 1830 . . . . . | 2,009,030 |
| 1800 . . . . . | 893,040   | 1840 . . . . . | 2,487,500 |
| 1810 . . . . . | 1,191,400 | 1850 . . . . . | 3,204,300 |
| 1820 . . . . . | 1,538,100 | 1860 . . . . . | 3,979,700 |

The number of slaves in the several States was as follows :—

|                     | 1790    | 1820      | 1840      |
|---------------------|---------|-----------|-----------|
| Virginia . . . .    | 293,000 | 425,000   | 449,000   |
| South Carolina .    | 107,000 | 258,000   | 327,000   |
| North Carolina .    | 101,000 | 205,000   | 246,000   |
| Maryland . . . .    | 103,000 | 107,000   | 90,000    |
| Georgia . . . . .   | 29,000  | 150,000   | 281,000   |
| Kentucky . . . .    | 11,000  | 127,000   | 182,000   |
| Tennessee . . . .   | ...     | 80,000    | 183,000   |
| Louisiana . . . .   | ...     | 69,000    | 168,000   |
| Alabama . . . . .   | ...     | 47,000    | 254,000   |
| Mississippi . . . . | ...     | 33,000    | 195,000   |
| Various . . . . .   | 54,000  | 37,000    | 111,000   |
| Total . . . . .     | 698,000 | 1,538,000 | 2,486,000 |

The proportion of slaves in the total coloured population was as follows :—

| Year           | Coloured Population | Slaves    | Slave Ratio per Cent. |
|----------------|---------------------|-----------|-----------------------|
| 1790 . . . . . | 757,000             | 608,000   | 92                    |
| 1820 . . . . . | 1,772,000           | 1,538,000 | 86                    |
| 1840 . . . . . | 2,874,000           | 2,486,000 | 87                    |
| 1850 . . . . . | 3,639,000           | 3,204,000 | 88                    |
| 1860 . . . . . | 4,486,000           | 3,980,000 | 89                    |

The slave ratio was steadily increasing for forty years until the war of emancipation in 1860, which (besides 655,000 men killed) cost an outlay of 555 millions sterling, equal to £140 per slave. In the French island of Guadeloupe slaves formed two-thirds of the population just before the emancipation in 1848, viz. :—

|                  | 1781   | 1833    | 1847    |
|------------------|--------|---------|---------|
| Free . . . . .   | 14,800 | 23,800  | 38,800  |
| Slaves . . . . . | 83,900 | 98,600  | 91,500  |
| Total . . . . .  | 98,700 | 122,400 | 130,300 |

From 1833 to 1847 the masters had voluntarily manumitted 18,600 slaves, being at the rate of 4 per cent. male, and 7 per cent. female slaves yearly. The annual

birth-rate and death-rate of slaves per 1000 compared with that of the French settlers thus :—

|                          | French Settlers | Slaves |
|--------------------------|-----------------|--------|
| Birth-rate . . . .       | 33.2            | 24.9   |
| Death-rate . . . .       | 31.4            | 23.6   |
| Increase of population . | 1.8             | 1.3    |

Slavery was abolished in Cuba in 1880, in Brazil in 1889. In the latter country, by a previous enumeration, there were found to be 805,000 male and 706,000 female slaves, held by 41,000 owners, the average price being from £80 to £100.

### Serfs

The condition of European serfs was a mild form of slavery. In the 18th century Danish noblemen gave their coachmen permission to flog women; the peasants were bought and sold with the estates like cattle. As regards other countries, the conditions, &c., may be summed up thus :—

### AUSTRIA

In 1840 the value of servitude to the nobility was estimated at £51,200,000 a year thus :—

|                                     | Value, £   |
|-------------------------------------|------------|
| Labour (two days per week) . . . .  | 35,000,000 |
| Tithe of crops, &c. . . . .         | 12,000,000 |
| Male tribute, timber . . . . .      | 1,400,000  |
| Female tribute, spun wool . . . . . | 1,800,000  |
| Fowls, eggs, butter . . . . .       | 1,000,000  |

51,200,000

There were 7,000,000 serfs. Some Bohemian nobles had as many as 10,000. The redemption was effected by giving the nobles 5 per cent. Government scrip, and land then rose 50 per cent. in value.

### GERMANY

In 1848 the State took 60 million acres from the nobles, leaving them still 25 million acres, and gave the former among the serfs. Indemnity as follows :—

1. Government scrip, £180 for each serf family, to nobleman.
2. Land-tax, £3 per annum, transferred to peasant.
3. Interest, £7 per annum for forty-seven years, to be paid by peasant to the State, being 4 per cent. on cost of redemption.

### FRANCE

The Corvée, which prevailed during the Middle Ages, was as follows :—

Each man gave one day's work with a waggon, or two days if he had no waggon, yearly, unpaid, to the State; each woman one day. The man could commute by paying 2s., the woman 1s.

### RUSSIA

Previous to the emancipation of 1861 the number of serfs was as follows :—

|                    | Male       | Female     | Total      |
|--------------------|------------|------------|------------|
| Crown serfs . . .  | 11,168,000 | 11,683,000 | 22,851,000 |
| Appanage . . . .   | 1,624,000  | 1,702,000  | 3,326,000  |
| Held by nobles . . | 10,674,000 | 11,081,000 | 21,755,000 |
| Total . . . . .    | 23,466,000 | 24,466,000 | 47,932,000 |

There were 103,000 noblemen holding 22 million serfs in this manner :—

| Nobles            | Serfs      | Average |
|-------------------|------------|---------|
| 23,100 . . . . .  | 18,575,000 | 802     |
| 36,150 . . . . .  | 2,520,000  | 70      |
| 43,800 . . . . .  | 660,000    | 15      |
| 103,050 . . . . . | 21,755,000 | 211     |

The cost of emancipating these serfs was 65 millions sterling, but as the nobles had already mortgaged them up to 30 millions sterling in the Imperial Bank, the Government deducted this sum. The account was made up thus :—

|                              |                   |
|------------------------------|-------------------|
|                              | £                 |
| Mortgages remitted . . . . . | 30,400,000        |
| Russian stock . . . . .      | 20,230,000        |
| Paid by serfs . . . . .      | 10,470,000        |
| Balance due . . . . .        | 3,900,000         |
| <b>Total . . . . .</b>       | <b>65,000,000</b> |

The lands are mortgaged to the State until 1912 as security for the advances by Government, viz., £50,630,000 sterling. In 1879 the serfs were holders of 186 millions acres, viz. :—

| Title                  | Holders           | Acres              |
|------------------------|-------------------|--------------------|
| Crown-gift . . . . .   | 6,117,000         | 84,200,000         |
| Appanage . . . . .     | 1,625,000         | 30,200,000         |
| Purchase . . . . .     | 10,137,000        | 65,500,000         |
| Beggar-lots . . . . .  | 1,840,000         | 6,440,000          |
| <b>Total . . . . .</b> | <b>19,719,000</b> | <b>186,340,000</b> |

In return for crown-gift the holders have to pay 50 per cent. extra poll-tax till 1902. Beggar-lots are lands given gratis by the nobles to the peasants, rather than sell farm-lots at £1 per acre to them.

#### ROUMANIA

The emancipation law of 1870 compelled the Boyars either to give the peasant half his farm gratis or to sell the whole at 26s. per acre: 400 Boyars preferred the former. Previously the conditions of servitude were: to work twelve days in the year for the Boyar, to give him one-tenth of the crops, and to buy groceries at the Boyar's store.

#### EGYPT

Corvée, or compulsory labour, was imposed in 1883 on 202,000 Fellahs, who had to work 100 days unpaid, and in 1888 on 59,000 for the same term.

#### SMUGGLERS

In 1830 there were 100,000 contrabandistas in Spain, without counting their wives, &c., the total of persons living by smuggling being calculated at 300,000.

#### SOAP

The production and consumption in the United Kingdom were approximately as follows, the exact consumption not being known since 1853, when the duty was abolished :—

| Year           | Million Lbs.     |                  |        | Consumption per Inhabitant, Lbs. | Duty per Ton | Price per Ton |
|----------------|------------------|------------------|--------|----------------------------------|--------------|---------------|
|                | Manufac-<br>ture | Consump-<br>tion | Export |                                  |              |               |
| 1791 . . . . . | 48               | 46               | 2      | 3.1                              | £21          | £76           |
| 1801 . . . . . | 57               | 54               | 3      | 3.6                              | 21           | 74            |
| 1811 . . . . . | 76               | 73               | 3      | 4.2                              | 21           | 73            |
| 1821 . . . . . | 98               | 94               | 4      | 4.6                              | 28           | 68            |
| 1831 . . . . . | 123              | 107              | 16     | 4.5                              | 28           | 52            |
| 1841 . . . . . | 199              | 170              | 29     | 6.4                              | 14           | 48            |
| 1851 . . . . . | 217              | 195              | 22     | 7.0                              | 14           | 40            |
| 1861 . . . . . | 254              | 232              | 22     | 8.0                              | ...          | 27            |
| 1871 . . . . . | ...              | ...              | 17     | ...                              | ...          | 27            |
| 1881 . . . . . | ...              | ...              | 39     | ...                              | ...          | 22            |

It is believed that the average consumption of soap per inhabitant has doubled since the duty was removed, and now reaches 14 lbs. The quantity manufactured yearly would, therefore, appear to be 260,000 tons, of which 235,000 are consumed in the United Kingdom, and 25,000 exported. The export of soap in recent years has been as follows :—

| Year           | Tons   | Value, £ | £ per Ton |
|----------------|--------|----------|-----------|
| 1875 . . . . . | 12,500 | 310,000  | 25        |
| 1880 . . . . . | 19,500 | 440,000  | 22        |
| 1885 . . . . . | 20,100 | 470,000  | 23        |
| 1889 . . . . . | 25,000 | 505,000  | 20        |

In 1881 France manufactured 255 million lbs., the consumption in that country averaging 6 lbs. per inhabitant.

#### SOCIETIES

The following table shows approximately the principal features of friendly societies of all descriptions :—

|                         | Societies | Members   | Capital, £ |
|-------------------------|-----------|-----------|------------|
| Great Britain . . . . . | 22,000    | 7,000,000 | 58,000,000 |
| France . . . . .        | 8,000     | 1,250,000 | 5,200,000  |
| Germany . . . . .       | 24,000    | 7,400,000 | 23,000,000 |
| Russia . . . . .        | 500       | 35,000    | 300,000    |
| Austria . . . . .       | 1,900     | 870,000   | 17,000,000 |
| Italy . . . . .         | 2,200     | 330,000   | 900,000    |
| Switzerland . . . . .   | 630       | 100,000   | 300,000    |
| Belgium . . . . .       | 210       | 30,000    | 250,000    |
| Denmark . . . . .       | 720       | 90,000    | ...        |
| Canada . . . . .        | 40        | 80,000    | 5,100,000  |
| Australia . . . . .     | 900       | 100,000   | ...        |

These societies may be said to have sprung up in the last thirty years, possessing at present a paid-up capital of nearly 120 millions sterling.

#### UNITED KINGDOM

The number of friendly societies registered in 92 years was as follows :—

| Period                    | Number        | Yearly Average |
|---------------------------|---------------|----------------|
| 1793-1855 . . . . .       | 26,034        | 412            |
| 1856-73 . . . . .         | 20,058        | 1,114          |
| 1874-84 . . . . .         | 7,436         | 676            |
| <b>92 years . . . . .</b> | <b>53,528</b> | <b>582</b>     |

The above is exclusive of building societies and co-operative associations.

The advance of friendly societies in late years is shown thus :—

|                     | 1873      | 1880       |
|---------------------|-----------|------------|
| Members . . . . .   | 1,787,000 | 4,802,000  |
| Assets, £ . . . . . | 8,630,000 | 13,003,000 |

The progress of co-operative societies is shown thus :—

| Year           | Societies | Members | Capital, £ | Sales, £   |
|----------------|-----------|---------|------------|------------|
| 1861 . . . . . | 66        | 38,000  | 365,000    | 1,100,000  |
| 1871 . . . . . | 749       | 249,000 | 2,530,000  | 8,200,000  |
| 1880 . . . . . | 1,182     | 604,000 | 6,200,000  | 23,200,000 |
| 1888 . . . . . | 1,363     | 935,000 | 12,800,000 | 36,700,000 |

The above figures do not include 115 societies in 1888, which failed to publish particulars.



The returns published for 1888 were as follows :—

|                    | Societies | Members | Capital, £ | Sales, £   | Profits, £ |
|--------------------|-----------|---------|------------|------------|------------|
| England . . . . .  | 1,020     | 786,000 | 10,800,000 | 28,800,000 | 2,650,000  |
| Scotland . . . . . | 323       | 148,000 | 1,800,000  | 7,100,000  | 640,000    |
| Total . . . . .    | 1,343     | 934,000 | 12,600,000 | 35,900,000 | 3,290,000  |

There are twenty societies in Ireland, but the business done is small. The summary of transactions in Great Britain shows that in twenty-five years down to December 1888, the co-operative societies made sales exceeding 471 millions sterling, leaving a profit of £39,800,000, out of which the societies had made investments which amounted in December 1888 to a value of £5,300,000.

Building societies show the following progress in fourteen years :—

| Year           | Societies | Members | Receipts, £ | Assets, £  | Liabilities, £ | Net Assets, £ |
|----------------|-----------|---------|-------------|------------|----------------|---------------|
| 1874 . . . . . | 474       | 270,000 | 15,900,000  | 38,800,000 | 13,500,000     | 25,300,000    |
| 1888 . . . . . | 2,545     | 604,000 | 20,400,000  | 53,200,000 | 15,200,000     | 38,000,000    |

The returns for 1888 show as follows :—

|                          | Societies | Members | Receipts, £ | Assets, £  | Liabilities, £ | Net Assets, £ |
|--------------------------|-----------|---------|-------------|------------|----------------|---------------|
| England . . . . .        | 2,444     | 582,900 | 19,500,000  | 51,200,000 | 14,700,000     | 36,500,000    |
| Scotland . . . . .       | 50        | 9,000   | 400,000     | 1,010,000  | 240,000        | 770,000       |
| Ireland . . . . .        | 51        | 12,300  | 530,000     | 990,000    | 250,000        | 740,000       |
| United Kingdom . . . . . | 2,545     | 604,200 | 20,430,000  | 53,200,000 | 15,190,000     | 38,010,000    |

#### FRANCE

Official returns are to the following effect :—

| Year           | Societies | Members   | Capital, £ |
|----------------|-----------|-----------|------------|
| 1853 . . . . . | 2,695     | 318,000   | 500,000    |
| 1860 . . . . . | 4,252     | 358,000   | 1,000,000  |
| 1870 . . . . . | 5,788     | 849,000   | 2,100,000  |
| 1880 . . . . . | 6,777     | 1,066,000 | 3,800,000  |
| 1885 . . . . . | 7,960     | 1,252,000 | 5,200,000  |

The above returns for 1885 include 182,000 honorary members. The sick ratio showed thus :—

|                 | Members   | Sick    | Sick Ratio |
|-----------------|-----------|---------|------------|
| Men . . . . .   | 899,000   | 232,000 | 25.8       |
| Women . . . . . | 171,000   | 44,000  | 25.8       |
| Total . . . . . | 1,070,000 | 276,000 | 25.8       |

The women who were sick showed an average duration of 13 days' illness, the men 18. The death-rate in 1885 was 13.5 per 1000. Receipts, £1,000,000; expenditure, £880,000; surplus, £120,000. Each sick person cost 36 shillings, or 25 pence per day.

#### GERMANY

Official returns for 1886 show as follows :—

|                        | Societies | Members   |
|------------------------|-----------|-----------|
| Prussia . . . . .      | 8,529     | 2,445,000 |
| Bavaria . . . . .      | 4,271     | 397,000   |
| Saxony . . . . .       | 2,188     | 571,000   |
| Other States . . . . . | 4,250     | 1,157,000 |
| Total . . . . .        | 19,238    | 4,570,000 |

Some of the principal trades represented were :—

|                     |         |                     |         |
|---------------------|---------|---------------------|---------|
| Textiles . . . . .  | 543,000 | Pottery . . . . .   | 223,000 |
| Ironworks . . . . . | 345,000 | Sugar . . . . .     | 127,000 |
| Building . . . . .  | 590,000 | Carpentry . . . . . | 125,000 |

The total income of the above societies in 1885 was £3,300,000, and their expenditure £2,600,000.

Co-operative societies were begun about 1860, and received a great impulse from Mr. Schultz-Delitsch. Dr. Schenck published a report in 1888 which compares these societies with previous years :—

| Year           | Societies | Members   | Paid Capital, £ |
|----------------|-----------|-----------|-----------------|
| 1860 . . . . . | 133       | 31,600    | 80,000          |
| 1870 . . . . . | 740       | 314,700   | 2,200,000       |
| 1880 . . . . . | 4,920     | 1,710,000 | 8,650,000       |
| 1888 . . . . . | 5,000     | 2,000,000 | 15,000,000      |

The ratio of shareholders from the different classes of society in these companies, and in Schultz's popular banks, showed as follows :—

|                     | Co-operative Companies | Popular Banks |
|---------------------|------------------------|---------------|
| Farmers . . . . .   | 27.0                   | 30.0          |
| Artisans . . . . .  | 29.0                   | 34.0          |
| Merchants . . . . . | 44.0                   | 36.0          |
| Total . . . . .     | 100.0                  | 100.0         |

In December 1888 the Schultz-Delitsch companies comprised 2200 popular banks and 2620 co-operative societies. The progress of the popular banks appears as follows :—

| Year           | Shareholders | Capital, £ | Advances, £ |
|----------------|--------------|------------|-------------|
| 1859 . . . . . | 18,700       | 370,000    | 620,000     |
| 1887 . . . . . | 456,300      | 5,030,000  | 39,400,000  |

Deposits in 1887 amounted to £21,400,000 sterling. The Journeymen's Union, for the support of widows and orphans, had 270,000 members in 1882, with an income of £1,100,000 yearly.

#### AUSTRIA

In 1889 there were 1916 friendly societies, numbering 609,000 male and 262,000 female members. Only 1064

of these societies published statements, the aggregate of which showed :—

|                               |              |
|-------------------------------|--------------|
| Capital and reserve . . . . . | £ 17,000,000 |
| Deposits . . . . .            | 37,100,000   |

## ITALY

Official returns give the following particulars :—

| Year           | Societies | Members | Assets, £ |
|----------------|-----------|---------|-----------|
| 1862 . . . . . | 443       | 111,600 | 108,000   |
| 1873 . . . . . | 1,447     | 217,900 | 396,000   |
| 1880 . . . . . | 2,188     | 332,000 | 845,000   |

Days lost by sickness in the year average on the whole number of members 4.4, that is, 6.3 on women and 4.1 on men. Average duration of illness, 20 days.

## BELGIUM

Official returns are to the following effect :—

| Year           | Societies | Members | Income, £ |
|----------------|-----------|---------|-----------|
| 1860 . . . . . | 36        | 6,300   | 17,000    |
| 1880 . . . . . | 179       | 25,800  | 39,000    |
| 1886 . . . . . | 211       | 31,700  | 44,000    |

There are seven building societies, which have built 1093 houses, containing 5400 rooms, accommodating 8430 persons, at an average rent of £2 yearly per head, or 63s. per room. Income £17,000, expenses £7600, net rental £9400.

## AUSTRALIA

In 1873 Victoria had 682 societies with 50,000 members, whose death-rate reached 10 per 1000. Income £152,000, reserve £262,000.

The consumption in the three kingdoms of British and imported spirits was approximately as follows :—

| Year           | Gallons    |           |           |                | Gallons per Inhabitant |          |         |                |
|----------------|------------|-----------|-----------|----------------|------------------------|----------|---------|----------------|
|                | England    | Scotland  | Ireland   | United Kingdom | England                | Scotland | Ireland | United Kingdom |
| 1800 . . . . . | 4,350,000  | 1,280,000 | 1,330,000 | 6,960,000      | 0.51                   | 0.74     | 0.26    | 0.45           |
| 1810 . . . . . | 4,790,000  | 1,750,000 | 4,730,000 | 11,260,000     | 0.48                   | 0.97     | 0.80    | 0.68           |
| 1820 . . . . . | 4,280,000  | 1,860,000 | 3,300,000 | 9,450,000      | 0.35                   | 0.92     | 0.49    | 0.45           |
| 1830 . . . . . | 7,730,000  | 6,010,000 | 9,005,000 | 22,745,000     | 0.55                   | 2.60     | 1.15    | 0.95           |
| 1840 . . . . . | 8,280,000  | 6,180,000 | 7,402,000 | 21,862,000     | 0.52                   | 2.40     | 0.90    | 0.80           |
| 1850 . . . . . | 9,330,000  | 7,120,000 | 7,410,000 | 23,860,000     | 0.52                   | 2.43     | 1.12    | 0.88           |
| 1860 . . . . . | 12,910,000 | 7,890,000 | 6,400,000 | 27,200,000     | 0.65                   | 2.62     | 1.10    | 0.95           |
| 1870 . . . . . | 14,630,000 | 8,580,000 | 8,300,000 | 31,510,000     | 0.67                   | 2.56     | 1.55    | 1.01           |
| 1881 . . . . . | 21,600,000 | 8,800,000 | 6,610,000 | 37,010,000     | 0.84                   | 2.35     | 1.29    | 1.06           |
| 1888 . . . . . | 22,400,000 | 8,400,000 | 6,300,000 | 37,100,000     | 0.77                   | 2.10     | 1.33    | 0.96           |

The consumption of alcohol per head in French cities in 1885 was :—

|                      | Gallons   | Gallons per Inhabitant |
|----------------------|-----------|------------------------|
| Paris . . . . .      | 3,100,000 | 1.40                   |
| Marseilles . . . . . | 440,000   | 1.40                   |
| Lyons . . . . .      | 440,000   | 1.10                   |
| Bordeaux . . . . .   | 220,000   | 1.00                   |
| Rouen . . . . .      | 300,000   | 2.70                   |
| Havre . . . . .      | 350,000   | 3.30                   |

For further details see *Alcohol*, p. 58.

It is found that one bushel of grain will make 4½ gallons of spirits or 27 gallons of beer, and that 4 bushels of malt are equal to 5 bushels of grain. Thus, a ton of grain produces 180 gallons of spirits, a ton of malt 225 gallons.

## SPIRITS

The consumption in the principal countries at previous dates was as follows :—

|                         | Gallons per Inhabitant |      |      |      |      |           |
|-------------------------|------------------------|------|------|------|------|-----------|
|                         | 1830                   | 1840 | 1850 | 1860 | 1870 | 1881 1888 |
| United Kingdom          | 0.95                   | 0.80 | 0.88 | 0.95 | 1.01 | 1.06 0.96 |
| France . . . . .        | 0.26                   | 0.33 | 0.39 | 0.51 | 0.60 | 0.90 1.10 |
| Germany . . . . .       | ...                    | 0.60 | ...  | 1.08 | ...  | 1.33 1.40 |
| Russia . . . . .        | 5.00                   | 3.70 | 4.80 | ...  | ...  | 2.20 1.10 |
| Sweden . . . . .        | 8.80                   | 8.00 | 8.40 | 6.00 | 4.60 | 4.25 4.20 |
| Denmark . . . . .       | ...                    | 7.20 | ...  | 5.80 | ...  | 4.30 4.30 |
| Belgium . . . . .       | 0.96                   | ...  | 1.26 | ...  | 1.90 | 2.40 2.40 |
| United States . . . . . | 5.55                   | 3.10 | 2.50 | 2.10 | 1.62 | 1.50 1.20 |

The consumption in Russia in 1881 was estimated at 174 million gallons, but the official returns for 1886 only give 91 millions; perhaps illicit distilling may account for the difference.

The manufacture of spirits in England and Wales was as follows :—

| Year           | Gallons    | Duty, Pence | Gallons per Inhabitant |
|----------------|------------|-------------|------------------------|
| 1700 . . . . . | 1,210,000  | 4           | 0.22                   |
| 1720 . . . . . | 2,530,000  | 4           | 0.42                   |
| 1740 . . . . . | 6,715,000  | 4           | 1.10                   |
| 1760 . . . . . | 2,320,000  | 30          | 0.33                   |
| 1780 . . . . . | 2,330,000  | 30          | 0.35                   |
| 1800 . . . . . | 4,410,000  | 60          | 0.50                   |
| 1820 . . . . . | 4,315,000  | 120         | 0.56                   |
| 1830 . . . . . | 7,680,000  | 90          | 0.55                   |
| 1850 . . . . . | 9,620,000  | 90          | 0.54                   |
| 1860 . . . . . | 12,910,000 | 90          | 0.65                   |
| 1870 . . . . . | 11,220,000 | 120         | 0.48                   |
| 1881 . . . . . | 16,930,000 | 120         | 0.65                   |

## SPONGES

On the coast of Syria 300 boats with 1500 divers pick up annually sponges worth £25,000; best worth 40s., inferior, 4s. per lb. Depth, 30 to 150 ft.

Simmonds states the sponge-fisheries as follows :—

|                         | Value, £ |
|-------------------------|----------|
| West Indies . . . . .   | 120,000  |
| Mediterranean . . . . . | 150,000  |

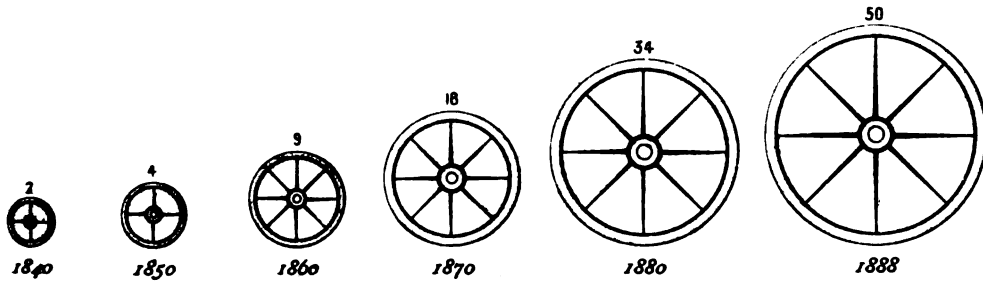
The quantities imported into Great Britain were :—

|                | Lbs.    |
|----------------|---------|
| 1840 . . . . . | 78,000  |
| 1855 . . . . . | 474,000 |
| 1870 . . . . . | 840,000 |

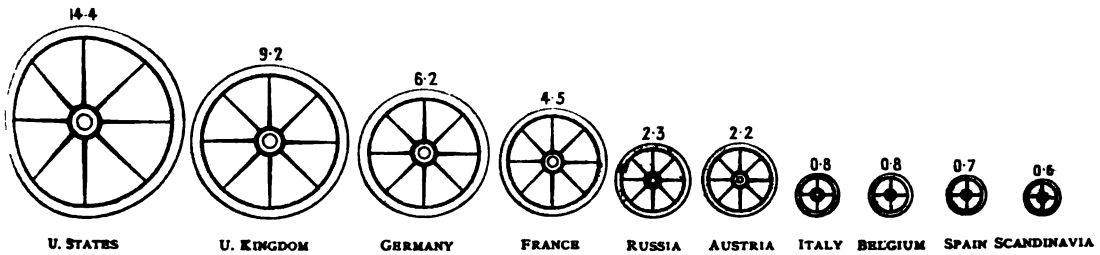
No returns since 1870.

STEAM-POWER.

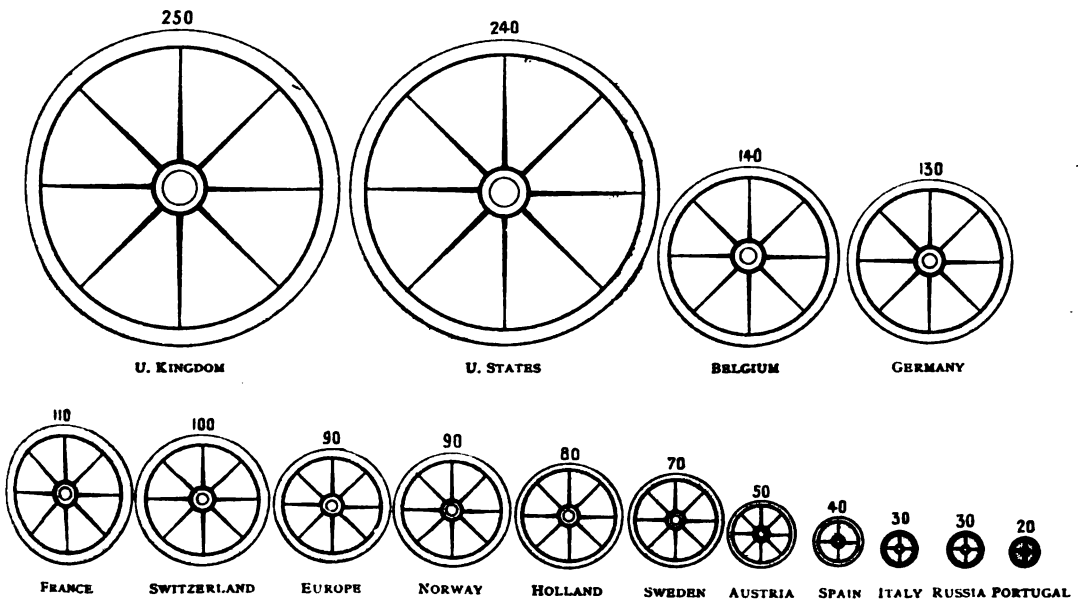
*Aggregate horse-power of the world at various dates, in millions.*



*Horse-power of nations; in millions, in 1888.*



*Horse-power per 1000 inhabitants.*





## SQUARES

| Name              | City   | Acres |
|-------------------|--------|-------|
| Grosvenor . . . . | London | 10    |
| Parade . . . . .  | Vienna | 15    |
| Schloss . . . . . | Berlin | 16    |
| Bellecour . . . . | Lyons  | 32    |
| St. Stephen's . . | Dublin | 40    |

## STATISTICS.

The library of the Royal Statistical Society comprises 27,000 volumes, and is far from complete. There are at least 50,000 statistical works extant, and if a student were able to examine three of them daily he would require 50 years to get through them. More than 500 new works on statistics are published yearly.

## STEAM

The following table shows approximately the steam-power of all nations at various dates :—

|                      | Horse-Power |           |           |            |            |            | Per 100 Inhabitants in 1888 |
|----------------------|-------------|-----------|-----------|------------|------------|------------|-----------------------------|
|                      | 1840        | 1850      | 1860      | 1870       | 1880       | 1888       |                             |
| United Kingdom . . . | 620,000     | 1,290,000 | 2,450,000 | 4,040,000  | 7,600,000  | 9,200,000  | 25                          |
| France . . . . .     | 90,000      | 370,000   | 1,120,000 | 1,850,000  | 3,070,000  | 4,520,000  | 11                          |
| Germany . . . . .    | 40,000      | 260,000   | 850,000   | 2,480,000  | 5,120,000  | 6,200,000  | 13                          |
| Russia . . . . .     | 20,000      | 70,000    | 200,000   | 920,000    | 1,740,000  | 2,240,000  | 3                           |
| Austria . . . . .    | 20,000      | 100,000   | 330,000   | 800,000    | 1,500,000  | 2,150,000  | 5                           |
| Italy . . . . .      | 10,000      | 40,000    | 50,000    | 330,000    | 500,000    | 830,000    | 3                           |
| Spain . . . . .      | 10,000      | 20,000    | 100,000   | 210,000    | 470,000    | 740,000    | 4                           |
| Portugal . . . . .   | ...         | ...       | 10,000    | 30,000     | 60,000     | 80,000     | 2                           |
| Sweden . . . . .     | ...         | ...       | 20,000    | 100,000    | 220,000    | 300,000    | 7                           |
| Norway . . . . .     | ...         | ...       | 10,000    | 40,000     | 90,000     | 180,000    | 9                           |
| Denmark . . . . .    | ...         | ...       | 10,000    | 30,000     | 90,000     | 150,000    | 8                           |
| Holland . . . . .    | ...         | 10,000    | 30,000    | 130,000    | 250,000    | 340,000    | 8                           |
| Belgium . . . . .    | 40,000      | 70,000    | 160,000   | 350,000    | 610,000    | 810,000    | 14                          |
| Switzerland . . . .  | ...         | ...       | 90,000    | 140,000    | 230,000    | 290,000    | 10                          |
| Various . . . . .    | 10,000      | 10,000    | 80,000    | 120,000    | 390,000    | 600,000    | 6                           |
| Europe . . . . .     | 860,000     | 2,240,000 | 5,540,000 | 11,570,000 | 22,000,000 | 28,630,000 | 9                           |
| United States . . .  | 760,000     | 1,680,000 | 3,470,000 | 5,590,000  | 9,110,000  | 14,400,000 | 24                          |
| Colonies, &c. . . .  | 30,000      | 70,000    | 400,000   | 1,300,000  | 3,040,000  | 7,120,000  | ...                         |
| Total . . . . .      | 1,650,000   | 3,990,000 | 9,380,000 | 18,460,000 | 34,150,000 | 50,150,000 | ...                         |

The distribution of fixed steam-power was approximately as follows :—

|                       | 1840    | 1850      | 1860      | 1870      | 1880      | 1888       |
|-----------------------|---------|-----------|-----------|-----------|-----------|------------|
| United Kingdom . . .  | 350,000 | 500,000   | 700,000   | 900,000   | 2,000,000 | 2,200,000  |
| Continent . . . . .   | 100,000 | 220,000   | 650,000   | 1,860,000 | 3,270,000 | 4,150,000  |
| United States . . . . | 360,000 | 600,000   | 800,000   | 1,220,000 | 2,200,000 | 3,300,000  |
| Colonies, &c. . . . . | 20,000  | 40,000    | 70,000    | 120,000   | 200,000   | 400,000    |
| Total . . . . .       | 830,000 | 1,360,000 | 2,220,000 | 4,100,000 | 7,670,000 | 10,050,000 |

The distribution of railway steam-power was approximately thus :—

|                       | 1840    | 1850      | 1860      | 1870       | 1880       | 1888       |
|-----------------------|---------|-----------|-----------|------------|------------|------------|
| United Kingdom . . .  | 200,000 | 700,000   | 1,400,000 | 2,140,000  | 3,200,000  | 3,500,000  |
| Continent . . . . .   | 90,000  | 630,000   | 2,210,000 | 5,200,000  | 9,640,000  | 12,780,000 |
| United States . . . . | 200,000 | 600,000   | 1,800,000 | 3,300,000  | 5,700,000  | 9,300,000  |
| Colonies, &c. . . . . | ...     | 10,000    | 300,000   | 1,100,000  | 2,700,000  | 6,400,000  |
| Total . . . . .       | 490,000 | 1,940,000 | 5,710,000 | 11,740,000 | 21,240,000 | 31,980,000 |

The distribution of shipping steam-power was approximately thus :—

|                       | 1840    | 1850    | 1860      | 1870      | 1880      | 1888      |
|-----------------------|---------|---------|-----------|-----------|-----------|-----------|
| United Kingdom . . .  | 70,000  | 90,000  | 350,000   | 1,000,000 | 2,400,000 | 3,500,000 |
| Continent . . . . .   | 50,000  | 100,000 | 200,000   | 470,000   | 1,490,000 | 2,670,000 |
| United States . . . . | 200,000 | 480,000 | 870,000   | 1,070,000 | 1,210,000 | 1,770,000 |
| Colonies, &c. . . . . | 10,000  | 20,000  | 30,000    | 80,000    | 140,000   | 180,000   |
| Total . . . . .       | 330,000 | 690,000 | 1,450,000 | 2,620,000 | 5,240,000 | 8,120,000 |

Summing up the table, we find as follows:—

|                     | 1840      | 1850      | 1860      | 1870       | 1880       | 1888       |
|---------------------|-----------|-----------|-----------|------------|------------|------------|
| Fixed . . . . .     | 830,000   | 1,360,000 | 2,220,000 | 4,100,000  | 7,670,000  | 10,050,000 |
| Locomotives . . . . | 490,000   | 1,940,000 | 5,710,000 | 11,740,000 | 21,240,000 | 31,980,000 |
| Shipping . . . . .  | 330,000   | 690,000   | 1,450,000 | 2,680,000  | 5,240,000  | 8,120,000  |
| Total . . . . .     | 1,650,000 | 3,990,000 | 9,380,000 | 18,460,000 | 34,150,000 | 50,150,000 |

The following table shows approximately the number of fixed engines in 1880, and of locomotives and steam-boats in 1888:—

|                     | Number        |             | Steamers   |       |
|---------------------|---------------|-------------|------------|-------|
|                     | Fixed Engines | Locomotives | Mercantile | War   |
| U. Kingdom . . . .  | 110,000       | 16,000      | 6,870      | 200   |
| France . . . . .    | 37,800        | 9,600       | 1,020      | 200   |
| Germany . . . . .   | 55,100        | 13,000      | 750        | 60    |
| Russia . . . . .    | 8,950         | 6,000       | 650        | 280   |
| Austria . . . . .   | 9,150         | 4,500       | 100        | 50    |
| Italy . . . . .     | 4,450         | 2,000       | 270        | 150   |
| Spain . . . . .     | 2,300         | 1,300       | 420        | 25    |
| Portugal . . . . .  | 140           | 250         | 40         | 30    |
| Sweden . . . . .    | 1,500         | 700         | 960        | 30    |
| Norway . . . . .    | 700           | 200         | 540        | 20    |
| Denmark . . . . .   | 800           | 200         | 290        | 20    |
| Holland . . . . .   | 5,750         | 650         | 110        | 30    |
| Belgium . . . . .   | 11,750        | 2,400       | 50         | ...   |
| Switzerland . . . . | 1,500         | 650         | 30         | ...   |
| Various . . . . .   | 500           | 3,000       | 140        | 60    |
| Europe . . . . .    | 250,390       | 60,450      | 18,240     | 1,155 |
| United States . . . | 60,300        | 31,000      | 5,920      | 70    |
| Colonies, &c. . . . | 15,000        | 15,700      | 600        | 80    |
| Total . . . . .     | 325,690       | 107,150     | 18,760     | 1,305 |

Steam being measured by horse-power, it is well to bear in mind the following facts:—

One horse-power will raise 10 tons per minute a height of 12 inches, working 8 hours a day. This is about 5000 foot-tons daily, or 12 times a man's work.

(1.) Mail-coach horses: Four will draw a coach, say 2 tons, at the rate of 10 miles an hour, for 6 days every week, and last 5 years.

(2.) Canal horses: One will draw a barge of 25 tons, resistance 108 lbs., at  $\frac{1}{4}$  miles per hour.

(3.) Waggoners' horses: One will easily draw a ton 30 miles in a day of 12 hours.

Sims mentions a Devonshire cart-horse, 15 hands, 1200 lbs., which gave an average of 8000 foot-tons daily.

The horse-power of Niagara is  $3\frac{1}{2}$  millions nominal, equal to 10 million horses effective, valued at £15,000,000 per annum, if conveyed by electricity to New York.

The measurement of horse-power, that is, of raising a certain weight 12 inches per minute during 8 hours daily, is variously given by the best authorities, viz.:—

|                    | Lbs.   |                     | Lbs.   |
|--------------------|--------|---------------------|--------|
| Smeaton . . . . .  | 22,000 | Desaguliers . . . . | 27,500 |
| Sims . . . . .     | 23,400 | Watt . . . . .      | 32,000 |
| Tredgold . . . . . | 27,500 | Saussure . . . . .  | 34,000 |

In 1880 Mr. Engel showed that the value of industries dependent on steam was 6275 millions sterling; his table for 1880 may compare with one for 1888 as follows:—

|                      | Millions £ Sterling |       | Increase |
|----------------------|---------------------|-------|----------|
|                      | 1880                | 1888  |          |
| Railways . . . . .   | 4,000               | 5,700 | 1,700    |
| Factories, &c. . . . | 2,000               | 2,600 | 600      |
| Steamers . . . . .   | 275                 | 410   | 135      |
| Total . . . . .      | 6,275               | 8,710 | 2,435    |

This shows that in eight years about 300 millions sterling per annum of new capital went into industries worked by steam. Mr. Engel finds that the maintenance of a 300-horse locomotive costs £900 a year, or £3 per horse-power, whereas the food of a live horse costs £30 per annum. Stationary engines, he says, cost £15 per annum per horse-power. A water-wheel of 100 horse-power costs only £7 per annum, or less than 18d. per horse. He shows that during twelve years ending 1878 each locomotive in Prussia drew yearly 1710 tons a distance of 6 miles per horse-power; that is, a 300-horse engine drew nearly the above weight daily 10 kilometres or 6 miles. He shows further that a live horse draws about 92 tons in the year a distance of 6 miles, and that on comparing the cost of maintenance, the locomotive does its work at one halfpenny per ton, whereas the live horse costs 7s. for the same, that is, one ton for 6 miles. In other words, horse-draught costs 168 times as much as that done by locomotive. In simple form it may be stated thus:—

Locomotive draws daily 100 tons a length of 100 miles for 50s., say 6d. per ton per 100 miles.

Horse draws one ton two miles daily for 20d., being at the rate of 84s. per ton per 100 miles.

In 1880 the average power of locomotives was 250 horse in England, 290 in Germany, 350 in France, and 420 in Switzerland.

#### UNITED KINGDOM

In 1775 England had 20 steam-engines, with an aggregate of 300 horse-power. The use of steam in textile factories rose as follows:—

| Year           | Horse-Power |
|----------------|-------------|
| 1835 . . . . . | 41,000      |
| 1850 . . . . . | 108,000     |
| 1860 . . . . . | 375,000     |
| 1870 . . . . . | 478,000     |

According to Fairbairn, in 1860 the steam-engines, fixed and movable, amounted to an aggregate of 3,650,000 horse-power. Engel made the aggregate in 1880 no less than 6,986,000. The following table shows approximately the growth of the various classes of steam-power:—

| Year | Horse-Power |             |            |           |
|------|-------------|-------------|------------|-----------|
|      | Fixed       | Locomotives | Steamboats | Total     |
| 1840 | 350,000     | 180,000     | 70,000     | 600,000   |
| 1850 | 500,000     | 700,000     | 90,000     | 1,290,000 |
| 1860 | 700,000     | 1,350,000   | 350,000    | 2,400,000 |
| 1870 | 940,000     | 2,100,000   | 1,000,000  | 4,040,000 |
| 1880 | 2,000,000   | 3,200,000   | 2,400,000  | 7,600,000 |
| 1888 | 2,200,000   | 3,500,000   | 3,500,000  | 9,200,000 |

Engel seems to have under-estimated the horse-power of steamers, his estimate for the United Kingdom in 1880 being as follows:—

|                      |           |
|----------------------|-----------|
| Fixed . . . . .      | 2,000,000 |
| Locomotives . . . .  | 3,240,000 |
| Steamboats . . . . . | 1,746,000 |
|                      | 6,986,000 |

In the preceding table steamboats, of course, include both merchant vessels and the royal navy. Actual horse-power is double the nominal.

The power of locomotives in England is variously estimated at 220 to 250 horse-power. From the above table it appears that the steam force of the United King-

dom has grown 15-fold in 48 years. In 1886 there were 134,000 factories in the United Kingdom, nearly all driven by steam.

## FRANCE

Engel's tables down to 1878 are included in the following :—

| Year       | Engines, Number |             |            | Horse-Power |             |            | Total     |
|------------|-----------------|-------------|------------|-------------|-------------|------------|-----------|
|            | Fixed           | Locomotives | Steamboats | Fixed       | Locomotives | Steamboats |           |
| 1840 . . . | 2,591           | 142         | 263        | 34,000      | 42,000      | 11,000     | 87,000    |
| 1850 . . . | 5,322           | 973         | 537        | 67,000      | 291,000     | 22,000     | 380,000   |
| 1860 . . . | 14,936          | 3,101       | 681        | 181,000     | 930,000     | 37,000     | 1,148,000 |
| 1870 . . . | 27,958          | 4,835       | 973        | 341,000     | 1,452,000   | 60,000     | 1,853,000 |
| 1878 . . . | 38,880          | 6,669       | 1,183      | 492,000     | 2,363,000   | 169,000    | 3,024,000 |
| 1885 . . . | 50,980          | 9,155       | 4,290      | 695,000     | 3,290,000   | 530,000    | 4,515,000 |

The earliest record of steam-power is for 1835, when there were 1450 engines, with 19,000 horse-power. The distribution of steam, as officially reported, was in 1885 as follows :—

|                         | Number | Horse-Power | Average |
|-------------------------|--------|-------------|---------|
| Mines . . .             | 4,140  | 102,000     | 25      |
| Foundries . . .         | 7,050  | 147,000     | 20      |
| Textile factories . . . | 6,470  | 147,000     | 22      |
| Flour-mills . . .       | 8,620  | 92,000      | 11      |
| Farms . . .             | 11,940 | 66,000      | 6       |
| Various . . .           | 12,760 | 141,000     | 11      |
| Total fixed . . .       | 50,980 | 695,000     | 14      |
| Locomotives . . .       | 9,155  | 3,290,000   | 360     |
| Steamboats . . .        | 937    | 530,000     | 560     |
| Total . . .             | 61,072 | 4,515,000   | 74      |

In this table the number of steamboats is given; in the preceding that of engines.

## GERMANY

The following contains Engel's table for Prussia down to 1878 :—

| Year | Horse-Power |             |          |           |
|------|-------------|-------------|----------|-----------|
|      | Fixed       | Locomotives | Steamers | Total     |
| 1840 | 11,700      | 300         | 200      | 12,200    |
| 1852 | 43,000      | 40,200      | 9,200    | 92,400    |
| 1861 | 143,000     | 206,000     | 16,000   | 365,000   |
| 1878 | 958,000     | 2,033,000   | 50,000   | 3,041,000 |
| 1888 | 1,500,000   | 2,600,000   | 120,000  | 4,220,000 |

The steam-power of Germany at various dates was approximately as follows :

|                       | Horse-Power |         |         |           |           |           |
|-----------------------|-------------|---------|---------|-----------|-----------|-----------|
|                       | 1840        | 1850    | 1860    | 1870      | 1880      | 1888      |
| Fixed . . . . .       | 20,000      | 40,000  | 200,000 | 900,000   | 1,680,000 | 2,000,000 |
| Locomotives . . . . . | 20,000      | 200,000 | 600,000 | 1,500,000 | 3,020,000 | 3,700,000 |
| Steamers . . . . .    | ...         | 20,000  | 50,000  | 80,000    | 420,000   | 500,000   |
| Total . . . . .       | 40,000      | 260,000 | 850,000 | 2,480,000 | 5,120,000 | 6,200,000 |

According to the Census of 1880 the employment of steam in fixed engines was as follows :—

|                     | Horse-Power |
|---------------------|-------------|
| Factories . . . . . | 1,283,000   |
| Mines . . . . .     | 394,000     |
| Total . . . . .     | 1,677,000   |

The increase of manufactures and mining since 1880

The number of engines in Prussia was as follows :—

|                       | 1840 | 1852  | 1861  | 1878   |
|-----------------------|------|-------|-------|--------|
| Fixed . . . . .       | 615  | 2,124 | 7,000 | 35,430 |
| Locomotives . . . . . | 13   | 607   | 1,450 | 6,990  |
| Steamboats . . . . .  | 6    | 102   | 198   | 623    |
| Total . . . . .       | 634  | 2,833 | 8,648 | 43,043 |

Mr. Engel's locomotive steam-power for 1852 seems low, as Prussia had then 2000 miles of railway; it is only 20 horse-power per mile.

The distribution of steam-power of stationary engines in Prussia in 1878 was as follows :—

| Class              | Engines | Horse-Power |
|--------------------|---------|-------------|
| 4-horse . . . . .  | 1,998   | 8,000       |
| 15-horse . . . . . | 10,140  | 156,000     |
| Various . . . . .  | 23,300  | 794,000     |
| Total . . . . .    | 35,430  | 958,000     |

The total steam-power of Prussia in 1878 showed thus :—

|                       | Engines | Horse-Power |
|-----------------------|---------|-------------|
| Stationary . . . . .  | 35,430  | 958,000     |
| Locomotives . . . . . | 6,990   | 2,033,000   |
| Steamboats . . . . .  | 623     | 50,000      |
| Total . . . . .       | 43,043  | 3,041,000   |

leads to the inference that the motive power of fixed engines in 1888 was 2,000,000 horse-power.

## RUSSIA

Moscow had two steam-engines in 1820, and in ten years later the number had risen to 100.

In 1880 there were 8946 fixed engines, with an aggregate of 237,000 horse-power. The whole steam-power

of the Empire may be estimated to have been approximately as follows :—

| Year | Horse-Power |             |            |           |
|------|-------------|-------------|------------|-----------|
|      | Fixed       | Locomotives | Steamboats | Total     |
| 1840 | 10,000      | 10,000      | 10,000     | 30,000    |
| 1860 | 60,000      | 100,000     | 40,000     | 200,000   |
| 1880 | 237,000     | 1,400,000   | 100,000    | 1,737,000 |
| 1888 | 300,000     | 1,800,000   | 140,000    | 2,240,000 |

In 1888 the mining works alone had 100,000 horse-power, almost all steam.

## AUSTRIA

Official returns for Austria proper give as follows :—

| Year           | Engines | Horse-Power |
|----------------|---------|-------------|
| 1841 . . . . . | 312     | 7,100       |
| 1852 . . . . . | 1,182   | 49,800      |
| 1863 . . . . . | 4,416   | 336,000     |
| 1875 . . . . . | 12,390  | 1,275,000   |

|                       | Engines |       |        | Horse-Power |         |           |
|-----------------------|---------|-------|--------|-------------|---------|-----------|
|                       | 1852    | 1863  | 1875   | 1852        | 1863    | 1875      |
| Fixed . . . . .       | 671     | 2,882 | 9,160  | 9,000       | 47,000  | 157,000   |
| Locomotives . . . . . | 405     | 1,244 | 2,786  | 27,800      | 249,000 | 990,000   |
| Steamers . . . . .    | 106     | 290   | 462    | 13,000      | 40,000  | 128,000   |
| Total . . . . .       | 1,182   | 4,416 | 12,390 | 49,800      | 336,000 | 1,275,000 |

## SPAIN AND PORTUGAL

The amount of steam-power in the Peninsula in 1870 and 1888 is shown approximately thus :—

|                       | 1870    |          |         | 1888    |          |         |
|-----------------------|---------|----------|---------|---------|----------|---------|
|                       | Spain   | Portugal | Total   | Spain   | Portugal | Total   |
| Fixed . . . . .       | 20,000  | 1,000    | 21,000  | 48,000  | 3,000    | 51,000  |
| Locomotives . . . . . | 150,000 | 20,000   | 170,000 | 300,000 | 60,000   | 360,000 |
| Steamers . . . . .    | 45,000  | 5,000    | 50,000  | 390,000 | 15,000   | 405,000 |
| Total . . . . .       | 215,000 | 26,000   | 241,000 | 738,000 | 78,000   | 816,000 |

In 1873 the textile mills of Spain had 17,000 horse-power, the factories of Portugal 70 engines, with a total of 1200 horse ; in 1888 the latter had 2700 horse-power.

## SWITZERLAND

In 1877 there were 1580 fixed engines, with an aggregate of 32,000 horse-power. In 1885 there were 600 locomotives, with an average power of 420 horse, being much above the European average. The total steam-power may be estimated thus :—

|                       | Engines | Horse-Power |
|-----------------------|---------|-------------|
| Fixed . . . . .       | 2,000   | 38,000      |
| Locomotives . . . . . | 600     | 250,000     |
| Steamers . . . . .    | ...     | 2,000       |
| Total . . . . .       | ...     | 290,000     |

In 1851 there were but 34 fixed engines, the number rising to 312 in 1860, and to 955 in 1870.

## HOLLAND

In 1883 there were 6689 steam-engines against 4753 in 1877. The total in 1883 (exclusive of railway locomotives) showed as follows :—

|                    | Engines | Horse-Power |
|--------------------|---------|-------------|
| On land . . . . .  | 5,564   | 73,100      |
| On water . . . . . | 1,125   | 37,300      |

In 1887 the fixed engines of Austria without Hungary rose to 19,615, and the whole steam-power of the Empire in 1888 may be estimated thus :—

|                       | Engines | Horse-Power |
|-----------------------|---------|-------------|
| Fixed . . . . .       | 24,000  | 400,000     |
| Locomotives . . . . . | 4,400   | 1,500,000   |
| Steamers . . . . .    | ...     | 250,000     |
| Total . . . . .       | ...     | 2,150,000   |

## ITALY

In 1877 there were 4459 fixed engines with 54,000 horse-power, and in 1888 the horse-power may be supposed to have reached 150,000, seeing that the consumption of coal has trebled in the interval.

The steam-power was approximately as follows :—

|                       | Horse-Power |         |
|-----------------------|-------------|---------|
|                       | 1877        | 1888    |
| Fixed . . . . .       | 54,000      | 150,000 |
| Locomotives . . . . . | 300,000     | 500,000 |
| Steamers . . . . .    | 60,000      | 180,000 |
| Total . . . . .       | 414,000     | 830,000 |

## BELGIUM

In 1836 the total steam-power of the Kingdom was 20,000 horse.

Official returns are to the following effect :—

| Year | Engines    |                   |        | Horse-Power |              |         |
|------|------------|-------------------|--------|-------------|--------------|---------|
|      | Facto-ries | Locomo-tives, &c. | Total  | Facto-ries  | Loco-motives | Total   |
| 1845 | 1,501      | 172               | 1,673  | 39,000      | 9,000        | 48,000  |
| 1850 | 2,013      | 269               | 2,282  | 51,000      | 15,000       | 66,000  |
| 1860 | 4,346      | 651               | 4,997  | 99,000      | 63,000       | 162,000 |
| 1870 | 8,133      | 1,161             | 9,294  | 176,000     | 172,000      | 348,000 |
| 1880 | 11,758     | 2,302             | 14,060 | 275,000     | 332,000      | 607,000 |
| 1887 | 13,036     | 3,331             | 16,367 | 337,000     | 476,000      | 813,000 |

The steam-power in 1887 showed in detail thus :—

|                       | Engines | Horse-Power | Average |
|-----------------------|---------|-------------|---------|
| Factories . . . . .   | 13,036  | 337,000     | 26      |
| Locomotives . . . . . | 2,990   | 446,000     | 150     |
| Steamers . . . . .    | 341     | 30,000      | 88      |
| Total . . . . .       | 16,367  | 813,000     | 50      |



## SCANDINAVIA

In 1888 the steam-power of the three northern kingdoms was approximately as follows :—

|                 | Horse-Power |         |         |         |
|-----------------|-------------|---------|---------|---------|
|                 | Sweden      | Norway  | Denmark | Total   |
| Fixed . . . .   | 28,000      | 10,000  | 10,000  | 48,000  |
| Locomotives . . | 140,000     | 30,000  | 40,000  | 210,000 |
| Steamers . . .  | 130,000     | 140,000 | 100,000 | 370,000 |
| Total . . . .   | 298,000     | 180,000 | 150,000 | 628,000 |

## UNITED STATES

There is no record of fixed horse-power before 1870, but we can estimate by the number of hands engaged in manufactures at previous dates. The whole steam-power was approximately thus :—

| Year | Horse-Power |             |             |            | Per 1000 Population |
|------|-------------|-------------|-------------|------------|---------------------|
|      | Fixed       | Locomotives | Steam-boats | Total      |                     |
| 1840 | 360,000     | 200,000     | 200,000     | 760,000    | 44                  |
| 1850 | 600,000     | 600,000     | 500,000     | 1,700,000  | 73                  |
| 1860 | 800,000     | 1,800,000   | 900,000     | 3,500,000  | 111                 |
| 1870 | 1,216,000   | 3,300,000   | 1,100,000   | 5,616,000  | 148                 |
| 1880 | 2,186,000   | 5,700,000   | 1,200,000   | 9,086,000  | 180                 |
| 1888 | 3,300,000   | 9,300,000   | 1,800,000   | 14,400,000 | 240                 |

In the above table locomotives are taken at 300 horse each, and the horse-power of steamers as equivalent to their tonnage. The fixed horse-power for 1888 is not known, but as mining has increased 90 per cent. and manufactures over 30 per cent., it is likely motive-power has risen 50 per cent. since 1880.

## STONE

The latest statistics as to stone-quarries show the annual yield thus :—

|                     | Product, Tons | Value, £  |
|---------------------|---------------|-----------|
| Great Britain . . . | 11,000,000    | 8,700,000 |
| France . . . . .    | 8,000,000     | 6,600,000 |
| Belgium . . . . .   | 2,000,000     | 1,300,000 |
| United States . . . | 7,000,000     | 5,300,000 |

The marble quarries of Italy have an output valued at one million sterling.

## STREETS

Heavy traffic averages 100,000 tons, light 50,000 tons per yard per annum. The former wears wooden pavement an inch in five years. Some authorities estimate

the first cost of paving per square yard as follows :—  
Stone 10s, wood 14s., asphalt 18s.

The cost of paving and keeping in order a street 10 yards wide and 1000 yards long in wood and stone is shown as follows :—

|                       | Heavy Traffic, £ |        | Light Traffic, £ |       |
|-----------------------|------------------|--------|------------------|-------|
|                       | Wood             | Stone  | Wood             | Stone |
| First cost . . .      | 7,500            | 7,200  | 7,500            | 7,200 |
| Maintenance, 30 years | 15,000           | 3,600  | 7,500            | 2,400 |
| Total . . . . .       | 22,500           | 10,800 | 15,000           | 9,600 |

The streets of Paris, taking a medium width of 50 feet, are as follows :—

|                 | Square Metres | Miles Long | Maintenance, £ |
|-----------------|---------------|------------|----------------|
| Cut stone . . . | 1,800,000     | 75         | 160,000        |
| Rough . . . .   | 5,800,000     | 244        | 120,000        |
| Asphalt . . . . | 270,000       | 11         | 12,000         |
| Total . . . . . | 7,870,000     | 330        | 292,000        |

Side-walks made of granite cost 18s. per square yard for construction, and 1d. yearly for repairs. The sweeping of the streets employs 3100 men.

The streets of Berlin, at an average width of 50 feet, are :—

|                 | Square Metres | Miles Long |
|-----------------|---------------|------------|
| Paved . . . . . | 4,280,000     | 180        |
| Asphalt . . . . | 125,000       | 5          |
| Wood . . . . .  | 10,000        | ...        |
| Total . . . . . | 4,415,000     | 185        |

Sweeping costs £80,000 a year.

## STRENGTH

Taking that of a man as 100, Byron's Gladiator is equal to 173, the Farnese Hercules 362, and a horse 750.

## SUGAR

The following table shows the production approximately :—

|                | Cane, Tons | Beet, Tons | Total     |
|----------------|------------|------------|-----------|
| 1840 . . . . . | 1,100,000  | 50,000     | 1,150,000 |
| 1850 . . . . . | 1,200,000  | 200,000    | 1,400,000 |
| 1860 . . . . . | 1,800,000  | 400,000    | 2,200,000 |
| 1870 . . . . . | 1,830,000  | 900,000    | 2,730,000 |
| 1880 . . . . . | 1,860,000  | 1,810,000  | 3,670,000 |
| 1889 . . . . . | 2,580,000  | 2,780,000  | 5,360,000 |

The production of beet-sugar according to the *Bulletin Statistique* was as follows in Europe :—

|                    | Tons Yearly |         |         |         |           |           |
|--------------------|-------------|---------|---------|---------|-----------|-----------|
|                    | 1836-39     | 1840-49 | 1850-59 | 1860-69 | 1870-79   | 1880-84   |
| France . . . . .   | 43,000      | 34,000  | 93,000  | 188,000 | 370,000   | 406,000   |
| Germany . . . . .  | 6,000       | 14,000  | 87,000  | 169,000 | 297,000   | 667,000   |
| Austria . . . . .  | 1,000       | 3,000   | 28,000  | 70,000  | 205,000   | 478,000   |
| Russia . . . . .   | ...         | ...     | 26,000  | 118,000 | 260,000   | 284,000   |
| Belgium . . . . .  | ...         | ...     | 11,000  | 28,000  | 68,000    | 75,000    |
| Holland, &c. . . . | ...         | ...     | ...     | 1,000   | 18,000    | 30,000    |
| Europe . . . . .   | 50,000      | 51,000  | 245,000 | 574,000 | 1,218,000 | 1,940,000 |

According to the same writer, the United States produced in the last four years 337,000 tons of beet-sugar yearly.

Licht and Goerz compute the production of beet-sugar in 1887 and 1889 as follows in tons:—

|                 | 1887      | 1889      |
|-----------------|-----------|-----------|
| Germany . . . . | 1,013,000 | 975,000   |
| Austria . . . . | 523,000   | 575,000   |
| France . . . .  | 485,000   | 475,000   |
| Russia . . . .  | 487,000   | 510,000   |
| Belgium . . . . | 132,000   | 137,000   |
| Holland . . . . | 36,000    | 45,000    |
| Various . . . . | 56,000    | 61,000    |
| Total . . . .   | 2,732,000 | 2,778,000 |

This seems to exclude any beet-sugar raised in the United States. The *Economist* gives the following table:—

| Year         | Cane, Tons | Beet, Tons | Total     |
|--------------|------------|------------|-----------|
| 1882 . . . . | 2,107,000  | 2,147,000  | 4,254,000 |
| 1884 . . . . | 2,351,000  | 2,546,000  | 4,897,000 |
| 1886 . . . . | 2,346,000  | 2,729,000  | 5,074,000 |
| 1888 . . . . | 2,412,000  | 2,850,000  | 5,262,000 |

The following statistics refer to the manufacture of beet-sugar:—

|                 | Factories |      | Tons Root Used |           | Sugar, Tons |         |
|-----------------|-----------|------|----------------|-----------|-------------|---------|
|                 | 1883      | 1887 | 1883           | 1887      | 1883        | 1887    |
| Germany . . . . | 358       | 401  | 8,700,000      | 8,300,000 | 830,000     | 990,000 |
| France . . . .  | 496       | 391  | 7,200,000      | 4,900,000 | 410,000     | 415,000 |
| Austria . . . . | 232       | 209  | 4,900,000      | 4,300,000 | 560,000     | 520,000 |
| Belgium . . . . | 155       | 111  | ...            | ...       | 95,000      | 105,000 |

The production of cane-sugar, according to N. Spallart and others, was by latest accounts as follows:—

|                  | Tons    |                     | Tons    |
|------------------|---------|---------------------|---------|
| Cuba . . . .     | 530,000 | Guadeloupe, &c. . . | 100,000 |
| Java . . . .     | 320,000 | United States . . . | 100,000 |
| Brazil . . . .   | 230,000 | Porto Rico . . . .  | 80,000  |
| India . . . .    | 220,000 | Honolulu . . . .    | 60,000  |
| Jamaica, &c. . . | 210,000 | Argentina . . . .   | 60,000  |
| Manilla . . . .  | 180,000 | Egypt . . . .       | 40,000  |
| Mauritius . . .  | 120,000 | Peru . . . .        | 30,000  |
| Guiana . . . .   | 120,000 | Mexico . . . .      | 30,000  |
| China . . . .    | 100,000 | Australia . . . .   | 20,000  |

The *Ann. Stat.* for 1885 published the following table of average annual consumption during the four years immediately preceding, to which may be added a table published in Paris in 1868:—

|                      | 1881-84   |                     | 1868                |
|----------------------|-----------|---------------------|---------------------|
|                      | Tons      | Lbs. per Inhabitant | Lbs. per Inhabitant |
| United Kingdom . .   | 1,105,000 | 69                  | 40                  |
| France . . . .       | 386,000   | 23                  | 18                  |
| Germany . . . .      | 313,000   | 15                  | 10                  |
| Austria . . . .      | 231,000   | 13                  | 4                   |
| Russia . . . .       | 300,000   | 8                   | 2                   |
| Sweden . . . .       | 37,000    | 18                  | 8                   |
| Norway . . . .       | 10,000    | 11                  | 10                  |
| Holland . . . .      | 55,000    | 29                  | 41                  |
| Belgium . . . .      | 40,000    | 16                  | 22                  |
| Denmark . . . .      | 27,000    | 30                  | 20                  |
| Switzerland . . .    | 30,000    | 23                  | 10                  |
| Italy . . . .        | 100,000   | 7                   | ...                 |
| Spain and Portugal . | 60,000    | 6                   | 4                   |
| Total . . . .        | 2,694,000 | ...                 | ...                 |

In 1887 the total consumption of sugar was put down as follows:—

|                        | Tons      |
|------------------------|-----------|
| United Kingdom . . . . | 1,100,000 |
| Continent . . . .      | 1,900,000 |
| United States . . . .  | 1,500,000 |
| Australia . . . .      | 100,000   |
| Various . . . .        | 600,000   |
| Total . . . .          | 5,300,000 |

It appears that the world consumes now twice as much sugar as in 1870, and four times as much as in 1850. The fall in price partly explains this prodigious increase of consumption.

#### UNITED KINGDOM

The consumption of sugar has been as follows:—

| Year         | Tons      | Lbs. per Inhab. | Duty per Ton | Price per Ton |
|--------------|-----------|-----------------|--------------|---------------|
| 1705 . . . . | 12,000    | 3               | £3           | £70           |
| 1730 . . . . | 41,000    | 9               | 4            | 70            |
| 1750 . . . . | 53,000    | 11              | 5            | 70            |
| 1780 . . . . | 77,000    | 14              | 7            | 70            |
| 1801 . . . . | 165,000   | 22              | 20           | 85            |
| 1811 . . . . | 184,000   | 23              | 27           | 90            |
| 1820 . . . . | 143,000   | 15              | 27           | 63            |
| 1830 . . . . | 214,000   | 20              | 24           | 49            |
| 1840 . . . . | 188,000   | 15              | 24           | 48            |
| 1850 . . . . | 310,000   | 25              | 10           | 40            |
| 1860 . . . . | 420,000   | 32              | 13           | 35            |
| 1870 . . . . | 690,000   | 49              | 5            | 32            |
| 1881 . . . . | 1,050,000 | 68              | ...          | 22            |
| 1888 . . . . | 1,170,000 | 70              | ...          | 14            |

About 70,000 tons are annually consumed by brewers.

#### FRANCE

A table published in 1869 gives the consumption from 1817 till 1868:—

| Year         | Tons    | Lbs. per Inhabitant |
|--------------|---------|---------------------|
| 1817 . . . . | 31,000  | 2                   |
| 1825 . . . . | 55,000  | 4                   |
| 1832 . . . . | 73,000  | 5                   |
| 1840 . . . . | 109,000 | 6                   |
| 1854 . . . . | 135,000 | 8                   |
| 1862 . . . . | 200,000 | 12                  |
| 1868 . . . . | 310,000 | 18                  |
| 1887 . . . . | 410,000 | 23                  |

The last item is not official, but the ratio already quoted for the years 1881-84. France has 439 sugar-factories, employing 68,400 men, moved by 48,000 horse-power of steam, and valued at £15,200,000. The production of beet-root averages 11 tons per acre.

#### GERMANY

The production of beet-root is officially stated thus:—

| Period          | Tons of Roots Yearly |
|-----------------|----------------------|
| 1844-55 . . . . | 680,000              |
| 1856-65 . . . . | 1,710,000            |
| 1866-75 . . . . | 2,820,000            |
| 1876-80 . . . . | 4,680,000            |
| 1881-87 . . . . | 8,310,000            |

The quantity of sugar obtained from a ton of roots has risen in late years, viz:—

| Year         | Tons Roots | Tons Sugar | Per Cent. |
|--------------|------------|------------|-----------|
| 1872 . . . . | 2,250,000  | 185,000    | 8.3       |
| 1880 . . . . | 4,810,000  | 410,000    | 8.5       |
| 1887 . . . . | 8,310,000  | 990,000    | 11.9      |

The estimated consumption of roots in 400 beet-sugar factories during the year 1889 was 6,500,000 tons, which produced 992,000 tons of sugar, or more than 15 per cent.

The first mention of beet-sugar is in 1816, when 1400 tons were produced in Prussia. In 1836 it was found that 100,000 tons of beet did not yield quite 5000 tons of sugar.

#### RUSSIA

The sugar industry was begun at Tula in 1811, but was little heard of until 1850. The area under beet-root in 1864 was 290,000 acres, and the production close on a million tons of roots, an average of less than  $3\frac{1}{2}$  tons per acre. In 1883 there were 214 sugar-factories, consuming 4,000,000 tons of roots, from which they extracted 260,000 tons of sugar, say  $6\frac{1}{2}$  per cent., against 10 per cent. in Germany. In 1887 the mills turned out 405,000 tons of sugar. The millers buy the roots at 15s. a ton, and sell the sugar at £18 per ton, which leaves them a profit of 30s. per ton of sugar, after paying their 40,000 operatives and all expenses. The peasants who grow the beet-root count on an average crop of six tons per acre, which they sell for 90s., and their rent and taxes being 16s. an acre, they count on 74s. an acre for the support of their household.

#### SUICIDE

It is customary to compute the number per million inhabitants yearly, and under this heading whenever the term "million inhabitants" is used, it signifies more correctly one million persons of a given age or class. Partial records down to recent years will be found for the principal countries. The following is a general table:—

|                         | Suicides Yearly per Million Population |         |         |
|-------------------------|----------------------------------------|---------|---------|
|                         | 1851-60                                | 1871-77 | 1885-87 |
| England . . . . .       | 65                                     | 67      | 80      |
| Scotland . . . . .      | ...                                    | 40      | ...     |
| Ireland . . . . .       | ...                                    | 17      | ...     |
| France . . . . .        | 105                                    | 157     | 205     |
| Germany . . . . .       | 126                                    | 143     | 208     |
| Russia . . . . .        | 35                                     | 30      | ...     |
| Austria . . . . .       | 45                                     | 122     | 159     |
| Italy . . . . .         | 18                                     | 37      | 45      |
| Spain . . . . .         | ...                                    | 14      | ...     |
| Portugal . . . . .      | 14                                     | 18      | ...     |
| Sweden . . . . .        | 72                                     | 81      | ...     |
| Norway . . . . .        | 100                                    | 73      | ...     |
| Denmark . . . . .       | 274                                    | 258     | ...     |
| Holland . . . . .       | ...                                    | 36      | ...     |
| Belgium . . . . .       | 49                                     | 67      | 130     |
| Switzerland . . . . .   | ...                                    | 202     | ...     |
| Massachusetts . . . . . | ...                                    | 82      | ...     |
| Australia . . . . .     | ...                                    | 86      | 115     |

City rates are usually much higher than the average for the corresponding countries.

The following table is not for a given term of years, but merely compares the latest rates recorded for various cities:—

| Per Million Inhabitants |     |                              |
|-------------------------|-----|------------------------------|
| Berlin . . . . .        | 170 | Naples . . . . . 60          |
| Brussels . . . . .      | 271 | New York . . . . . 144       |
| Copenhagen . . . . .    | 302 | Paris . . . . . 422          |
| Dresden . . . . .       | 240 | Rio Janeiro . . . . . 60     |
| Florence . . . . .      | 76  | Rome . . . . . 53            |
| Frankfort . . . . .     | 344 | St. Petersburg . . . . . 206 |
| Genoa . . . . .         | 64  | Stockholm . . . . . 272      |
| London . . . . .        | 85  | Turin . . . . . 110          |
| Milan . . . . .         | 133 | Vienna . . . . . 287         |

In all countries suicide is more frequent with men than

women, as the following table shows; as also the different rates per million for urban and for rural population:—

|                   | Per Million |       | Percentage of Sexes |         |
|-------------------|-------------|-------|---------------------|---------|
|                   | Urban       | Rural | Males               | Females |
| France . . . . .  | 217         | 118   | 79                  | 21      |
| Prussia . . . . . | 162         | 97    | 81                  | 19      |
| Denmark . . . . . | 307         | 271   | 77                  | 23      |
| Saxony . . . . .  | 317         | 219   | 81                  | 19      |
| Italy . . . . .   | 66          | 30    | 80                  | 20      |
| Belgium . . . . . | 61          | 34    | 85                  | 15      |
| Sweden . . . . .  | 167         | 68    | 77                  | 23      |
| Norway . . . . .  | 103         | 65    | 76                  | 24      |
| Denmark . . . . . | 236         | 238   | 77                  | 23      |

In Holland, of 100 suicides 16 are by women; in Austria, 18; in England, 26; in Russia, 21; in Switzerland, 12; in Spain, 29; and in the United States, 28. The difference that prevails between married and single is pointed out by various writers. In Switzerland, during four years ending 1880, of 100 women under 30 years who committed suicide 80 were unmarried.

The following table shows approximately the ratios of adults, married and unmarried, in several countries, and the ratios of suicide according to Legoyt:—

|                       | Inhabitants, Percentage |           | Suicides, Percentage |           |
|-----------------------|-------------------------|-----------|----------------------|-----------|
|                       | Married                 | Unmarried | Married              | Unmarried |
| France . . . . .      | 55                      | 45        | 46                   | 54        |
| Germany . . . . .     | 52                      | 48        | 43                   | 57        |
| Italy . . . . .       | 53                      | 47        | 44                   | 56        |
| Switzerland . . . . . | 47                      | 53        | 43                   | 57        |

In all countries the rate of suicide among unmarried is much higher than among married. In France, as shown later on, the value of domestic ties as a restraint against suicide is shown in the fact that persons with children are much less disposed to it than those who have none.

Suicide is much more frequent in Protestant than in Catholic countries. Legoyt and other writers show that in countries where both religions exist the tendency of Protestants to suicide is greater, as shown in the rates for the following countries per million inhabitants yearly:—

|                           | Protestant | Catholic | General Rate |
|---------------------------|------------|----------|--------------|
| United Kingdom . . . . .  | 63         | 17       | 56           |
| Prussia . . . . .         | 170        | 52       | 131          |
| Bavaria . . . . .         | 195        | 69       | 102          |
| Austria-Hungary . . . . . | 140        | 90       | 96           |
| Switzerland . . . . .     | 262        | 81       | 202          |

Legoyt says the Jews have even a lower rate of suicide than Catholics.

If we suppose 1200 suicides yearly in each of the following countries, the months in which they occur show as follows:—

|                     | London | France | Austria | Italy | Sweden |
|---------------------|--------|--------|---------|-------|--------|
| January . . . . .   | 88     | 86     | 74      | 71    | 74     |
| February . . . . .  | 86     | 90     | 77      | 94    | 61     |
| March . . . . .     | 101    | 102    | 90      | 101   | 86     |
| April . . . . .     | 112    | 112    | 105     | 118   | 120    |
| May . . . . .       | 120    | 117    | 132     | 136   | 137    |
| June . . . . .      | 122    | 135    | 140     | 144   | 130    |
| July . . . . .      | 108    | 119    | 132     | 122   | 125    |
| August . . . . .    | 107    | 102    | 104     | 104   | 120    |
| September . . . . . | 92     | 92     | 99      | 88    | 90     |
| October . . . . .   | 93     | 90     | 95      | 77    | 102    |
| November . . . . .  | 87     | 79     | 82      | 73    | 82     |
| December . . . . .  | 84     | 76     | 70      | 72    | 73     |
| Total . . . . .     | 1,200  | 1,200  | 1,200   | 1,200 | 1,200  |

The causes of suicide vary with race and climate thus :—

| <i>Spain and Italy</i> |       | <i>North Europe</i> |       |
|------------------------|-------|---------------------|-------|
| Insanity . . . . .     | 29.0  | Insanity . . . . .  | 34.0  |
| Poverty . . . . .      | 22.0  | Grief . . . . .     | 23.0  |
| Sickness . . . . .     | 20.0  | Drink . . . . .     | 15.0  |
| Various . . . . .      | 29.0  | Various . . . . .   | 28.0  |
| Total . . . . .        | 100.0 | Total . . . . .     | 100.0 |

The distribution according to seasons, from observations in 1861-77, was as follows :—

|                       | Spring | Summer | Autumn | Winter | Total |
|-----------------------|--------|--------|--------|--------|-------|
| U. Kingdom . . . . .  | 336    | 372    | 264    | 228    | 1,200 |
| France . . . . .      | 331    | 356    | 261    | 252    | 1,200 |
| Prussia . . . . .     | 341    | 348    | 272    | 239    | 1,200 |
| Saxony . . . . .      | 332    | 353    | 270    | 245    | 1,200 |
| Bavaria . . . . .     | 348    | 364    | 254    | 234    | 1,200 |
| Wurtemberg . . . . .  | 335    | 373    | 252    | 240    | 1,200 |
| Austria . . . . .     | 357    | 375    | 235    | 233    | 1,200 |
| Italy . . . . .       | 355    | 370    | 238    | 237    | 1,200 |
| Sweden . . . . .      | 343    | 375    | 274    | 208    | 1,200 |
| Norway . . . . .      | 383    | 366    | 273    | 178    | 1,200 |
| Denmark . . . . .     | 350    | 370    | 264    | 216    | 1,200 |
| Holland . . . . .     | 384    | 356    | 220    | 240    | 1,200 |
| Belgium . . . . .     | 331    | 359    | 277    | 233    | 1,200 |
| Switzerland . . . . . | 322    | 346    | 294    | 238    | 1,200 |
| Spain . . . . .       | 316    | 449    | 240    | 195    | 1,200 |

Suicide is most frequent in the summer months in all countries except Norway and Holland, where the spring months are most fatal.

The occurrence of suicide by day or night shows the following percentages in France and Switzerland :—

|                            | France | Switzerland |
|----------------------------|--------|-------------|
| Noon to 6 P.M. . . . .     | 22.8   | 22.0        |
| 6 P.M. to midnight . . . . | 23.2   | 23.6        |
| Midnight to 6 A.M. . . . . | 18.3   | 18.0        |
| 6 A.M. to noon . . . . .   | 35.7   | 36.4        |

The method of suicide varies with sex and country as follows, according to Ritti's observations in 1861-77 :—

| <i>Men</i>            |         |          |          |       |        |         |
|-----------------------|---------|----------|----------|-------|--------|---------|
|                       | Hanging | Drowning | Firearms | Knife | Poison | Various |
| England . . . . .     | 407     | 155      | 66       | 218   | 70     | 84      |
| France . . . . .      | 468     | 254      | 139      | 35    | 15     | 89      |
| Prussia . . . . .     | 645     | 131      | 133      | 40    | 20     | 31      |
| Saxony . . . . .      | 701     | 134      | 104      | 20    | 16     | 25      |
| Wurtemberg . . . . .  | 736     | 157      | 33       | 53    | 11     | 10      |
| Austria . . . . .     | 505     | 208      | 172      | ...   | 66     | 49      |
| Italy . . . . .       | 166     | 350      | 163      | 63    | 53     | 205     |
| Sweden . . . . .      | 510     | 193      | 116      | 95    | 79     | 7       |
| Norway . . . . .      | 664     | 184      | 54       | 47    | ...    | 51      |
| Denmark . . . . .     | 727     | 142      | 37       | 18    | 60     | 16      |
| Belgium . . . . .     | 563     | 198      | 139      | 42    | 15     | 43      |
| Switzerland . . . . . | 458     | 228      | 186      | 70    | 25     | 33      |

| <i>Women</i>          |         |          |          |       |        |         |
|-----------------------|---------|----------|----------|-------|--------|---------|
|                       | Hanging | Drowning | Firearms | Knife | Poison | Various |
| England . . . . .     | 281     | 324      | 1        | 115   | 155    | 124     |
| France . . . . .      | 311     | 423      | 10       | 28    | 37     | 191     |
| Prussia . . . . .     | 440     | 326      | 81       | 36    | 70     | 47      |
| Saxony . . . . .      | 461     | 440      | 5        | 25    | 45     | 24      |
| Wurtemberg . . . . .  | 458     | 441      | ...      | 60    | 21     | 20      |
| Austria . . . . .     | 324     | 410      | 38       | ...   | 176    | 52      |
| Italy . . . . .       | 175     | 491      | 31       | 54    | 79     | 170     |
| Sweden . . . . .      | 404     | 324      | 1        | 87    | 179    | 5       |
| Norway . . . . .      | 557     | 332      | 5        | 9     | ...    | 97      |
| Denmark . . . . .     | 583     | 359      | 1        | 26    | 31     | ...     |
| Belgium . . . . .     | 447     | 395      | 2        | 26    | 70     | 60      |
| Switzerland . . . . . | 228     | 516      | 45       | 45    | 91     | 75      |

According to Bulgarin, 73 per cent. of male suicides in Russia are by hanging. The Austrian classification does not distinguish those by the knife; hence the blanks.

It is a painful fact that in all armies suicide is much more frequent than among civilians of same age. The rates per million in the several countries show thus, age 20 to 60 years, for the years 1869-73 :—

|                    | Soldiers | Civilians |
|--------------------|----------|-----------|
| British . . . . .  | 380      | 110       |
| French . . . . .   | 510      | 205       |
| German . . . . .   | 640      | 250       |
| Austrian . . . . . | 860      | 120       |
| Italian . . . . .  | 300      | 80        |
| Belgian . . . . .  | 460      | 70        |
| Swedish . . . . .  | 450      | 120       |

In 1882 the rates in the British army were :—

| Age             | U. Kingdom | Colonies | India |
|-----------------|------------|----------|-------|
| 20-25 . . . . . | 200        | 210      | 130   |
| 25-30 . . . . . | 390        | 330      | 390   |
| 30-35 . . . . . | 510        | 450      | 840   |
| 35-40 . . . . . | 710        | 810      | 1,030 |

The rates in the United Kingdom were 310 for infantry, 340 for artillery, and 500 for cavalry, per million.

#### UNITED KINGDOM

Dr. Ogle's paper for England and Wales shows 42,630 suicides in 26 years ending 1883. Some of these were of children under 10 years old, but not sufficient to adopt a rate. He therefore classifies age thus :—

| Rates per Million  |         |      |        |
|--------------------|---------|------|--------|
|                    | Persons | Male | Female |
| 10-15 . . . . .    | 4       | 4    | 3      |
| 15-20 . . . . .    | 28      | 26   | 30     |
| 20-25 . . . . .    | 47      | 62   | 34     |
| 25-35 . . . . .    | 69      | 99   | 42     |
| 35-45 . . . . .    | 116     | 175  | 68     |
| 45-55 . . . . .    | 184     | 271  | 103    |
| 55-65 . . . . .    | 251     | 396  | 119    |
| 65-75 . . . . .    | 243     | 394  | 113    |
| 75-85 . . . . .    | 183     | 306  | 85     |
| Over 85 . . . . .  | 116     | 226  | 46     |
| All ages . . . . . | 72      | 104  | 41     |

It will be seen that suicide is much more frequent among males than females, the ratio being as follows :—

| Age               | Female | Male |
|-------------------|--------|------|
| 10-15 . . . . .   | 100    | 133  |
| 25-35 . . . . .   | 100    | 236  |
| 55-65 . . . . .   | 100    | 333  |
| Over 85 . . . . . | 100    | 491  |

Suicides among males of 25-65 years of age were per million as follows :—

|                         |                            |                            |
|-------------------------|----------------------------|----------------------------|
| Miner . . . . . 74      | Painter . . . . . 224      | Baker . . . . . 328        |
| Clergyman . . . . . 139 | Weaver . . . . . 229       | Clerk . . . . . 329        |
| Fisherman . . . . . 157 | Miller . . . . . 230       | Broker . . . . . 346       |
| Gardener . . . . . 160  | Tanner . . . . . 249       | Milkman . . . . . 353      |
| Mason . . . . . 175     | Shoemaker . . . . . 252    | Hairdresser . . . . . 364  |
| Labourer . . . . . 177  | Tailor . . . . . 256       | Butcher . . . . . 407      |
| Policeman . . . . . 201 | Printer . . . . . 262      | Lawyer . . . . . 408       |
| Carpenter . . . . . 213 | Farmer . . . . . 270       | Physician . . . . . 472    |
| Carter . . . . . 214    | Schoolmaster . . . . . 290 | Beer-seller . . . . . 474  |
| Grocer . . . . . 218    | Cabman . . . . . 303       | Soldier . . . . . 1,149    |
| Smith . . . . . 222     | Watchmaker . . . . . 315   | Gen. average . . . . . 222 |

The method of suicide is shown in the following table:—

| Method                     | Persons | Males | Females |
|----------------------------|---------|-------|---------|
| Hanging . . . . .          | 365     | 417   | 240     |
| Drowning . . . . .         | 185     | 152   | 264     |
| Cut or stab . . . . .      | 184     | 207   | 129     |
| Poison . . . . .           | 99      | 79    | 145     |
| Gunsbot . . . . .          | 48      | 67    | 2       |
| Jump from height . . . . . | 25      | 21    | 36      |
| Railway train . . . . .    | 19      | 24    | 8       |
| Otherwise . . . . .        | 75      | 33    | 176     |
| All methods . . . . .      | 1,000   | 1,000 | 1,000   |

The ratio of methods, however, varies with age, as shown thus:—

|                    | Males |       | Females |       |
|--------------------|-------|-------|---------|-------|
|                    | 25-35 | 55-65 | 25-35   | 55-65 |
| Gan . . . . .      | 101   | 45    | 2       | 1     |
| Cut . . . . .      | 219   | 202   | 146     | 138   |
| Poison . . . . .   | 111   | 58    | 206     | 83    |
| Drowning . . . . . | 185   | 132   | 295     | 200   |
| Hanging . . . . .  | 282   | 500   | 184     | 305   |
| Various . . . . .  | 102   | 63    | 167     | 273   |
| Total . . . . .    | 1,000 | 1,000 | 1,000   | 1,000 |

The following table shows the suicide mortality at different ages in various occupations:—

|                        | Per Million |       |                       | Per Million |       |
|------------------------|-------------|-------|-----------------------|-------------|-------|
|                        | 25-45       | 45-65 |                       | 25-45       | 45-65 |
| Lawyer . . . . .       | 324         | 562   | Baker . . . . .       | 163         | 632   |
| Physician . . . . .    | 381         | 639   | Hairdresser . . . . . | 270         | 536   |
| Schoolmaster . . . . . | 156         | 536   | Printer . . . . .     | 156         | 458   |
| Broker . . . . .       | 271         | 485   | Tailor . . . . .      | 147         | 457   |
| Clerk . . . . .        | 249         | 475   | Shoemaker . . . . .   | 203         | 341   |
| Farmer . . . . .       | 160         | 473   | Mason . . . . .       | 90          | 330   |
| Miller . . . . .       | 68          | 555   | Carpenter . . . . .   | 122         | 381   |
| Gardener . . . . .     | 98          | 274   | Policeman . . . . .   | 82          | 421   |
| Beer-seller . . . . .  | 402         | 606   | Cabman . . . . .      | 193         | 506   |
| Druggist . . . . .     | 380         | 563   | Soldier . . . . .     | 506         | 2,336 |
| Grocer . . . . .       | 160         | 326   | Fisherman . . . . .   | 43          | 367   |
| Butcher . . . . .      | 243         | 708   | Labourer . . . . .    | 114         | 292   |

There has been a steady decline of suicide in London compared with population, viz.:—

| Period            | Annual Average |                         |
|-------------------|----------------|-------------------------|
|                   | Number         | Per Million Inhabitants |
| 1841-50 . . . . . | 231            | 107                     |
| 1851-60 . . . . . | 257            | 100                     |
| 1861-70 . . . . . | 268            | 88                      |
| 1871-80 . . . . . | 305            | 85                      |

This is contrary to the result in nearly all other cities. In Scotland the rates per million persons at various ages are stated as follows:—

| Age             | Per Million Persons |        |                    |
|-----------------|---------------------|--------|--------------------|
|                 | Male                | Female | General Population |
| 20-30 . . . . . | 128                 | 42     | 84                 |
| 31-40 . . . . . | 128                 | 57     | 93                 |
| 41-50 . . . . . | 180                 | 52     | 115                |
| 51-60 . . . . . | 162                 | 42     | 101                |
| 61-70 . . . . . | 150                 | 36     | 93                 |
| 71-80 . . . . . | 11                  | 26     | 20                 |

Scotland is the only country in the world where the rate of suicide in urban population is less than among the rural.

#### FRANCE

From whatever cause, the increase of suicide has been terrific; the official returns show thus:—

| Year           | Number | Per Million Inhabitants |
|----------------|--------|-------------------------|
| 1830 . . . . . | 1,756  | 51                      |
| 1840 . . . . . | 2,752  | 82                      |
| 1850 . . . . . | 3,596  | 103                     |
| 1860 . . . . . | 4,050  | 112                     |
| 1870 . . . . . | 4,957  | 133                     |
| 1880 . . . . . | 6,638  | 178                     |
| 1885 . . . . . | 7,902  | 205                     |

Legoyt gives the annual average during fifty-three years as follows:—

| Period            | Number | Per Million Inhabitants |
|-------------------|--------|-------------------------|
| 1827-30 . . . . . | 1,739  | 50                      |
| 1831-40 . . . . . | 2,345  | 70                      |
| 1841-50 . . . . . | 3,200  | 90                      |
| 1851-60 . . . . . | 3,830  | 105                     |
| 1861-70 . . . . . | 4,935  | 130                     |
| 1871-79 . . . . . | 5,818  | 157                     |

He shows the difference between persons with children and those without as follows:—

|                   | Per Million   |                  |
|-------------------|---------------|------------------|
|                   | With Children | Without Children |
| Husband . . . . . | 205           | 470              |
| Widower . . . . . | 526           | 1,004            |
| Wife . . . . .    | 45            | 158              |
| Widow . . . . .   | 104           | 238              |

He classes married and single persons as follows:—

|                     | Per Million |
|---------------------|-------------|
| Married . . . . .   | 272         |
| Unmarried . . . . . | 422         |
| Widowed . . . . .   | 737         |

Guerry classifies the ratios for days of the week, 100 being the average, as follows:—

|                     |     |                    |     |
|---------------------|-----|--------------------|-----|
| Sunday . . . . .    | 96  | Thursday . . . . . | 110 |
| Monday . . . . .    | 106 | Friday . . . . .   | 96  |
| Tuesday . . . . .   | 110 | Saturday . . . . . | 78  |
| Wednesday . . . . . | 104 |                    |     |

In five years ending 1880 no fewer than 238 children under fifteen years of age committed suicide.

#### GERMANY

In Prussia the official returns show the annual suicides per million inhabitants as follows:—

|                   |    |                   |     |
|-------------------|----|-------------------|-----|
| 1816-20 . . . . . | 70 | 1841-50 . . . . . | 105 |
| 1821-30 . . . . . | 86 | 1851-60 . . . . . | 126 |
| 1831-40 . . . . . | 99 | 1861-75 . . . . . | 130 |

In Saxony and Frankfort the rates per million were:—

| <i>Saxony</i> |   |     | <i>Frankfort</i> |   |     |
|---------------|---|-----|------------------|---|-----|
| 1836-50       | . | 191 | 1852-59          | . | 349 |
| 1851-70       | . | 264 | 1860-69          | . | 365 |
| 1871-77       | . | 299 | 1870-77          | . | 344 |

The rates for Bavaria, Wurtemberg, and Baden were as follows:—

|                      | 1841-45 | 1871-76 |
|----------------------|---------|---------|
| Bavaria . . . . .    | 55      | 90      |
| Wurtemberg . . . . . | 107     | 162     |
| Baden . . . . .      | 68      | 156     |

In Bavaria the lowest rates were from November to January inclusive, the highest in May and June. As regards condition, the rates per million in Bavaria were:—

|                     |     |
|---------------------|-----|
| Married . . . . .   | 98  |
| Unmarried . . . . . | 115 |
| Widowed . . . . .   | 197 |

These rates apply only to adults, the rate for all ages, as shown above, having been only 90.

As regards condition in Prussia, the annual average number of suicides in three years ending 1875 was as follows:—

|                    | Men   | Women | Total |
|--------------------|-------|-------|-------|
| Divorced . . . . . | 43    | 8     | 51    |
| Single . . . . .   | 796   | 224   | 1,020 |
| Married . . . . .  | 1,130 | 215   | 1,345 |
| Widowed . . . . .  | 351   | 118   | 469   |
| Total . . . . .    | 2,320 | 565   | 2,885 |

## AUSTRIA

Official returns show that for Austria, without Hungary, the rates rose thus, per million inhabitants:—

|                   |     |
|-------------------|-----|
| 1864-72 . . . . . | 72  |
| 1873-77 . . . . . | 122 |

The rate in Hungary for 1864-65 was only 52. The records of Vienna for 1876-78 showed yearly 110 suicides of children under 14.

## ITALY

The following table is for all Italy from 1865, but previous rates are only for the kingdom of Sardinia:—

| Period            | Suicides Yearly | Per Million Inhabitants |
|-------------------|-----------------|-------------------------|
| 1824 . . . . .    | ...             | 10                      |
| 1838 . . . . .    | ...             | 15                      |
| 1865-74 . . . . . | 498             | 20                      |
| 1874-77 . . . . . | 990             | 37                      |
| 1880 . . . . .    | 1,260           | 45                      |

Those recorded in ten years ending 1874 were:—

|                 |       |
|-----------------|-------|
| Men . . . . .   | 3,955 |
| Women . . . . . | 1,028 |

Total . . . . . 4,983

Various cities and provinces had the following rates recorded at different dates, per million inhabitants:—

| Naples            |    | Milan             |     |
|-------------------|----|-------------------|-----|
| 1828 . . . . .    | 56 | 1821-25 . . . . . | 52  |
| 1835 . . . . .    | 88 | 1831-35 . . . . . | 58  |
| 1875 . . . . .    | 60 | 1876 . . . . .    | 133 |
| Lombardy          |    | Turin             |     |
| 1817-27 . . . . . | 20 | 1825-39 . . . . . | 60  |
| 1865 . . . . .    | 50 | 1855-59 . . . . . | 90  |
| 1874 . . . . .    | 44 | 1860-64 . . . . . | 110 |

The rate of suicide per million inhabitants was five times higher in Piedmont and Lombardy than in Naples and Sicily, the ratio of persons able to read and write being twice as high in the former as in the latter provinces, from which Italian writers deduce (and Dr. Ogle favours the theory) that education is a predisposing cause. Perhaps climate or race has some effect, the northern Italians being a very different race from the southern.

The rates as to condition for all Italy in the years 1866-70 were as follows, per million:—

|                     | Men |                    |      |
|---------------------|-----|--------------------|------|
| Married . . . . .   | 41  | Firearms . . . . . | 24.5 |
| Unmarried . . . . . | 44  | Drowning . . . . . | 19.0 |
| Widowed . . . . .   | 15  | Various . . . . .  | 56.5 |

Suicide was nearly three times more numerous in May than in October, as 280 to 100.

The occupations of those who committed suicide in 1874-75 were:—

|                       | Number | Yearly | Ratio |
|-----------------------|--------|--------|-------|
| Farmers . . . . .     | 252    |        | 26.0  |
| Operatives . . . . .  | 206    |        | 21.2  |
| Proprietors . . . . . | 83     |        | 8.6   |
| Merchants . . . . .   | 55     |        | 5.7   |
| Soldiers . . . . .    | 60     |        | 6.3   |
| Various . . . . .     | 311    |        | 32.2  |
| Total . . . . .       | 967    |        | 100.0 |

## SWEDEN

Official records are quoted by Morselli, which may be condensed as follows; this table shows the rate of suicide yearly per million inhabitants:—

| Sweden              |      | Stockholm         |      |
|---------------------|------|-------------------|------|
| Period              | Rate | Period            | Rate |
| 1749-80 . . . . .   | 12   | 1831-40 . . . . . | 149  |
| 1781-1830 . . . . . | 39   | 1841-50 . . . . . | 177  |
| 1831-50 . . . . .   | 66   | 1851-60 . . . . . | 210  |
| 1851-65 . . . . .   | 72   | 1861-70 . . . . . | 363  |
| 1866-75 . . . . .   | 82   | 1871-75 . . . . . | 272  |

The rates for all Sweden in the last fifteen years of Morselli's tables showed as follows:—

|                      | 1861-70 | 1871-75 |
|----------------------|---------|---------|
| Urban . . . . .      | 205     | 167     |
| Rural . . . . .      | 63      | 68      |
| All Sweden . . . . . | 80      | 81      |

The percentages as regarded sex showed this variation:—

|                   | 1861-70 | 1871-75 |
|-------------------|---------|---------|
| Males . . . . .   | 78.1    | 76.3    |
| Females . . . . . | 21.9    | 23.7    |
| Total . . . . .   | 100.0   | 100.0   |

## NORWAY AND DENMARK

These two countries peopled by the same race present as great a contrast as England and Ireland. The rates of suicide per million inhabitants were:—

| Period            | Norway | Denmark |
|-------------------|--------|---------|
| 1831-40 . . . . . | 103    | 213     |
| 1841-50 . . . . . | 108    | 245     |
| 1851-60 . . . . . | 100    | 274     |
| 1861-70 . . . . . | 81     | 282     |
| 1871-75 . . . . . | 73     | 258     |

In Norway a law was passed in 1850 restricting the sale of liquor, which is supposed to have had some effect in diminishing suicide.

## SWITZERLAND

Official returns for six years ending 1881 show the rates of suicide yearly per million inhabitants thus:—

| Cantons              | Catholics | Protestants | General Population |
|----------------------|-----------|-------------|--------------------|
| Catholics . . . . .  | 20        | 205         | 81                 |
| Protestant . . . . . | 127       | 602         | 262                |
| Mixed . . . . .      | 116       | 360         | 280                |

It would appear that in Catholic cantons the Protestants are much less prone to suicide than where their own religion is dominant. For like reason Catholics are much

are liable to suicide in Protestant or mixed cantons than their own.

### BELGIUM

Official returns give the annual rate per million inhabitants as follows:—

|                  |    |                   |     |
|------------------|----|-------------------|-----|
| 831-40 . . . . . | 43 | 1866-75 . . . . . | 67  |
| 841-50 . . . . . | 61 | 1881-85 . . . . . | 105 |
| 851-65 . . . . . | 49 | 1887 . . . . .    | 130 |

The returns for the years 1881-85 showed the ratios of 1000 suicides as follows:—

| Method             | Men | Women | Total |
|--------------------|-----|-------|-------|
| Hanging . . . . .  | 425 | 53    | 478   |
| Drowning . . . . . | 205 | 72    | 277   |
| Firearms . . . . . | 118 | 3     | 121   |
| Dagger . . . . .   | 32  | 3     | 35    |
| Poison . . . . .   | 8   | 13    | 21    |
| Various . . . . .  | 52  | 16    | 68    |
| Total . . . . .    | 840 | 160   | 1,000 |

The returns for 1887 show age ratios as follows:—

| Age               | Men | Women | Total |
|-------------------|-----|-------|-------|
| 0-10 . . . . .    | 19  | 5     | 24    |
| 16-25 . . . . .   | 98  | 35    | 133   |
| 25-40 . . . . .   | 197 | 38    | 235   |
| 40-50 . . . . .   | 180 | 32    | 212   |
| 50-60 . . . . .   | 179 | 24    | 203   |
| 60-70 . . . . .   | 113 | 19    | 132   |
| Over 70 . . . . . | 44  | 17    | 61    |
| Total . . . . .   | 830 | 170   | 1,000 |

### UNITED STATES

The *New York Chronicle* in 1888 published tables covering four years for the whole of the Union, but these cannot be regarded as complete. They summed up 6253 suicides, being less than 30 per million inhabitants yearly, whereas the actual rate will hardly fall short of 60. The tables meanwhile enable us to form averages as to age and other particulars:—

| Age, Years        | Annual Suicides | Ratio |
|-------------------|-----------------|-------|
| 0-15 . . . . .    | 12              | 0.8   |
| 15-20 . . . . .   | 88              | 5.7   |
| 21-30 . . . . .   | 205             | 13.3  |
| 31-40 . . . . .   | 213             | 13.9  |
| 41-50 . . . . .   | 231             | 15.1  |
| 51-60 . . . . .   | 175             | 11.5  |
| Over 60 . . . . . | 607             | 39.7  |

Total . . . . . 1,531 100.0

The condition showed the following figures:—

|                    | Men | Women | Total | Ratio |
|--------------------|-----|-------|-------|-------|
| Married . . . . .  | 513 | 150   | 663   | 53.3  |
| Single . . . . .   | 330 | 118   | 448   | 36.2  |
| Widowed . . . . .  | 72  | 32    | 104   | 8.4   |
| Divorced . . . . . | 16  | 10    | 26    | 2.1   |
| Total . . . . .    | 931 | 310   | 1,241 | 100.0 |

The principal professions of suicides were:—

|                      | Number | Ratio |
|----------------------|--------|-------|
| Farmers . . . . .    | 195    | 15.8  |
| Labourers . . . . .  | 50     | 4.0   |
| Courtesans . . . . . | 33     | 2.6   |
| Innkeepers . . . . . | 30     | 2.4   |
| Various . . . . .    | 933    | 75.2  |
| Total . . . . .      | 1,241  | 100.0 |

Some of those in the first table were not classified as to condition or profession.

### AUSTRALIA

Coghlan's tables for thirteen years ending 1888 give the rates per million inhabitants yearly thus:—

|                           |    |                       |     |
|---------------------------|----|-----------------------|-----|
| Tasmania . . . . .        | 51 | New Zealand . . . . . | 95  |
| South Australia . . . . . | 87 | Victoria . . . . .    | 113 |
| New South Wales . . . . . | 88 | Queensland . . . . .  | 135 |

General rate for Australia was as follows:—

|                |     |
|----------------|-----|
| 1871 . . . . . | 86  |
| 1888 . . . . . | 115 |

### SULPHUR

The quantities exported from Sicily and those imported into Great Britain were as follows:—

| Year           | Export from Sicily, Tons | Import into Great Britain, Tons | Value per Ton, £ |
|----------------|--------------------------|---------------------------------|------------------|
| 1820 . . . . . | 18,500                   | 4,600                           | 10               |
| 1830 . . . . . | 38,100                   | 12,100                          | 8                |
| 1840 . . . . . | 77,800                   | 34,400                          | 5                |
| 1850 . . . . . | 85,000                   | 33,500                          | 8                |
| 1860 . . . . . | 140,000                  | 50,200                          | 9                |
| 1870 . . . . . | 173,000                  | 53,300                          | 6                |
| 1880 . . . . . | 287,000                  | 46,400                          | 5                |
| 1888 . . . . . | 324,000                  | 40,000                          | 4                |

There are 18,000 miners engaged at the sulphur deposits in Sicily.

### SURGERY

The mortality after amputation in various hospitals was stated to be in 1880 thus:—

#### Deaths per 100

|                  |      |                         |      |
|------------------|------|-------------------------|------|
| London . . . . . | 37.8 | Edinburgh . . . . .     | 43.3 |
| Paris . . . . .  | 60.0 | Glasgow . . . . .       | 36.0 |
| Zürich . . . . . | 46.0 | English rural . . . . . | 17.8 |

In such German hospitals as have adopted the Listerian method, invented by Professor Lister of Glasgow, the death-rate after amputation has fallen to 4.7. Some English hospitals showed the following:—

#### Death-Rate per Cent.

| <i>London</i>               |      | <i>Rural</i>            |      |
|-----------------------------|------|-------------------------|------|
| University . . . . .        | 25.7 | Tewkesbury . . . . .    | 3.8  |
| St. Bartholomew's . . . . . | 36.6 | St. Leonard's . . . . . | 10.0 |
| Guy's . . . . .             | 38.2 | St. Alban's . . . . .   | 14.2 |
| St. George's . . . . .      | 38.8 | Ashford . . . . .       | 20.0 |
| Whitechapel . . . . .       | 47.3 | Stockton . . . . .      | 25.0 |

#### Death-Rate per Cent.

| Amputation        | English Rural | Glasgow | Glasgow   | Guy's   | University College, London |
|-------------------|---------------|---------|-----------|---------|----------------------------|
|                   | 1859-78       | 1850-74 | 1795-1838 | 1854-61 | 1871                       |
| Arm . . . . .     | 8.1           | 34.0    | 48.0      | 20.0    | Fore-arm, 5.0              |
| Leg . . . . .     | 15.5          | 45.0    | 68.0      | 39.0    | Leg, 22.6                  |
| Thigh . . . . .   | 33.3          | 52.0    | 92.0      | 50.0    | Shoulder, 37.4             |
| General . . . . . | 17.8          | 36.0    | 51.0      | 38.2    | Hip, 40.0                  |

The following tables refer to various campaigns:—

|                                | Death-Rate per Cent. |              |
|--------------------------------|----------------------|--------------|
|                                | Arm                  | Leg or Thigh |
| Peninsula . . . . .            | 12.9                 | 20.8         |
| Waterloo . . . . .             | 11.6                 | 26.8         |
| Crimea . . . . .               | 15.5                 | 50.2         |
| United States (1863) . . . . . | 21.2                 | 64.0         |

The amputation death-rates of the Crimean and American campaigns may be compared (Erichsen) thus:—

|                    | Crimea | United States |
|--------------------|--------|---------------|
| Hand . . . . .     | ...    | 1.6           |
| Arm . . . . .      | 19.0   | 21.2          |
| Shoulder . . . . . | 35.0   | 39.2          |
| Foot . . . . .     | 16.0   | 9.2           |
| Leg . . . . .      | 37.0   | 26.0          |
| Knee . . . . .     | 57.0   | 55.0          |
| Thigh . . . . .    | 64.0   | 64.4          |
| Hip . . . . .      | 100.0  | 85.7          |

Schede compares the results of Lister's with other systems thus:—

|                    | Percentage of Deaths |            |          |
|--------------------|----------------------|------------|----------|
|                    | Old System           | Kronlein's | Lister's |
| Arm . . . . .      | 10                   | 14         | 0        |
| Leg . . . . .      | 33                   | 18         | 2        |
| Thigh . . . . .    | 41                   | 36         | 7        |
| Shoulder . . . . . | 52                   | 20         | 11       |
| General . . . . .  | 30                   | 20         | 4        |

Bugnot compares the general mortality of divers systems thus: Lister, 11; Kronlein, 17; Simpson, 33; Trelat, 46; old method, 53 per cent.

In previous records the average mortality of amputations was estimated per cent. thus: Lawrie, 37; Malgaigne, 39; Le Fort, 43; Trelat, 46; Churchill, 49. There were 790 cases at the Paris Hospital in 1841-46, of whom 320 died, say 40 per cent. *The Dict. Sci. Med.*

records 5000 amputations, of which 1900 proved fatal, say 38 per cent., the respective rates of mortality being:—

|                    |      |                 |      |
|--------------------|------|-----------------|------|
| Fore-arm . . . . . | 13.4 | Leg . . . . .   | 50.6 |
| Arm . . . . .      | 51.5 | Thigh . . . . . | 84.8 |

Hall observed in the Crimea that the mortality after wounds and amputations was much greater in summer and autumn than in winter.

In the ligation of arteries, Philippe and Inman recognise a death-rate of 33 per cent.; Norrit, 38 per cent. In cases of hernia: Textor, 43; Cooper, 47; London hospitals, 51; and Malgaigne, 60.

Sir Spencer Wells gives the age and death-rate of cases of ovariectomy thus:—

| Age                | Ratio of Cases | Deaths per 100 |
|--------------------|----------------|----------------|
| Under 30 . . . . . | 27.6           | 25             |
| 30-40 . . . . .    | 26.4           | 27             |
| 40-50 . . . . .    | 24.6           | 23             |
| Over 50 . . . . .  | 21.4           | 29             |
| Total . . . . .    | 100.0          | 26             |

The above is the result of 500 cases. He shows also that in 1000 operations for this disease the death-rate has been diminishing thus:—

|                       | Deaths |                       | Deaths |
|-----------------------|--------|-----------------------|--------|
| 1st hundred . . . . . | 34     | 6th hundred . . . . . | 28     |
| 2nd " . . . . .       | 28     | 7th " . . . . .       | 24     |
| 3rd " . . . . .       | 23     | 8th " . . . . .       | 24     |
| 4th " . . . . .       | 22     | 9th " . . . . .       | 17     |
| 5th " . . . . .       | 20     | 10th " . . . . .      | 11     |

## T.

## TALLOW

The production of tallow (including lard) averages 18 per cent. of that of meat, and is shown approximately as follows:—

|                          | Tons       |             | Consumption, Lbs. per Inhab. |
|--------------------------|------------|-------------|------------------------------|
|                          | Production | Consumption |                              |
| United Kingdom . . . . . | 200,000    | 200,000     | 18                           |
| France . . . . .         | 215,000    | 265,000     | 16                           |
| Germany . . . . .        | 250,000    | 270,000     | 12                           |
| Russia . . . . .         | 340,000    | 335,000     | 8                            |
| Austria . . . . .        | 200,000    | 190,000     | 11                           |
| Italy . . . . .          | 65,000     | 65,000      | 4                            |
| Spain . . . . .          | 95,000     | 95,000      | 22                           |
| Portugal . . . . .       | 15,000     | 15,000      | 8                            |
| Sweden . . . . .         | 25,000     | 27,000      | 12                           |
| Norway . . . . .         | 12,000     | 12,000      | 11                           |
| Denmark . . . . .        | 20,000     | 20,000      | 22                           |
| Holland . . . . .        | 20,000     | 90,000      | 48                           |
| Belgium . . . . .        | 20,000     | 25,000      | 9                            |
| Various . . . . .        | 80,000     | 80,000      | ...                          |
| Europe . . . . .         | 1,557,000  | 1,779,000   | 12                           |
| United States . . . . .  | 880,000    | 700,000     | 25                           |
| Canada . . . . .         | 40,000     | 40,000      | 18                           |
| Australia . . . . .      | 90,000     | 60,000      | 36                           |
| Argentina . . . . .      | 50,000     | 35,000      | 22                           |
| Total . . . . .          | 2,617,000  | 2,614,000   | ...                          |

The use of tallow candles has greatly declined since the introduction of gas, petroleum, and electric light, but the consumption of tallow has, nevertheless, steadily increased, as well as that of lard.

The countries with a surplus of tallow and lard exported thus:—

|                     | Tons Exported |        |        |         |         |
|---------------------|---------------|--------|--------|---------|---------|
|                     | 1880          | 1880   | 1870   | 1880    | 1888    |
| Russia . . . . .    | 66,400        | 40,300 | 21,100 | 10,400  | 3,000   |
| U. States . . . . . | 2,200         | 34,000 | 32,000 | 220,000 | 180,000 |
| Argentina . . . . . | 8,600         | 45,300 | 62,400 | 23,300  | 15,000  |
| Australia . . . . . | ...           | 6,200  | 25,300 | 32,100  | 30,500  |

The production and consumption of tallow and lard in the United Kingdom were approximately as follows:—

|                | Tons     |          |          | Consumption, Lbs. per Inhab. |
|----------------|----------|----------|----------|------------------------------|
|                | Produced | Consumed | Imported |                              |
| 1830 . . . . . | 170,000  | 226,600  | 56,600   | 21                           |
| 1840 . . . . . | 175,000  | 231,300  | 56,300   | 21                           |
| 1850 . . . . . | 180,000  | 242,200  | 62,200   | 21                           |
| 1860 . . . . . | 185,000  | 265,100  | 80,100   | 22                           |
| 1870 . . . . . | 195,000  | 283,000  | 88,000   | 21                           |
| 1880 . . . . . | 200,000  | 299,000  | 99,000   | 19                           |
| 1888 . . . . . | 200,000  | 287,000  | 87,000   | 18                           |

The production and consumption in the United States were approximately as follows:—

| Year           | Tons     |          |          | Consumption, Lbs. per Inhab. |
|----------------|----------|----------|----------|------------------------------|
|                | Produced | Consumed | Exported |                              |
| 1860 . . . . . | 530,000  | 496,000  | 34,000   | 33                           |
| 1870 . . . . . | 460,000  | 428,000  | 32,000   | 24                           |
| 1880 . . . . . | 760,000  | 540,000  | 220,000  | 24                           |
| 1888 . . . . . | 880,000  | 700,000  | 180,000  | 25                           |



## TAXES

Omitting public services, such as the post-office and revenues from crown lands and forests, the amount levied by taxation yearly (1888-90) was about as follows:—\*

|            | Amount, £   |             |             | Shillings per Inhab. | Percentage of Earnings |
|------------|-------------|-------------|-------------|----------------------|------------------------|
|            | National    | Local       | Total       |                      |                        |
| U. Kingdom | 73,440,000  | 45,780,000  | 119,220,000 | 63                   | 9.3                    |
| France     | 102,000,000 | 40,800,000  | 142,800,000 | 74                   | 13.6                   |
| Germany    | 64,900,000  | 44,000,000  | 108,900,000 | 45                   | 10.4                   |
| Russia     | 61,200,000  | 11,200,000  | 72,400,000  | 16                   | 7.4                    |
| Austria    | 50,100,000  | 5,300,000   | 55,400,000  | 28                   | 9.5                    |
| Italy      | 53,800,000  | 27,200,000  | 81,000,000  | 54                   | 22.0                   |
| Spain      | 31,900,000  | 5,000,000   | 36,900,000  | 41                   | 12.3                   |
| Portugal   | 6,600,000   | 1,000,000   | 7,600,000   | 33                   | 14.0                   |
| Sweden     | 3,670,000   | 3,300,000   | 6,970,000   | 28                   | 6.7                    |
| Norway     | 1,480,000   | 950,000     | 2,430,000   | 24                   | 6.0                    |
| Denmark    | 2,530,000   | 1,000,000   | 3,530,000   | 35                   | 5.5                    |
| Holland    | 8,300,000   | 6,300,000   | 14,600,000  | 64                   | 15.1                   |
| Belgium    | 6,800,000   | 3,900,000   | 10,700,000  | 36                   | 6.0                    |
| Greece     | 2,400,000   | ...         | 2,400,000   | 24                   | ...                    |
| Roumania   | 4,200,000   | ...         | 4,200,000   | 17                   | ...                    |
| Servia     | 1,400,000   | ...         | 1,400,000   | 14                   | ...                    |
| Europe     | 474,720,000 | 195,730,000 | 670,450,000 | 44                   | 11.0                   |

\* The taxes of Prussia, Bavaria, &c., are included as national in Germany, but those of the States of New York, Pennsylvania, &c., are included among local in the United States. Local taxes of Canada and some other countries are in blank, because they cannot be ascertained.

The following table, by Professor Bochk in 1885, shows the sums levied on the principal articles of consumption:—

|             | Amount, £  |             |            |            |             | Pence per Inhabitant |             |       |         |       |
|-------------|------------|-------------|------------|------------|-------------|----------------------|-------------|-------|---------|-------|
|             | Liquor     | Coffee, &c. | Sugar      | Tobacco    | Total       | Liquor               | Coffee, &c. | Sugar | Tobacco | Total |
| U. Kingdom  | 19,000,000 | 4,400,000   | ...        | 8,600,000  | 32,000,000  | 130                  | 30          | ...   | 60      | 220   |
| France      | 10,300,000 | 4,600,000   | 6,200,000  | 11,800,000 | 32,900,000  | 65                   | 30          | 40    | 75      | 210   |
| Germany     | 2,600,000  | 2,300,000   | 2,300,000  | 1,400,000  | 8,600,000   | 14                   | 12          | 12    | 7       | 45    |
| Russia      | 22,800,000 | 1,800,000   | 1,800,000  | 1,600,000  | 27,400,000  | 10                   | 9           | 7     | 50      | 76    |
| Austria     | 1,600,000  | 1,400,000   | 1,100,000  | 8,200,000  | 12,300,000  | 65                   | 5           | 3     | 5       | 78    |
| Italy       | 800,000    | 900,000     | 2,300,000  | 4,000,000  | 8,000,000   | 40                   | 10          | 24    | 7       | 81    |
| Spain       | 300,000    | 300,000     | 200,000    | 3,200,000  | 4,000,000   | 27                   | 20          | 28    | 15      | 90    |
| Sweden      | 800,000    | 200,000     | 500,000    | 100,000    | 1,600,000   | 112                  | 2           | ...   | 2       | 116   |
| Norway      | 200,000    | 200,000     | 200,000    | 100,000    | 700,000     | 50                   | 6           | 16    | 6       | 78    |
| Denmark     | 200,000    | 100,000     | 300,000    | ...        | 600,000     | 20                   | 10          | 35    | 5       | 70    |
| Holland     | 2,100,000  | ...         | 600,000    | ...        | 2,700,000   | 26                   | ...         | 8     | ...     | 34    |
| Belgium     | 1,100,000  | 100,000     | 400,000    | 100,000    | 1,700,000   | 6                    | 7           | 20    | 34      | 67    |
| Switzerland | 300,000    | ...         | 100,000    | ...        | 400,000     | 4                    | 5           | 3     | 48      | 60    |
| Europe      | 62,100,000 | 16,300,000  | 15,400,000 | 39,100,000 | 132,900,000 | 48                   | 12          | 11    | 31      | 104   |

In some countries the salt-tax is not distinguished, and hence the blanks under that column in the following table, which shows as nearly as possible, by latest accounts, the sums paid as taxes on articles of consumption:—

|                | Sugar, £   | Liquor, £   | Salt, £    | Tobacco, £ | Sundries, £ | Total, £    | Shillings per Inhab. |
|----------------|------------|-------------|------------|------------|-------------|-------------|----------------------|
| United Kingdom | ...        | 27,200,000  | ...        | 8,900,000  | 4,800,000   | 40,900,000  | 21                   |
| France         | 7,100,000  | 17,000,000  | 1,300,000  | 14,900,000 | 4,600,000   | 44,900,000  | 23                   |
| Germany        | 2,600,000  | 13,700,000  | 2,000,000  | 1,500,000  | 2,300,000   | 22,100,000  | 9                    |
| Russia         | 1,700,000  | 25,700,000  | 1,300,000  | 2,600,000  | 1,800,000   | 33,100,000  | 7                    |
| Austria        | 2,800,000  | 4,900,000   | 2,900,000  | 10,200,000 | 1,400,000   | 22,200,000  | 11                   |
| Italy          | 2,300,000  | 800,000     | 2,500,000  | 7,600,000  | 1,000,000   | 14,200,000  | 9                    |
| Spain          | 200,000    | 300,000     | ...        | 6,400,000  | 300,000     | 7,200,000   | 8                    |
| Portugal       | ...        | 200,000     | ...        | 900,000    | 100,000     | 1,200,000   | 5                    |
| Sweden         | 500,000    | 800,000     | ...        | 100,000    | 200,000     | 1,600,000   | 7                    |
| Norway         | 200,000    | 300,000     | ...        | 100,000    | 200,000     | 800,000     | 8                    |
| Denmark        | 300,000    | 200,000     | ...        | ...        | 100,000     | 600,000     | 6                    |
| Holland        | 600,000    | 2,100,000   | 300,000    | ...        | 600,000     | 3,600,000   | 16                   |
| Belgium        | 200,000    | 1,400,000   | ...        | 100,000    | 100,000     | 1,800,000   | 6                    |
| Europe         | 18,500,000 | 94,600,000  | 10,300,000 | 53,300,000 | 17,500,000  | 194,200,000 | 13                   |
| United States  | 11,700,000 | 22,200,000  | 100,000    | 8,900,000  | 1,400,000   | 44,300,000  | 14                   |
| Total          | 30,200,000 | 116,800,000 | 10,400,000 | 62,200,000 | 18,900,000  | 238,500,000 | 13                   |

## Amount, £

|           | Amount, £   |             |             | Shillings per Inhab. | Percentage of Earnings |
|-----------|-------------|-------------|-------------|----------------------|------------------------|
|           | National    | Local       | Total       |                      |                        |
| U. States | 73,800,000  | 52,200,000  | 126,000,000 | 40                   | 5.4                    |
| Australia | 10,700,000  | ...         | 10,700,000  | 60                   | 7.2                    |
| Canada    | 6,000,000   | ...         | 6,000,000   | 24                   | 4.6                    |
| Argentina | 9,700,000   | ...         | 9,700,000   | 54                   | 11.2                   |
| India     | 47,500,000  | ...         | 47,500,000  | 5                    | ...                    |
| Total     | 622,420,000 | 247,930,000 | 870,350,000 | ...                  | ...                    |

Block's estimate of the percentage of direct taxes in the total amount raised by taxation in the several countries in 1872 compares with the percentage in 1889 as follows:—

## Percentage of Direct Taxation

|            | 1872 | 1889 |             | 1872 | 1889 |
|------------|------|------|-------------|------|------|
| U. Kingdom | 15   | 21   | Sweden      | 24   | 17   |
| France     | 25   | 18   | Norway      | 0    | 0    |
| Germany    | 34   | 19   | Denmark     | 28   | 20   |
| Russia     | 20   | 13   | Holland     | 33   | 27   |
| Austria    | 46   | 24   | Belgium     | 31   | 31   |
| Italy      | 51   | 30   | Switzerland | 34   | 0    |
| Spain      | 44   | 39   | Greece      | 48   | 37   |
| Portugal   | 30   | 15   | U. States   | 0    | 0    |

Except in the countries of the United Kingdom and Belgium, the ratio of direct taxation has declined very notably.

A simple classification of the national taxes in various countries is as follows; customs, excise, stamps and death duties, property and income, viz. :—

|                          | £ Sterling  |             |             |             |            |             |
|--------------------------|-------------|-------------|-------------|-------------|------------|-------------|
|                          | Customs     | Excise      | Stamps, &c. | Property    | Sundries   | Total       |
| United Kingdom . . . . . | 20,000,000  | 25,500,000  | 12,700,000  | 15,300,000  | ...        | 73,500,000  |
| France . . . . .         | 15,000,000  | 39,000,000  | 26,000,000  | 14,300,000  | 7,700,000  | 102,000,000 |
| Germany . . . . .        | 13,500,000  | 22,100,000  | 9,000,000   | 12,500,000  | 7,800,000  | 64,900,000  |
| Russia . . . . .         | 12,100,000  | 30,000,000  | 3,300,000   | 8,200,000   | 7,600,000  | 61,200,000  |
| Austria . . . . .        | 3,900,000   | 22,200,000  | 6,600,000   | 11,700,000  | 5,700,000  | 50,100,000  |
| Italy . . . . .          | 10,600,000  | 13,400,000  | 7,900,000   | 16,200,000  | 5,700,000  | 53,800,000  |
| Spain . . . . .          | 6,900,000   | 7,200,000   | 3,600,000   | 6,600,000   | 7,600,000  | 31,900,000  |
| Portugal . . . . .       | 3,100,000   | 1,300,000   | 1,000,000   | 1,000,000   | 200,000    | 6,600,000   |
| Sweden . . . . .         | 2,100,000   | 800,000     | 200,000     | 600,000     | ...        | 3,700,000   |
| Norway . . . . .         | 1,100,000   | 300,000     | 100,000     | ...         | ...        | 1,500,000   |
| Denmark . . . . .        | 1,400,000   | ...         | 300,000     | 500,000     | 300,000    | 2,500,000   |
| Holland . . . . .        | 400,000     | 3,600,000   | 1,800,000   | 1,900,000   | 600,000    | 8,300,000   |
| Belgium . . . . .        | 1,100,000   | 1,400,000   | 2,000,000   | 1,800,000   | 500,000    | 6,800,000   |
| Europe . . . . .         | 91,200,000  | 166,800,000 | 74,500,000  | 90,600,000  | 43,700,000 | 466,800,000 |
| United States . . . . .  | 46,600,000  | 27,200,000  | ...         | ...         | ...        | 73,800,000  |
| Canada . . . . .         | 4,500,000   | 1,300,000   | ...         | ...         | ...        | 5,800,000   |
| Australia . . . . .      | 8,200,000   | 2,500,000   | ...         | ...         | ...        | 10,700,000  |
| India . . . . .          | 1,200,000   | 17,500,000  | 3,300,000   | 19,500,000  | 6,000,000  | 47,500,000  |
| Egypt . . . . .          | 1,100,000   | 600,000     | ...         | 5,200,000   | 600,000    | 7,500,000   |
| Total . . . . .          | 152,800,000 | 215,900,000 | 77,800,000  | 115,300,000 | 50,300,000 | 612,100,000 |

Few articles of consumption are more generally or more heavily taxed than coffee. In 1889 the import duty on this article in various countries was as follows :—

|                          | Duty per Ton |                           |
|--------------------------|--------------|---------------------------|
|                          | £            | £                         |
| United Kingdom . . . . . | 14           | Sweden . . . . . 20       |
| France . . . . .         | 62           | Norway . . . . . 22       |
| Germany . . . . .        | 20           | Denmark . . . . . 9       |
| Russia . . . . .         | 15           | Belgium . . . . . 4       |
| Austria . . . . .        | 40           | Switzerland . . . . . 2   |
| Italy . . . . .          | 56           | Greece . . . . . 19       |
| Spain . . . . .          | 20           | Roumania . . . . . 8      |
| Portugal . . . . .       | 25           | United States . . . . . 0 |

Holland is the only country of Europe which admits coffee free of duty.

British cotton manufactures are heavily taxed in many countries, the rates "ad valorem" according to tariffs in 1884 showing in the various countries thus :—

|                     | Per Cent. |                       | Per Cent. |                        | Per Cent. |
|---------------------|-----------|-----------------------|-----------|------------------------|-----------|
| Argentina . . . . . | 30        | China . . . . .       | 5         | S. Australia . . . . . | 10        |
| Austria . . . . .   | 18        | Greece . . . . .      | 15        | Tasmania . . . . .     | 10        |
| Belgium . . . . .   | 15        | Guiana . . . . .      | 5         | Turkey . . . . .       | 7         |
| Brazil . . . . .    | 30        | Holland . . . . .     | 15        | Uruguay . . . . .      | 12        |
| Canada . . . . .    | 20        | India . . . . .       | 5         | Victoria . . . . .     | 25        |
| Cape . . . . .      | 10        | New Zealand . . . . . | 15        | West Indies . . . . .  | 12        |
| Chili . . . . .     | 25        | Queensland . . . . .  | 5         |                        |           |

While the ratio of import dues is being reduced by Great Britain, it has increased in the rest of the world by more than one-fourth in the last ten years.

The customs dues of various nations compare with the value of merchandise imported (such dues being, as a rule, levied on imports, and not on exports) as follows :—

|                          | Customs Dues, £ |             | Imports, £    |               | Duty, Percentage |      |
|--------------------------|-----------------|-------------|---------------|---------------|------------------|------|
|                          | Average 1871-80 | 1889        | 1871-80       | 1889          | 1871-80          | 1889 |
| United Kingdom . . . . . | 20,100,000      | 20,000,000  | 371,400,000   | 427,000,000   | 5.4              | 4.7  |
| France . . . . .         | 10,300,000      | 15,000,000  | 157,000,000   | 167,000,000   | 6.6              | 9.0  |
| Germany . . . . .        | 8,600,000       | 13,500,000  | 174,000,000   | 204,000,000   | 5.0              | 6.7  |
| Russia . . . . .         | 10,500,000      | 12,100,000  | 49,000,000    | 39,000,000    | 21.4             | 31.0 |
| Austria . . . . .        | 2,600,000       | 3,900,000   | 57,000,000    | 48,000,000    | 4.5              | 8.1  |
| Italy . . . . .          | 5,100,000       | 10,600,000  | 47,200,000    | 56,000,000    | 10.9             | 18.8 |
| Spain . . . . .          | 4,400,000       | 6,900,000   | 18,300,000    | 29,000,000    | 24.0             | 23.8 |
| Portugal . . . . .       | 1,800,000       | 3,100,000   | 7,000,000     | 11,000,000    | 25.7             | 28.2 |
| Belgium . . . . .        | 800,000         | 1,100,000   | 56,200,000    | 61,000,000    | 1.4              | 1.8  |
| Holland . . . . .        | 400,000         | 400,000     | 63,000,000    | 106,000,000   | 0.6              | 0.4  |
| Denmark . . . . .        | 900,000         | 1,400,000   | 13,000,000    | 15,000,000    | 7.0              | 9.3  |
| Sweden . . . . .         | 1,600,000       | 2,100,000   | 14,000,000    | 16,000,000    | 11.5             | 13.2 |
| Norway . . . . .         | 800,000         | 1,100,000   | 7,800,000     | 9,000,000     | 10.3             | 12.2 |
| Europe . . . . .         | 67,900,000      | 91,200,000  | 1,034,900,000 | 1,188,000,000 | 6.5              | 7.7  |
| United States . . . . .  | 26,050,000      | 46,600,000  | 98,800,000    | 154,000,000   | 26.3             | 30.3 |
| Canada . . . . .         | 2,700,000       | 4,500,000   | 17,900,000    | 23,000,000    | 15.0             | 19.6 |
| Australia . . . . .      | 4,300,000       | 8,200,000   | 40,200,000    | 68,000,000    | 10.7             | 12.1 |
| India . . . . .          | 2,000,000       | 1,200,000   | 36,800,000    | 54,000,000    | 5.5              | 2.2  |
| Egypt . . . . .          | 800,000         | 1,100,000   | 5,200,000     | 7,000,000     | 15.4             | 15.7 |
| Total . . . . .          | 103,750,000     | 152,800,000 | 1,233,800,000 | 1,494,000,000 | 8.3              | 10.2 |

## TAXES

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## TAXES

If the commerce of the United Kingdom be subtracted, the account will stand thus for the rest of the world :—

| Period         | Customs, £  | Imports, £    | Duty per Cent. |
|----------------|-------------|---------------|----------------|
| 1871-80 . . .  | 83,600,000  | 863,000,000   | 9.8            |
| 1889 . . . . . | 132,800,000 | 1,067,000,000 | 12.5           |

Property and income or personal taxes are approximately as follows :—

|               | Land-Tax    | House-Tax   | Income-Tax   | Total        |
|---------------|-------------|-------------|--------------|--------------|
| U. Kingdom    | £ 1,020,000 | £ 1,940,000 | £ 12,700,000 | £ 15,660,000 |
| France . . .  | 4,800,000   | 4,500,000   | 5,000,000    | 14,300,000   |
| Germany . .   | 4,000,000   | 2,000,000   | 6,500,000    | 12,500,000   |
| Russia . . .  | 4,000,000   | ...         | 9,200,000    | 13,200,000   |
| Austria . .   | 5,000,000   | 3,000,000   | 3,400,000    | 11,400,000   |
| Italy . . . . | 4,300,000   | 2,700,000   | 9,200,000    | 16,200,000   |
| Spain . . . . | 6,600,000   | ...         | ...          | 6,600,000    |
| Portugal . .  | 700,000     | 100,000     | 200,000      | 1,000,000    |
| Sweden . . .  | 400,000     | ...         | 200,000      | 600,000      |
| Denmark . .   | 400,000     | 100,000     | ...          | 500,000      |
| Holland . .   | 1,000,000   | ...         | 900,000      | 1,900,000    |
| Belgium . .   | 1,000,000   | ...         | 800,000      | 1,800,000    |
| Europe . . .  | 33,220,000  | 14,340,000  | 48,100,000   | 95,660,000   |

The income-tax collected in the United Kingdom includes £1,200,000 from land and £2,500,000 from

house property, for which reason the above items ought more correctly to read thus :—

|                      |             |
|----------------------|-------------|
| Land-tax . . . . .   | £ 2,220,000 |
| House-tax . . . . .  | 4,440,000   |
| Income-tax . . . . . | 9,000,000   |
| Total . . . . .      | 15,660,000  |

Taxes on land in various countries are described at length under *Land-taxes*.

## UNITED KINGDOM

The *Financial Reform Almanac* sums up from parliamentary blue-books the taxation and expenditure of the United Kingdom in eighty-nine years as follows :—

| Period  | Millions £ Sterling |        |          |       |             |       |      |          |
|---------|---------------------|--------|----------|-------|-------------|-------|------|----------|
|         | Revenue             |        |          |       | Expenditure |       |      |          |
|         | Customs             | Excise | Sundries | Total | Debt        | Army  | Navy | Sundries |
| 1801-10 | 123                 | 215    | 206      | 544   | 216         | 230   | 148  | 72       |
| 1811-20 | 150                 | 272    | 252      | 674   | 292         | 290   | 152  | 91       |
| 1821-30 | 175                 | 252    | 172      | 599   | 297         | 96    | 60   | 101      |
| 1831-40 | 204                 | 163    | 146      | 513   | 290         | 83    | 48   | 103      |
| 1841-50 | 227                 | 145    | 186      | 558   | 291         | 93    | 69   | 100      |
| 1851-60 | 237                 | 181    | 244      | 662   | 290         | 151   | 107  | 124      |
| 1861-70 | 237                 | 204    | 289      | 730   | 264         | 162   | 112  | 157      |
| 1871-80 | 217                 | 271    | 313      | 801   | 276         | 176   | 106  | 212      |
| 1881-89 | 178                 | 215    | 408      | 801   | 260         | 167   | 109  | 254      |
| 89 yrs. | 1,748               | 1,918  | 2,216    | 5,882 | 2,476       | 1,448 | 911  | 1,214    |

The above table, however, includes not only taxes, but likewise public services, such as the Post-Office. The principal items of taxation have been in recent years as follows :—

|                     | 1853         | 1860         | 1870         | 1880         | 1889         |
|---------------------|--------------|--------------|--------------|--------------|--------------|
| Customs . . . . .   | £ 22,140,000 | £ 24,390,000 | £ 21,500,000 | £ 19,170,000 | £ 19,970,000 |
| Excise . . . . .    | 15,790,000   | 20,240,000   | 21,880,000   | 25,220,000   | 25,470,000   |
| Income-tax . . . .  | 5,510,000    | 9,600,000    | 10,040,000   | 9,230,000    | 12,700,000   |
| Stamps . . . . .    | 6,920,000    | 8,040,000    | 9,290,000    | 11,310,000   | 12,340,000   |
| Land-tax, &c. . . . | 3,380,000    | 3,230,000    | 4,500,000    | 2,670,000    | 2,960,000    |
| Total . . . . .     | 53,740,000   | 65,500,000   | 67,210,000   | 67,600,000   | 73,440,000   |

The following is a synopsis of the import tariff at four dates of distinct fiscal policy :—

|                    | Duties Expressed in Shillings |      |      |      |
|--------------------|-------------------------------|------|------|------|
|                    | 1787                          | 1819 | 1834 | 1890 |
| Bacon, cwt. . . .  | 47                            | 56   | 28   | ...  |
| Books, " . . . .   | 20                            | 100  | 100  | ...  |
| Butter, " . . . .  | 24                            | 20   | 20   | ...  |
| Cheese, " . . . .  | 14                            | 10   | 10   | ...  |
| Cocoa, " . . . .   | 240                           | 280  | 19   | 2    |
| Coffee, " . . . .  | 224                           | 280  | 140  | 14   |
| Cotton, " . . . .  | 9                             | 9    | 3    | ...  |
| Eggs, " . . . . .  | 3                             | 6    | 6    | ...  |
| Paper, " . . . . . | 7                             | 94   | 28   | ...  |
| Potatoes, " . . .  | 4                             | 2    | 2    | ...  |
| Rice, " . . . . .  | 7                             | 15   | 15   | ...  |
| Soup, " . . . . .  | 44                            | 90   | 90   | ...  |
| Spirits, gallon .  | 6                             | 22   | 22   | 10   |
| Sugar, cwt. . . .  | 27                            | 63   | 63   | ...  |
| Tallow, " . . . .  | ...                           | 3    | 1    | ...  |
| Tea, " . . . . .   | 45                            | 224  | 240  | 37   |
| Tobacco, " . . .   | 392                           | 448  | 784  | 356  |
| Wine, gallon . .   | 5                             | 14   | 54   | 1    |
| Wool, cwt. . . .   | 0                             | 56   | 9    | ...  |

Blanks in the above table signify duty-free. Grain was subject to import dues on a sliding scale, according to market prices in Great Britain, down to 1846.

*Customs dues* are levied on fewer articles than formerly, the ratio of import duties to the value of all imported merchandise showing as follows :—

| Year           | Per Cent. | Year           | Per Cent. | Year           | Per Cent. |
|----------------|-----------|----------------|-----------|----------------|-----------|
| 1580 . . . . . | 1         | 1720 . . . . . | 21        | 1844 . . . . . | 40        |
| 1614 . . . . . | 8         | 1800 . . . . . | 20        | 1866 . . . . . | 10        |
| 1684 . . . . . | 13        | 1827 . . . . . | 46        | 1889 . . . . . | 5         |

The amount of customs dues per inhabitant at various dates was as follows :—

| Year           | Customs, £ | Shillings per Inhabitant |
|----------------|------------|--------------------------|
| 1684 . . . . . | 530,000    | 2.0                      |
| 1720 . . . . . | 1,555,000  | 5.1                      |
| 1800 . . . . . | 6,788,000  | 13.0                     |
| 1844 . . . . . | 24,277,000 | 18.0                     |
| 1889 . . . . . | 19,970,000 | 10.5                     |

The amount per head is greater than in European countries (except Portugal, Denmark, and Norway), but less than in the United States, Canada, or Australia.

The principal items paying duty in recent years were :—

|                    | 1853       | 1860       | 1870       | 1880       | 1889       |
|--------------------|------------|------------|------------|------------|------------|
|                    | £          | £          | £          | £          | £          |
| Sugar . . . . .    | 4,050,000  | 6,010,000  | 5,400,000  | ...        | ...        |
| Tea . . . . .      | 5,980,000  | 5,400,000  | 2,640,000  | 3,700,000  | 4,630,000  |
| Coffee . . . . .   | 440,000    | 440,000    | 350,000    | 210,000    | 180,000    |
| Spirits . . . . .  | 2,580,000  | 2,520,000  | 4,190,000  | 4,680,000  | 4,300,000  |
| Wine . . . . .     | 1,790,000  | 1,630,000  | 1,480,000  | 1,390,000  | 1,210,000  |
| Tobacco . . . . .  | 4,540,000  | 5,600,000  | 6,610,000  | 8,560,000  | 8,860,000  |
| Grain . . . . .    | 400,000    | 500,000    | 100,000    | ...        | ...        |
| Sundries . . . . . | 2,360,000  | 2,290,000  | 730,000    | 630,000    | 790,000    |
| Total . . . . .    | 22,140,000 | 24,390,000 | 21,500,000 | 19,170,000 | 19,970,000 |

*Excise* is the tax which produces the largest sum to the exchequer. The articles on which this tax is levied were as follows :—

|                    | 1853       | 1860       | 1870       | 1880       | 1889       |
|--------------------|------------|------------|------------|------------|------------|
|                    | £          | £          | £          | £          | £          |
| Spirits . . . . .  | 6,230,000  | 9,760,000  | 10,970,000 | 13,630,000 | 12,880,000 |
| Malt . . . . .     | 5,320,000  | 6,650,000  | 6,480,000  | 6,730,000  | 8,770,000  |
| Licenses . . . . . | 1,180,000  | 1,460,000  | 3,700,000  | 3,500,000  | 3,510,000  |
| Sundries . . . . . | 3,060,000  | 2,350,000  | 730,000    | 1,360,000  | 310,000    |
| Total . . . . .    | 15,790,000 | 20,240,000 | 21,880,000 | 25,220,000 | 25,470,000 |

If we sum up all the liquor-duties we find as follows :—

|                            | 1853       | 1860       | 1870       | 1880       | 1889       |
|----------------------------|------------|------------|------------|------------|------------|
|                            | £          | £          | £          | £          | £          |
| British spirits . . . . .  | 6,230,000  | 9,760,000  | 10,970,000 | 13,630,000 | 12,880,000 |
| Imported spirits . . . . . | 2,580,000  | 2,520,000  | 4,190,000  | 4,680,000  | 4,300,000  |
| Wines . . . . .            | 1,790,000  | 1,630,000  | 1,480,000  | 1,390,000  | 1,210,000  |
| Malt . . . . .             | 5,320,000  | 6,650,000  | 6,480,000  | 6,730,000  | 8,770,000  |
| Total . . . . .            | 15,920,000 | 20,580,000 | 23,120,000 | 26,430,000 | 27,160,000 |

Since 1881 the malt-tax is termed beer-tax.

The receipts from the excise at various dates have been :—

| Year           | Amount, £  | Year           | Amount, £  |
|----------------|------------|----------------|------------|
| 1744 . . . . . | 3,750,000  | 1830 . . . . . | 18,640,000 |
| 1786 . . . . . | 5,540,000  | 1850 . . . . . | 15,280,000 |
| 1808 . . . . . | 19,870,000 | 1889 . . . . . | 25,470,000 |

*Stamp-duties* were invented by Charles II. ; the revenue derived from them showed as follows :—

| Year           | Amount, £ | Year           | Amount, £  |
|----------------|-----------|----------------|------------|
| 1800 . . . . . | 3,130,000 | 1850 . . . . . | 6,560,000  |
| 1820 . . . . . | 6,560,000 | 1870 . . . . . | 9,390,000  |
| 1840 . . . . . | 6,730,000 | 1889 . . . . . | 12,340,000 |

Stamp-duties show as follows since 1853 :—

|                     | 1853      | 1860      | 1870      | 1880       | 1889       |
|---------------------|-----------|-----------|-----------|------------|------------|
|                     | £         | £         | £         | £          | £          |
| Legacies . . . . .  | 2,420,000 | 3,340,000 | 4,720,000 | 6,230,000  | 6,560,000  |
| Insurance . . . . . | 1,350,000 | 1,760,000 | 520,000   | 120,000    | 170,000    |
| Deeds . . . . .     | 1,380,000 | 1,380,000 | 1,690,000 | 2,080,000  | 3,150,000  |
| Bills . . . . .     | 610,000   | 580,000   | 850,000   | 840,000    | 820,000    |
| Receipts . . . . .  | 180,000   | 390,000   | 580,000   | 810,000    | 1,040,000  |
| Sundries . . . . .  | 980,000   | 590,000   | 930,000   | 1,230,000  | 600,000    |
| Total . . . . .     | 6,920,000 | 8,040,000 | 9,290,000 | 11,310,000 | 12,340,000 |

Among the minor taxes included above under excise or stamp-duties, the product of some in 1889 was as follows :—

|                     | Number  | Amount, £ |                  | Amount, £ |
|---------------------|---------|-----------|------------------|-----------|
| Dogs . . . . .      | 980,000 | 370,000   | Medicines        | 200,000   |
| Guns . . . . .      | 170,000 | 85,000    | Plate . . . . .  | 78,000    |
| Game . . . . .      | 62,000  | 160,000   | Railways         | 310,000   |
| Servants . . . . .  | 184,000 | 138,000   | Crests . . . . . | 75,000    |
| Carriages . . . . . | 492,000 | 500,000   | Cards . . . . .  | 17,000    |

*Income-tax*.—This was introduced by Pitt as a war-tax in 1798. The rate and product at various dates have been :—

| Year           | Pence per £ | Product, £ | Per Penny, £ |
|----------------|-------------|------------|--------------|
| 1803 . . . . . | 12          | 4,700,000  | 400,000      |
| 1808 . . . . . | 24          | 16,500,000 | 700,000      |
| 1844 . . . . . | 7           | 5,190,000  | 740,000      |
| 1856 . . . . . | 16          | 15,070,000 | 960,000      |
| 1875 . . . . . | 2           | 4,310,000  | 2,150,000    |
| 1889 . . . . . | 6           | 12,700,000 | 2,100,000    |

The tax was repealed in 1816, revived in 1842, extended to Ireland in 1853. The principal features since 1842 were :—

| Years    | Average Rate (Pence) | Annual Product | Product per Penny | Product per Inhab. |
|----------|----------------------|----------------|-------------------|--------------------|
| 1842-51  | 7.0                  | 5,467,000      | 782,000           | 65                 |
| 1852-61  | 9.8                  | 10,224,000     | 1,041,000         | 89                 |
| 1862-71  | 5.5                  | 7,764,000      | 1,408,000         | 62                 |
| 1872-81  | 3.8                  | 7,062,000      | 1,868,000         | 52                 |
| 40 years | 6.0                  | 7,625,000      | 1,275,000         | 66                 |
| 1882-89  | 6.5                  | 12,800,000     | 1,970,000         | 84                 |
| 1889     | 6.0                  | 12,700,000     | 2,100,000         | 80                 |

The proportions of this tax collected in each of the three kingdoms were as follows :—

|                   | 1860  | 1870  | 1880  | 1888  |
|-------------------|-------|-------|-------|-------|
| England . . . .   | 84.0  | 85.2  | 84.2  | 85.4  |
| Scotland . . . .  | 9.0   | 9.0   | 9.6   | 9.0   |
| Ireland . . . . . | 7.0   | 5.8   | 6.2   | 5.6   |
| United Kingdom .  | 100.0 | 100.0 | 100.0 | 100.0 |

The various kinds of property or income which produced it were in the following ratio :—

|                    | 1860  | 1870  | 1880  | 1888  |
|--------------------|-------|-------|-------|-------|
| Houses . . . . .   | 18.3  | 17.3  | 20.0  | 21.2  |
| Lands . . . . .    | 17.4  | 14.6  | 12.1  | 9.6   |
| Professions, &c. . | 64.3  | 68.1  | 67.9  | 69.2  |
| Total . . . . .    | 100.0 | 100.0 | 100.0 | 100.0 |

*Conscience-money.*—Between the years 1870 and 1880, the average sum received yearly by the Chancellor of the Exchequer for unpaid taxes was £9100, in most cases for evasion of the income-tax.

*Land-tax.*—This tax is said to have produced £80,000 a year in the time of Edward the Confessor, which would be equivalent in weight of silver to £250,000 of present money, and in purchasing value to one million sterling. Under William III. in 1692 it produced £500,000, which was supposed to be equal to 20 per cent. or 4s. in the pound of the rental value. Pitt also fixed it at 4s. The following table shows the sum it has actually produced at various dates in this century, and what it ought to have produced at 4s. in the pound of assessed rental :—

|                | Product, £ | Rental, £  | Tax at 4s. |
|----------------|------------|------------|------------|
| 1810 . . . . . | 1,420,000  | 41,910,000 | 8,400,000  |
| 1840 . . . . . | 1,300,000  | 47,700,000 | 9,500,000  |
| 1850 . . . . . | 1,150,000  | 48,400,000 | 9,700,000  |
| 1876 . . . . . | 1,090,000  | 57,700,000 | 11,500,000 |
| 1880 . . . . . | 1,050,000  | 59,500,000 | 11,900,000 |
| 1889 . . . . . | 1,020,000  | 51,300,000 | 10,300,000 |

*House-tax.*—This was originally a window-tax, but converted into a house-duty in 1851. Under either form the product is shown thus :—

| Year           | Amount, £ |
|----------------|-----------|
| 1850 . . . . . | 1,749,000 |
| 1876 . . . . . | 1,410,000 |
| 1889 . . . . . | 1,940,000 |

The house-duty does not extend to Ireland. In 1887 the house-rental of Great Britain was £129,800,000, whence the actual product seems to be under 4d. in the pound, or about 1½ per cent. on the assessed rental, but

it is in reality much more, as houses under £20 are exempted. The product in 1888 was :—

|                    | Valuation, £ | Tax, £    |
|--------------------|--------------|-----------|
| Houses . . . . .   | 44,100,000   | 1,650,000 |
| Shops, &c. . . . . | 18,900,000   | 290,000   |
| Total . . . . .    | 63,000,000   | 1,940,000 |

This gives an average all round of 8d. in the pound, say 3½ per cent.

The window-tax was introduced by William III. in 1695, and increased by the Georges, but repealed in 1851. The number of windows taxed in 1801 and 1850 was as follows :—

| Year           | Houses    | Windows    | Windows per House |
|----------------|-----------|------------|-------------------|
| 1801 . . . . . | 1,781,000 | 10,300,000 | 5.8               |
| 1850 . . . . . | 3,648,000 | 21,900,000 | 6.0               |

The returns of this tax in 1850 showed as follows :—

|                   | Houses | Tax, £ | Per House         |
|-------------------|--------|--------|-------------------|
| Liverpool . . . . | 11,500 | 33,000 | £ s. d.<br>2 18 0 |
| Manchester . . .  | 7,900  | 22,000 | 2 15 0            |
| Bath . . . . .    | 3,800  | 22,000 | 5 18 0            |
| Brighton . . . .  | 3,600  | 18,000 | 5 1 0             |
| Birmingham . .    | 5,400  | 16,000 | 2 19 0            |
| Bristol . . . . . | 4,700  | 15,000 | 3 4 0             |
| Leeds . . . . .   | 2,500  | 8,100  | 3 5 0             |

It was not extended to Ireland, and the proceeds from Great Britain in 1850 were as follows :—

| Windows         | Houses   |           |               | Duty, £   |           |               |
|-----------------|----------|-----------|---------------|-----------|-----------|---------------|
|                 | Eng-land | Scot-land | Great Britain | England   | Scot-land | Great Britain |
| 8-10 . . . . .  | 156,000  | 15,000    | 171,000       | 167,000   | 15,000    | 182,000       |
| 11-20 . . . . . | 216,000  | 15,000    | 231,000       | 687,000   | 48,000    | 735,000       |
| 21-30 . . . . . | 48,000   | 4,000     | 52,000        | 366,000   | 25,000    | 391,000       |
| Over 30 . . . . | 30,000   | 1,600     | 31,600        | 404,000   | 37,000    | 441,000       |
| Total . . . . . | 450,000  | 35,600    | 485,600       | 1,624,000 | 125,000   | 1,749,000     |

The tax was graduated thus according to the number of windows :—

| Windows      | Tax     | Windows     | Tax     |
|--------------|---------|-------------|---------|
|              | £ s. d. |             | £ s. d. |
| 8 . . . . .  | 0 16 0  | 20 . . . .  | 5 12 0  |
| 10 . . . . . | 1 8 0   | 50 . . . .  | 17 5 0  |
| 15 . . . . . | 3 10 0  | 100 . . . . | 29 8 0  |

*Newspaper-duty* was invented by Queen Anne, a penny on each sheet, which George III. raised ultimately to 4d. The tax was reduced to one penny per sheet in 1836, and abolished in 1855. The circulation of newspapers was as follows at various dates :—

| Year           | Tax, Pence | Circulation |
|----------------|------------|-------------|
| 1753 . . . . . | 1          | 7,400,000   |
| 1790 . . . . . | 2          | 14,100,000  |
| 1810 . . . . . | 3½         | 20,200,000  |
| 1820 . . . . . | 4          | 24,900,000  |
| 1843 . . . . . | 1          | 56,400,000  |

*Advertisement-duty.*—This was another of Queen Anne's taxes, and was fixed for many years at 3s. 6d. per advertisement in England and 2s. 6d. in Ireland. It was

reduced by one-half in 1833 and abolished in 1853. In 1851 the number of advertisements that paid duty was :—

|                    |           |
|--------------------|-----------|
| England . . . . .  | 1,770,000 |
| Scotland . . . . . | 250,000   |
| Ireland . . . . .  | 240,000   |

United Kingdom . . . . . 2,260,000

*Soap-duty.*—Another of Queen Anne's taxes, dating from 1711. It was at first £28 per ton, and produced approximately as follows :—

| Year           | Tons, Soap | Duty, £   |
|----------------|------------|-----------|
| 1801 . . . . . | 25,000     | 500,000   |
| 1811 . . . . . | 34,000     | 700,000   |
| 1821 . . . . . | 43,000     | 900,000   |
| 1831 . . . . . | 55,000     | 1,200,000 |
| 1840 . . . . . | 88,000     | 900,000   |
| 1852 . . . . . | 97,000     | 1,130,000 |

*Paper-duty.*—Invented by William III. in 1694. It acted as an effectual check on knowledge, so much so that Charles Knight had to pay £20,000 on the paper consumed in his *Penny Cyclopædia* of 1830, which caused him to lose money in so useful a work. Porter gives the consumption of paper and amount of duty as follows :—

| Year           | Tons   | Tax, £    | £ per Ton |
|----------------|--------|-----------|-----------|
| 1803 . . . . . | 14,000 | 400,000   | 28        |
| 1811 . . . . . | 17,000 | 480,000   | 28        |
| 1821 . . . . . | 22,000 | 580,000   | 28        |
| 1831 . . . . . | 28,000 | 730,000   | 28        |
| 1841 . . . . . | 44,000 | 640,000   | 14        |
| 1860 . . . . . | ...    | 1,350,000 | ...       |

The duty was repealed by Mr. Gladstone in 1861.

*Salt-duty.*—Invented by Queen Anne in 1702. During the French war it was raised to £30 per ton, being fifteen times the value of the salt. The consumption then averaged 210,000 tons, or 16 lbs. per inhabitant, and when the tax was abolished in 1825 it rose very rapidly.

*Carriage-duty.*—The number of persons assessed to this tax at various dates was as follows :—

| Year           | Number  | Per 10,000 Pop. |
|----------------|---------|-----------------|
| 1812 . . . . . | 63,100  | 52              |
| 1830 . . . . . | 85,100  | 51              |
| 1860 . . . . . | 245,000 | 112             |
| 1870 . . . . . | 325,000 | 125             |
| 1880 . . . . . | 463,000 | 154             |
| 1888 . . . . . | 492,000 | 150             |

The carriages paying duty in 1888 were :—

|                               |         |
|-------------------------------|---------|
| Hackney carriages . . . . .   | 53,600  |
| Private " one horse . . . . . | 358,000 |
| " " two " . . . . .           | 80,600  |
| Total . . . . .               | 492,200 |

*Servant-duty.*—This was invented by George III. during the American war, and the number of servants taxed at various dates was as follows :—

| Year           | Number  | Year           | Number  |
|----------------|---------|----------------|---------|
| 1812 . . . . . | 86,100  | 1876 . . . . . | 220,000 |
| 1831 . . . . . | 101,800 | 1888 . . . . . | 184,000 |

This tax is only on male servants in Great Britain, that on female servants having been repealed in 1792.

*Legacy Duties.*—These began in 1796, and comprise legacy, succession, and probate duties; they range from

1 to 11½ per cent. according to relationship. The amount of property on which these duties were paid was :—

|                    | 1840       | 1873        | 1888        |
|--------------------|------------|-------------|-------------|
|                    | £          | £           | £           |
| England . . . . .  | 47,100,000 | 106,800,000 | 170,500,000 |
| Scotland . . . . . | 3,100,000  | 14,200,000  | 19,000,000  |
| Ireland . . . . .  | 4,500,000  | 8,400,000   | 12,100,000  |
| United Kingdom     | 54,700,000 | 129,400,000 | 201,600,000 |

Excluding the property falling under succession-duty, that which came under probate-duty in the United Kingdom in 1888 was as follows :—

| Estates of                | Number | Value, £    |
|---------------------------|--------|-------------|
| Under £1000 . . . . .     | 31,079 | 10,600,000  |
| £1000-£4000 . . . . .     | 8,343  | 17,200,000  |
| £4000-£10,000 . . . . .   | 2,982  | 19,200,000  |
| £10,000-£50,000 . . . . . | 2,079  | 44,100,000  |
| Over £50,000 . . . . .    | 432    | 67,000,000  |
| Total . . . . .           | 44,915 | 158,100,000 |

For local rates and taxes see *Local Taxation*.

#### FRANCE

Some of the principal taxes are shown as follows :—

|                        | Amount, £  |             | Shillings per Inhabitant |      |
|------------------------|------------|-------------|--------------------------|------|
|                        | 1880       | 1890        | 1880                     | 1890 |
| Customs . . . . .      | 12,400,000 | 15,000,000  | 6.6                      | 8.0  |
| Property . . . . .     | 7,000,000  | 7,300,000   | 3.6                      | 3.8  |
| Sugar . . . . .        | 4,400,000  | 7,100,000   | 2.3                      | 3.7  |
| Windows . . . . .      | 1,700,000  | 2,000,000   | 0.9                      | 1.1  |
| Liquor . . . . .       | 17,300,000 | 17,000,000  | 9.2                      | 9.2  |
| Licenses . . . . .     | 4,000,000  | 4,200,000   | 2.1                      | 2.2  |
| Registration . . . . . | 19,500,000 | 20,400,000  | 10.4                     | 11.0 |
| Stamps . . . . .       | 5,600,000  | 6,400,000   | 3.0                      | 3.5  |
| Tobacco . . . . .      | 13,700,000 | 14,900,000  | 7.2                      | 8.0  |
| Sundries . . . . .     | 7,400,000  | 7,700,000   | 3.9                      | 4.2  |
| Total . . . . .        | 93,000,000 | 102,000,000 | 49.2                     | 54.7 |

The increase of taxation, national and local, has been very great in the past sixty years, viz. :—

| Year           | National, £ | Local, £   | Total, £    | Shillings per Inhabitant |
|----------------|-------------|------------|-------------|--------------------------|
| 1830 . . . . . | 37,600,000  | 7,100,000  | 44,700,000  | 28                       |
| 1840 . . . . . | 44,200,000  | 8,800,000  | 53,000,000  | 31                       |
| 1850 . . . . . | 52,200,000  | 11,700,000 | 63,900,000  | 35                       |
| 1860 . . . . . | 65,700,000  | 18,100,000 | 83,800,000  | 45                       |
| 1870 . . . . . | 68,500,000  | 21,300,000 | 89,800,000  | 48                       |
| 1880 . . . . . | 93,000,000  | 32,400,000 | 125,400,000 | 66                       |
| 1890 . . . . . | 102,000,000 | 40,800,000 | 142,800,000 | 75                       |

*Tobacco.*—This is one of the principal taxes, and shows as follows :—

| Year           | Amount, £ | Year           | Amount, £  |
|----------------|-----------|----------------|------------|
| 1815 . . . . . | 2,000,000 | 1860 . . . . . | 7,800,000  |
| 1830 . . . . . | 2,700,000 | 1890 . . . . . | 14,000,000 |

*Registration.*—This is mostly on transfer of property, and shows thus :—

| Year           | Amount, £  | Year           | Amount, £  |
|----------------|------------|----------------|------------|
| 1830 . . . . . | 6,100,000  | 1871 . . . . . | 15,000,000 |
| 1850 . . . . . | 8,100,000  | 1880 . . . . . | 19,500,000 |
| 1860 . . . . . | 11,000,000 | 1890 . . . . . | 20,400,000 |

*Liquor-duties* were as follows:—

| Year       | Amount, £ | Year       | Amount, £  |
|------------|-----------|------------|------------|
| 1830 . . . | 4,100,000 | 1870 . . . | 9,100,000  |
| 1850 . . . | 4,300,000 | 1886 . . . | 17,000,000 |

The *octroi* and other local taxes are fully described under *Local Taxation*.

#### GERMANY

Apart from the taxes levied in each particular State, there are the following imperial ones:—

|                    | Amount, £         |                   | Shillings per Inhabitant |             |
|--------------------|-------------------|-------------------|--------------------------|-------------|
|                    | 1885              | 1890              | 1885                     | 1890        |
| Customs . . .      | 10,400,000        | 13,500,000        | 4.7                      | 5.6         |
| Salt . . . . .     | 1,900,000         | 2,000,000         | 0.9                      | 0.8         |
| Sugar . . . . .    | 1,600,000         | 2,600,000         | 0.7                      | 1.1         |
| Tobacco . . . .    | 400,000           | 500,000           | 0.2                      | 0.2         |
| Liquor . . . . .   | 2,900,000         | 7,700,000         | 1.3                      | 3.3         |
| Stamps . . . . .   | 1,100,000         | 1,400,000         | 0.5                      | 0.6         |
| <b>Total . . .</b> | <b>18,300,000</b> | <b>27,700,000</b> | <b>8.3</b>               | <b>11.6</b> |

In 1887 was published the following statement of the customs dues collected throughout Germany since 1835:—

| Year           | Sum, £     | Period  | Average, £ | Shillings per Inhab. |
|----------------|------------|---------|------------|----------------------|
| 1835 . . . . . | 2,400,000  | 1835-40 | 2,700,000  | 2.1                  |
| 1850 . . . . . | 3,400,000  | 1841-50 | 3,800,000  | 2.6                  |
| 1860 . . . . . | 3,500,000  | 1851-60 | 3,700,000  | 2.3                  |
| 1870 . . . . . | 4,300,000  | 1861-70 | 3,700,000  | 2.1                  |
| 1880 . . . . . | 7,100,000  | 1871-80 | 6,500,000  | 3.0                  |
| 1887 . . . . . | 12,700,000 | 1881-87 | 11,200,000 | 4.8                  |

The duty on spirits was raised in 1887, and now produces £6,700,000.

The import dues collected on grain in 1889 were as follows:—

|                    | Tons             | Duty, £          | Shillings per Ton |
|--------------------|------------------|------------------|-------------------|
| Wheat . . . . .    | 370,000          | 930,000          | 50                |
| Rye . . . . .      | 750,000          | 1,870,000        | 50                |
| Oats . . . . .     | 260,000          | 520,000          | 40                |
| Barley . . . . .   | 630,000          | 710,000          | 23                |
| Various . . . . .  | 600,000          | 680,000          | 23                |
| <b>Total . . .</b> | <b>2,610,000</b> | <b>4,710,000</b> | <b>38</b>         |

The principal taxes (not local or municipal) levied in the several States of Germany may be summed up approximately thus:—

|                    | Direct, £         | Indirect, £       | Total, £          |
|--------------------|-------------------|-------------------|-------------------|
| Prussia . . . . .  | 8,300,000         | 14,100,000        | 22,400,000        |
| Bavaria . . . . .  | 1,300,000         | 4,500,000         | 5,800,000         |
| Saxony . . . . .   | 1,100,000         | 400,000           | 1,500,000         |
| Wurtemberg . . .   | 600,000           | 600,000           | 1,200,000         |
| Baden . . . . .    | 600,000           | 600,000           | 1,200,000         |
| Small States . . . | 1,800,000         | 3,300,000         | 5,100,000         |
| <b>Total . . .</b> | <b>13,700,000</b> | <b>23,500,000</b> | <b>37,200,000</b> |

These, added to the imperial taxes before mentioned, sum up a total of £64,900,000.

Prussia has income-tax, land-tax, house-tax, and trade-tax, the aggregate of which has been as follows:—

| Year           | Amount, £ | Shillings per Inhabitant |
|----------------|-----------|--------------------------|
| 1880 . . . . . | 7,600,000 | 5.5                      |
| 1888 . . . . . | 8,300,000 | 5.6                      |

The assessments to income-tax in Prussia and Saxony will be found under the head of *Income*.

#### RUSSIA

The principal taxes are shown as follows:—

|                    | Amount, £         |                   | Pence per Inhab. |            |
|--------------------|-------------------|-------------------|------------------|------------|
|                    | 1879              | 1889              | 1879             | 1889       |
| Customs . . . . .  | 9,200,000         | 12,100,000        | 27               | 32         |
| Poll-tax . . . . . | 11,700,000        | 8,200,000         | 34               | 21         |
| Liquor . . . . .   | 22,800,000        | 25,700,000        | 66               | 68         |
| Salt . . . . .     | 1,300,000         | ...               | 4                | ...        |
| Tobacco . . . . .  | 1,300,000         | 2,600,000         | 4                | 7          |
| Sugar . . . . .    | 500,000           | 1,700,000         | 1                | 4          |
| Stamps . . . . .   | 1,400,000         | 2,000,000         | 4                | 5          |
| Registration . . . | 900,000           | 1,000,000         | 2                | 2          |
| Passports . . . .  | 300,000           | 300,000           | 1                | 1          |
| Sundries . . . . . | 2,400,000         | 7,600,000         | 7                | 20         |
| <b>Total . . .</b> | <b>51,800,000</b> | <b>61,200,000</b> | <b>150</b>       | <b>160</b> |

The above does not include revenue from crown domains or departments of public service, such as post-office. The poll-tax in 1882 was as follows:—

|                    | No. Taxed         | Amount           | Pence per Head |
|--------------------|-------------------|------------------|----------------|
| Proprietors . . .  | 693,000           | 140,000          | 48             |
| Cossacks, &c. . .  | 1,347,000         | 350,000          | 60             |
| Serfs . . . . .    | 21,502,000        | 5,203,000        | 57             |
| <b>Total . . .</b> | <b>23,542,000</b> | <b>5,693,000</b> | <b>58</b>      |

#### AUSTRIA

The principal taxes of Austria proper were as follows:—

|                      | Amount, £         |                   | Shillings per Inhab. |             |
|----------------------|-------------------|-------------------|----------------------|-------------|
|                      | 1878              | 1887              | 1878                 | 1887        |
| Land-tax . . . . .   | 3,700,000         | 2,900,000         | 3.3                  | 2.5         |
| House-tax . . . .    | 2,400,000         | 2,400,000         | 2.2                  | 2.1         |
| Income-tax . . . .   | 2,000,000         | 2,000,000         | 1.8                  | 1.7         |
| Licences . . . . .   | 900,000           | 900,000           | 0.8                  | 0.8         |
| Customs . . . . .    | 1,900,000         | 3,600,000         | 1.7                  | 3.2         |
| Salt . . . . .       | 1,900,000         | 1,700,000         | 1.7                  | 1.5         |
| Sugar . . . . .      | 1,400,000         | 2,800,000         | 1.3                  | 2.4         |
| Cattle . . . . .     | 500,000           | 500,000           | 0.5                  | 0.5         |
| Tobacco . . . . .    | 6,000,000         | 6,300,000         | 5.4                  | 5.8         |
| Liquor . . . . .     | 2,600,000         | 3,200,000         | 2.3                  | 2.8         |
| Stamps . . . . .     | 1,700,000         | 1,500,000         | 1.5                  | 1.3         |
| Lotteries, &c. . . . | 3,200,000         | 3,300,000         | 2.9                  | 2.9         |
| <b>Total . . .</b>   | <b>28,200,000</b> | <b>31,100,000</b> | <b>25.4</b>          | <b>27.5</b> |

In the above table florins are taken at 24d. for 1878, and 20d. for 1887. There are also some taxes common to the whole monarchy not included above,

In Hungary the principal taxes were:—

|                     | Amount, £         |                   | Shillings per Inhab. |             |
|---------------------|-------------------|-------------------|----------------------|-------------|
|                     | 1882              | 1889              | 1882                 | 1889        |
| Land-tax . . . . .  | 2,300,000         | 2,100,000         | 3.0                  | 2.8         |
| House-tax . . . . . | 500,000           | 600,000           | 0.7                  | 0.8         |
| Licences . . . . .  | 1,000,000         | 1,100,000         | 1.3                  | 1.4         |
| Income-tax . . . .  | 800,000           | 1,400,000         | 1.0                  | 1.8         |
| Excise . . . . .    | 1,500,000         | 3,300,000         | 2.0                  | 4.4         |
| Tobacco . . . . .   | 3,200,000         | 3,900,000         | 4.2                  | 5.2         |
| Lotteries . . . . . | 2,500,000         | 2,100,000         | 3.3                  | 2.8         |
| Salt . . . . .      | 1,200,000         | 1,200,000         | 1.6                  | 1.6         |
| Registration, &c. . | 2,300,000         | 3,300,000         | 3.1                  | 4.4         |
| <b>Total . . .</b>  | <b>15,300,000</b> | <b>19,000,000</b> | <b>20.2</b>          | <b>25.2</b> |

Incomes from crown domains and public services are not included.

## ITALY

The principal taxes are shown as follows:—

|                   | Amount, £  |            | Shillings per Inhab. |      |
|-------------------|------------|------------|----------------------|------|
|                   | 1881       | 1890       | 1881                 | 1890 |
| Property-tax . .  | 7,600,000  | 7,000,000  | 5.3                  | 4.7  |
| Income-tax . .    | 7,400,000  | 9,200,000  | 5.2                  | 6.2  |
| Grist-tax . . .   | 1,900,000  | ...        | 1.3                  | ...  |
| Registration . .  | 2,400,000  | 2,800,000  | 1.7                  | 1.8  |
| Legacy dues . .   | 1,200,000  | 1,500,000  | 0.8                  | 1.0  |
| Stamps . . . .    | 1,700,000  | 2,900,000  | 1.1                  | 1.9  |
| Octroi . . . . .  | 3,300,000  | 3,300,000  | 2.2                  | 2.2  |
| Customs . . . .   | 6,200,000  | 10,600,000 | 4.2                  | 7.2  |
| Tobacco . . . .   | 4,200,000  | 7,600,000  | 2.8                  | 5.1  |
| Salt . . . . .    | 3,300,000  | 2,500,000  | 2.2                  | 1.7  |
| Lotteries . . . . | 2,900,000  | 3,100,000  | 2.0                  | 2.1  |
| Railway-tax . .   | 600,000    | 700,000    | 0.4                  | 0.5  |
| Sundries . . . .  | ...        | 2,600,000  | ...                  | 1.7  |
| Total . . . . .   | 42,700,000 | 53,800,000 | 29.2                 | 36.1 |

The above is exclusive of state properties and public services. It is to be observed that octroi is here national, in other countries a provincial tax. The grist-tax was abolished in 1884. Property-tax was made up thus:—

| Year         | Land-Tax, £ | House-Tax, £ | Total, £  | Shillings per Inhab. |
|--------------|-------------|--------------|-----------|----------------------|
| 1870 . . . . | 2,320,000   | 880,000      | 3,200,000 | 2.5                  |
| 1876 . . . . | 2,840,000   | 1,220,000    | 4,060,000 | 3.0                  |
| 1890 . . . . | 4,250,000   | 2,750,000    | 7,000,000 | 4.7                  |

Local taxes in 1885 amounted to 27 millions sterling: see *Local Taxation*.

## SPAIN

The principal taxes in 1887 were as follows:—

|                   | £          | Shillings per Inhabitant |
|-------------------|------------|--------------------------|
| Land-tax . . . .  | 6,600,000  | 7.2                      |
| Tobacco . . . .   | 6,400,000  | 7.0                      |
| Stamps, &c. . . . | 5,600,000  | 6.2                      |
| Customs . . . .   | 6,900,000  | 7.6                      |
| Excise . . . . .  | 6,400,000  | 7.0                      |
| Total . . . . .   | 31,900,000 | 35.0                     |

## PORTUGAL

The principal taxes were as follows:—

|                   | Amount, £ |           | Shillings per Inhab. |      |
|-------------------|-----------|-----------|----------------------|------|
|                   | 1881      | 1890      | 1881                 | 1890 |
| Land-tax . . . .  | 700,000   | 700,000   | 3.1                  | 3.0  |
| House-tax . . . . | 80,000    | 100,000   | 0.3                  | 0.4  |
| Licences . . . .  | 250,000   | 250,000   | 1.1                  | 1.0  |
| Tobacco . . . .   | 750,000   | 900,000   | 3.3                  | 3.8  |
| Customs . . . .   | 1,800,000 | 3,100,000 | 8.0                  | 13.0 |
| Octroi . . . . .  | 300,000   | 450,000   | 1.3                  | 2.0  |
| Income-tax . . .  | 180,000   | 200,000   | 0.8                  | 0.9  |
| Registration, &c. | 950,000   | 900,000   | 4.2                  | 4.0  |
| Total . . . . .   | 5,010,000 | 6,600,000 | 22.1                 | 28.1 |

## FINLAND

This is the least taxed country in Europe: total taxes £1,400,000, or 13s. per inhabitant.

## SWEDEN

The principal taxes were as follows:—

|                  | Amount, £ |           | Shillings per Inhab. |      |
|------------------|-----------|-----------|----------------------|------|
|                  | 1880      | 1890      | 1880                 | 1890 |
| Land-tax . . . . | 250,000   | 440,000   | 1.1                  | 1.8  |
| Customs . . . .  | 1,350,000 | 2,060,000 | 6.0                  | 8.4  |
| Liquor . . . . . | 830,000   | 750,000   | 3.7                  | 3.0  |
| Stamps . . . . . | 170,000   | 200,000   | 0.8                  | 0.8  |
| Income-tax . . . | 300,000   | 220,000   | 1.4                  | 0.9  |
| Total . . . . .  | 2,900,000 | 3,670,000 | 13.0                 | 14.9 |

## NORWAY

The principal taxes were as follows:—

|                   | Amount, £ |           | Shillings per Inhab. |      |
|-------------------|-----------|-----------|----------------------|------|
|                   | 1879      | 1890      | 1879                 | 1890 |
| Customs . . . .   | 990,000   | 1,100,000 | 10.0                 | 11.0 |
| Liquor . . . . .  | 320,000   | 280,000   | 3.2                  | 2.8  |
| Stamps, &c. . . . | 100,000   | 100,000   | 1.0                  | 1.0  |
| Total . . . . .   | 1,410,000 | 1,480,000 | 14.2                 | 14.8 |

## DENMARK

The following were the principal taxes:—

|                   | Amount, £ |           | Shillings per Inhab. |      |
|-------------------|-----------|-----------|----------------------|------|
|                   | 1880      | 1889      | 1880                 | 1889 |
| Land-tax . . . .  | 370,000   | 370,000   | 3.7                  | 3.5  |
| House-tax . . . . | 110,000   | 140,000   | 1.1                  | 1.3  |
| Customs . . . .   | 1,100,000 | 1,400,000 | 11.0                 | 13.3 |
| Stamps, &c. . . . | 480,000   | 620,000   | 4.8                  | 5.9  |
| Total . . . . .   | 2,060,000 | 2,530,000 | 20.6                 | 24.0 |

## HOLLAND

The principal taxes were the following:—

|                   | Amount, £ |           | Shillings per Inhab. |      |
|-------------------|-----------|-----------|----------------------|------|
|                   | 1879      | 1890      | 1879                 | 1890 |
| Land-tax . . . .  | 880,000   | 1,000,000 | 4.2                  | 4.4  |
| Poll-tax . . . .  | 810,000   | 900,000   | 3.9                  | 4.0  |
| Liquor . . . . .  | 1,900,000 | 2,200,000 | 9.0                  | 9.7  |
| Customs . . . .   | 380,000   | 400,000   | 1.8                  | 1.8  |
| Stamps, &c. . . . | 1,960,000 | 1,800,000 | 9.3                  | 8.0  |
| Excise . . . . .  | 1,300,000 | 1,400,000 | 6.2                  | 6.1  |
| Sundries . . . .  | 400,000   | 600,000   | 1.9                  | 2.6  |
| Total . . . . .   | 7,630,000 | 8,300,000 | 36.3                 | 36.6 |

Excise was made up in 1883 as follows (exclusive of the liquor-tax):—

|                 | Tons    | Duty, £ | £ per Ton |
|-----------------|---------|---------|-----------|
| Sugar . . . . . | 120,000 | 520,000 | 4.4       |
| Salt . . . . .  | 40,000  | 300,000 | 7.5       |
| Soap . . . . .  | 18,000  | 150,000 | 8.3       |
| Beef . . . . .  | ...     | 250,000 | ...       |

The number of cattle killed for market was 280,000, say about 90,000 tons, and the tax averaged, therefore, nearly £3 per ton.



## TAXES

565

## TAXES

## BELGIUM

The principal taxes were as follows:—

|                   | Amount, £ |           | Shillings per Inhab. |      |
|-------------------|-----------|-----------|----------------------|------|
|                   | 1879      | 1890      | 1879                 | 1890 |
| Land-tax . .      | 890,000   | 960,000   | 3.3                  | 3.2  |
| Income-tax . .    | 620,000   | 800,000   | 2.4                  | 2.7  |
| Customs . .       | 740,000   | 1,090,000 | 2.8                  | 3.6  |
| Liquor . .        | 1,100,000 | 1,400,000 | 4.2                  | 4.7  |
| Registration, &c. | 2,500,000 | 2,560,000 | 9.0                  | 8.5  |
| Total . .         | 5,850,000 | 6,810,000 | 21.7                 | 22.7 |

## GREECE

The principal taxes were as follows:—

|                | Amount, £ |           | Shillings per Inhab. |      |
|----------------|-----------|-----------|----------------------|------|
|                | 1881      | 1890      | 1881                 | 1890 |
| Land-tax . .   | 220,000   | 380,000   | 2.5                  | 4.2  |
| Cattle-tax . . | 70,000    | 90,000    | 0.8                  | 1.0  |
| House-tax . .  | 40,000    | 80,000    | 0.4                  | 0.9  |
| Licences . .   | 50,000    | 100,000   | 0.5                  | 1.1  |
| Customs . .    | 670,000   | 760,000   | 7.5                  | 8.4  |
| Stamps . .     | 180,000   | 330,000   | 2.0                  | 3.6  |
| Sundries . .   | ...       | 650,000   | ...                  | 7.1  |
| Total . .      | 1,230,000 | 2,390,000 | 13.7                 | 26.3 |

Sundries include £70,000 from salt, £140,000 from the Government monopoly of petroleum, and £240,000 from tobacco.

## ROUMANIA AND SERVIA

The principal taxes are as follows (1888):—

|              | Amount, £ |           | Shillings per Inhab. |        |
|--------------|-----------|-----------|----------------------|--------|
|              | Roumania  | Servia    | Roumania             | Servia |
| Customs . .  | 900,000   | 200,000   | 3.6                  | 2.0    |
| Excise . .   | 1,600,000 | 800,000   | 6.4                  | 8.0    |
| Sundries . . | 1,700,000 | 400,000   | 6.8                  | 4.0    |
| Total . .    | 4,200,000 | 1,400,000 | 16.8                 | 14.0   |

## TURKEY

The only taxes of which much is known are those on salt and tobacco (mortgaged to bondholders), which see under the section of *Finance*.

## EGYPT

The taxes in this country are likewise set forth under the title of *Finance*.

## UNITED STATES

The principal taxes have been as follows:—

| Year | Amount, £  |            |            | Shillings per Inhabitant |          |       |
|------|------------|------------|------------|--------------------------|----------|-------|
|      | Customs    | Internal   | Total      | Customs                  | Internal | Total |
| 1790 | 900,000    | ...        | 900,000    | 4.5                      | ...      | 4.5   |
| 1800 | 1,870,000  | 170,000    | 2,040,000  | 7.0                      | 0.7      | 7.7   |
| 1810 | 1,780,000  | 2,000      | 1,782,000  | 5.0                      | ...      | 5.0   |
| 1820 | 3,120,000  | 20,000     | 3,140,000  | 6.6                      | ...      | 6.6   |
| 1830 | 4,590,000  | 3,000      | 4,593,000  | 7.0                      | ...      | 7.0   |
| 1840 | 2,800,000  | ...        | 2,800,000  | 3.3                      | ...      | 3.3   |
| 1850 | 8,300,000  | ...        | 8,300,000  | 7.2                      | ...      | 7.2   |
| 1860 | 11,050,000 | ...        | 11,050,000 | 7.1                      | ...      | 7.1   |
| 1870 | 34,500,000 | 32,500,000 | 67,000,000 | 17.8                     | 16.8     | 34.6  |
| 1880 | 38,800,000 | 25,800,000 | 64,600,000 | 15.6                     | 10.3     | 25.9  |
| 1889 | 46,600,000 | 27,200,000 | 73,800,000 | 15.0                     | 8.7      | 23.7  |

Internal revenue was made up thus:—

|                  | 1865       | 1875       | 1889        |
|------------------|------------|------------|-------------|
| Spirits . . . .  | £2,600,000 | £9,600,000 | £15,400,000 |
| Tobacco . . . .  | 1,600,000  | 6,800,000  | 6,600,000   |
| Beer . . . .     | 500,000    | 1,600,000  | 5,000,000   |
| Sundries . . . . | 23,500,000 | 2,400,000  | 200,000     |
| Total . . . .    | 28,200,000 | 20,400,000 | 27,200,000  |

The principal States producing internal revenue are:—

| State            | Amount, £ | State          | Amount, £ |
|------------------|-----------|----------------|-----------|
| New York . . .   | 3,200,000 | Ohio . . . .   | 2,400,000 |
| Illinois . . . . | 6,400,000 | Pennsylvania . | 1,800,000 |
| Kentucky . . .   | 3,500,000 | Missouri . . . | 1,600,000 |

The above six States produce 70 per cent. of the total.

The items which composed customs revenue in the United States were as follows:—

|                | Value, £   |             | Duty, £    |            | Percentage |      |
|----------------|------------|-------------|------------|------------|------------|------|
|                | 1880       | 1889        | 1880       | 1889       | 1880       | 1889 |
| Sugar . . . .  | 16,100,000 | 17,400,000  | 8,800,000  | 11,700,000 | 55         | 67   |
| Woolens . . .  | 6,700,000  | 10,900,000  | 4,600,000  | 7,400,000  | 68         | 68   |
| Silks . . . .  | 6,500,000  | 7,300,000   | 3,900,000  | 3,700,000  | 60         | 50   |
| Cottons . . .  | 5,300,000  | 5,600,000   | 2,100,000  | 2,200,000  | 40         | 40   |
| Linens, &c. .  | 4,900,000  | 5,400,000   | 1,700,000  | 1,900,000  | 35         | 35   |
| Iron . . . .   | 12,900,000 | 9,000,000   | 4,800,000  | 3,600,000  | 37         | 40   |
| Tobacco . . .  | 1,300,000  | 2,800,000   | 1,000,000  | 2,300,000  | 75         | 80   |
| Liquor . . . . | 1,700,000  | 2,300,000   | 1,200,000  | 1,600,000  | 72         | 70   |
| Leather . . .  | 2,400,000  | 2,300,000   | 700,000    | 700,000    | 30         | 30   |
| Glass . . . .  | 1,100,000  | 1,600,000   | 600,000    | 900,000    | 55         | 55   |
| China . . . .  | 1,200,000  | 1,300,000   | 500,000    | 700,000    | 42         | 52   |
| Fruit . . . .  | 2,500,000  | 2,700,000   | 700,000    | 800,000    | 28         | 30   |
| Drugs . . . .  | 2,800,000  | 2,700,000   | 800,000    | 1,000,000  | 28         | 36   |
| Sundries . . . | 22,000,000 | 29,500,000  | 6,700,000  | 8,100,000  | 30         | 27   |
| Total . . . .  | 87,400,000 | 100,800,000 | 38,100,000 | 46,600,000 | 44         | 46   |

The aggregate of national and local taxation was approximately as follows:—

|                | Amount, £  |             | Shillings per Inhabitant |      |
|----------------|------------|-------------|--------------------------|------|
|                | 1880       | 1889        | 1880                     | 1889 |
| National . . . | 11,050,000 | 73,800,000  | 7.0                      | 23.7 |
| Local . . . .  | 19,600,000 | 52,200,000  | 12.6                     | 16.7 |
| Total . . .    | 30,650,000 | 126,000,000 | 19.6                     | 40.4 |

State taxes are set forth at length under the title of *Local Taxation*.

## CANADA

The principal taxes have been as follows:—

| Year         | Amount, £ |           |           | Shillings per Inhabitant |
|--------------|-----------|-----------|-----------|--------------------------|
|              | Customs   | Excise    | Total     |                          |
| 1868 . . . . | 1,700,000 | 600,000   | 2,300,000 | 14                       |
| 1872 . . . . | 2,600,000 | 900,000   | 3,500,000 | 20                       |
| 1876 . . . . | 2,600,000 | 1,200,000 | 3,800,000 | 20                       |
| 1880 . . . . | 2,900,000 | 800,000   | 3,700,000 | 18                       |
| 1884 . . . . | 4,100,000 | 1,100,000 | 5,200,000 | 23                       |
| 1887 . . . . | 4,500,000 | 1,300,000 | 5,800,000 | 24                       |

## AUSTRALIA

The taxation in 1888 of the several colonies was:—

|                  | Customs, £ | Internal, £ | Total, £   | £ per Inhab. |
|------------------|------------|-------------|------------|--------------|
| N. S. Wales . .  | 2,140,000  | 540,000     | 2,680,000  | 2.5          |
| Victoria . . .   | 2,350,000  | 720,000     | 3,070,000  | 2.9          |
| Queensland . .   | 1,350,000  | 230,000     | 1,580,000  | 4.2          |
| S. Australia . . | 530,000    | 210,000     | 740,000    | 2.4          |
| W. Australia . . | 180,000    | ...         | 180,000    | 4.3          |
| Tasmania . . .   | 300,000    | 110,000     | 410,000    | 2.8          |
| New Zealand . .  | 1,390,000  | 640,000     | 2,030,000  | 3.4          |
| Total . . . .    | 8,240,000  | 2,450,000   | 10,690,000 | 3.0          |

## INDIA

The principal taxes show as follows:—

|                  | 1865       | 1875       | 1890       | Pence per Inhabitant |      |      |
|------------------|------------|------------|------------|----------------------|------|------|
|                  |            |            |            | 1865                 | 1875 | 1890 |
| Land-tax         | 20,400,000 | 20,500,000 | 19,500,000 | 25                   | 25   | 23   |
| Opium . . . .    | 8,500,000  | 9,200,000  | 6,900,000  | 10                   | 11   | 8    |
| Salt . . . . .   | 5,300,000  | 6,000,000  | 6,700,000  | 6                    | 7    | 8    |
| Customs . . . .  | 2,300,000  | 2,600,000  | 1,200,000  | 2                    | 2    | 1    |
| Excise . . . . . | 2,200,000  | 2,400,000  | 3,900,000  | 2                    | 2    | 3    |
| Stamps . . . .   | 2,000,000  | 2,500,000  | 3,300,000  | 2                    | 2    | 3    |
| Sundries . . . . | 4,500,000  | 4,000,000  | 6,000,000  | 5                    | 4    | 7    |
| Total . . . .    | 45,200,000 | 47,200,000 | 47,500,000 | 52                   | 53   | 53   |

In 1865 and 1875 the rupee is taken at 24d., in 1890 at 20d.

## TEA

The consumption at present averages as follows:—

|                     | Lbs.        | Oz. per Inhab. |
|---------------------|-------------|----------------|
| United Kingdom . .  | 184,500,000 | 80             |
| United States . . . | 80,000,000  | 20             |
| Russia . . . . .    | 37,000,000  | 7              |
| Australia . . . . . | 20,000,000  | 88             |
| Canada . . . . .    | 22,000,000  | 70             |
| Various . . . . .   | 106,500,000 | ...            |
| Total . . . . .     | 450,000,000 | ...            |

Tea is mostly grown in China, the plants being 4 feet apart, that is, 2700 to the acre. Plants seven years old will give 700 lbs. tea to the acre, or 4 oz. per plant. The average exportation from tea-growing countries is shown thus:—

|                  | Millions of Lbs. |         |         |
|------------------|------------------|---------|---------|
|                  | 1880-83          | 1884-85 | 1887-88 |
| China . . . . .  | 284              | 290     | 290     |
| India . . . . .  | 53               | 66      | 90      |
| Japan . . . . .  | 37               | 35      | 40      |
| Java . . . . .   | 5                | 6       | 7       |
| Paraguay . . . . | 10               | 10      | 10      |
| Ceylon . . . . . | 1                | 8       | 19      |
| Total . . . . .  | 390              | 415     | 496     |

The consumption in the United States, compared with population, has not varied in fifteen years, being about 20 oz. per inhabitant. In the United Kingdom it steadily increases, and Indian tea, which is said to contain much more body than Chinese (as 4 lbs. to 5 lbs.), is rapidly supplanting that of China.

In 1888 the consumption in the United Kingdom was as follows:—

|                           | Lbs.        |
|---------------------------|-------------|
| Chinese . . . . .         | 78,500,000  |
| Indian and Ceylon . . . . | 105,800,000 |
| Total . . . . .           | 184,300,000 |

In 1878 India supplied only 17 per cent. of the tea consumed in Great Britain.

The following table shows the consumption since 1711:—

| Year           | Lbs.        | Oz. per Inhabitant | Duty per Lb., Pence | Price per Lb., Pence |
|----------------|-------------|--------------------|---------------------|----------------------|
| 1711 . . . . . | 142,000     | 1                  | 66                  | 216                  |
| 1725 . . . . . | 370,000     | 1                  | 66                  | 200                  |
| 1740 . . . . . | 1,003,000   | 3                  | 66                  | 200                  |
| 1750 . . . . . | 2,568,000   | 6                  | 40                  | 150                  |
| 1760 . . . . . | 4,072,000   | 9                  | 36                  | 120                  |
| 1770 . . . . . | 7,149,000   | 14                 | 30                  | 100                  |
| 1780 . . . . . | 5,152,000   | 9                  | 40                  | 110                  |
| 1790 . . . . . | 14,693,000  | 24                 | 7                   | 65                   |
| 1800 . . . . . | 20,359,000  | 21                 | 18                  | 70                   |
| 1810 . . . . . | 19,093,000  | 17                 | 46                  | 80                   |
| 1820 . . . . . | 22,452,000  | 18                 | 38                  | 70                   |
| 1830 . . . . . | 30,047,000  | 20                 | 30                  | 60                   |
| 1840 . . . . . | 32,253,000  | 20                 | 25                  | 50                   |
| 1850 . . . . . | 49,572,000  | 29                 | 26                  | 48                   |
| 1860 . . . . . | 78,340,000  | 43                 | 18                  | 40                   |
| 1870 . . . . . | 118,200,000 | 61                 | 6                   | 30                   |
| 1881 . . . . . | 167,700,000 | 73                 | 6                   | 25                   |
| 1888 . . . . . | 184,300,000 | 80                 | 6                   | 20                   |

In 1890 the duty was reduced to 4d., and as the price now averages 18d., it is probable the consumption will reach this year (1891) about 200 million pounds, or 5½ lbs. per inhabitant.

## TELEPHONES

In 1876 there were 200 working in Europe, and 330 in the United States. In 1883 there were nearly 79,000 working in 303 towns, viz.:—

|                     | Towns | Telephones |
|---------------------|-------|------------|
| Europe . . . . .    | 161   | 30,100     |
| America . . . . .   | 126   | 47,200     |
| Asia . . . . .      | 7     | 240        |
| Africa . . . . .    | 4     | 240        |
| Australia . . . . . | 5     | 900        |
| Total . . . . .     | 303   | 78,800     |

The numbers in use in various countries in 1885 and 1888 were:—

|                  | 1885   | 1888   |                   | 1885   | 1888  |
|------------------|--------|--------|-------------------|--------|-------|
| U. Kingdom . . . | 12,000 | 20,400 | Italy . . .       | 7,000  | 9,200 |
| France . . .     | 10,000 | 10,000 | Switzerland . . . | ...    | 7,600 |
| Germany . . .    | 17,000 | 33,000 | Spain . . .       | 1,000  | 2,200 |
| Russia . . .     | 3,000  | 7,600  | Sweden . . .      | 10,000 | ...   |
| Denmark . . .    | ...    | 1,900  | Holland . . .     | 4,000  | ...   |
| Austria . . .    | 2,500  | 4,000  | Belgium . . .     | 4,000  | 5,200 |

In 1888 the numbers in various cities were:—

|                    |       |                      |       |
|--------------------|-------|----------------------|-------|
| Berlin . . .       | 8,600 | St. Petersburg . . . | 1,500 |
| New York . . .     | 6,900 | Milan . . .          | 1,200 |
| Paris . . .        | 5,300 | Manchester . . .     | 1,200 |
| Stockholm . . .    | 3,800 | Vienna . . .         | 1,200 |
| Buenos Ayres . . . | 2,800 | Liverpool . . .      | 1,100 |
| Montevideo . . .   | 2,200 | Glasgow . . .        | 1,100 |
| Rome . . .         | 2,100 | Zurich . . .         | 1,100 |
| Hamburg . . .      | 1,900 | Naples . . .         | 1,000 |
| Geneva . . .       | 1,500 | Moscow . . .         | 800   |

The total number of telephones in use in the United States in 1885 was 325,000, and in Canada 18,000. The number of messages transmitted daily averages 100,000 in Berlin, 90,000 in London, 26,000 in Belgium, 16,000 in Austria. The United Kingdom in 1887 had 30,000 miles of telephone wire in use, Belgium 7000, Austria 7000, Germany 51,000, and the whole of Europe 330,000 miles. The longest lines in Europe are Berlin-Hanover 225 miles, Vienna-Budapesth 150 miles.

## THEATRES

The following table (1882) shows the number in each country, and how many have been burnt from 1880 to 1882:—

|                     | Number | Burnt | Period   | Burnt |
|---------------------|--------|-------|----------|-------|
| Great Britain . . . | 152    | 68    | 1800-10  | 16    |
| France . . .        | 337    | 63    | 1811-20  | 14    |
| Italy . . .         | 348    | 45    | 1821-30  | 31    |
| Spain . . .         | 160    | 17    | 1831-40  | 33    |
| Germany . . .       | 191    | 49    | 1841-50  | 44    |
| Russia . . .        | 44     | 25    | 1851-60  | 74    |
| Austria . . .       | 152    | 26    | 1861-70  | 98    |
| United States . . . | 550    | 176   | 1871-82  | 159   |
| Total . . .         | 1,934  | 469   | 83 years | 469   |

In 1882 the gross receipts of London theatres were £1,320,000, being an average of 7s. per inhabitant. The expenditure was:—

|                            |           |
|----------------------------|-----------|
| Pay to actors . . .        | 725,000   |
| Pay to authors . . .       | 79,000    |
| Rent . . .                 | 119,000   |
| Sundries and profits . . . | 397,000   |
|                            | 1,320,000 |

The gross receipts of Paris theatres were as follows:—

| Year       | £         | In 1889          | £       |
|------------|-----------|------------------|---------|
| 1850 . . . | 330,000   | Opera . . .      | 160,000 |
| 1860 . . . | 580,000   | Hippodrome . . . | 113,000 |
| 1867 . . . | 840,000   | Français . . .   | 94,000  |
| 1878 . . . | 1,200,000 | Comique . . .    | 77,000  |
| 1889 . . . | 1,280,000 | Various . . .    | 836,000 |

The sum paid to authors for plays in 1888 was £75,000 sterling. The number of actors employed was about 3200.

The loss of life by fires at theatres was as follows:—

| Year | Theatre              | Victims | Year | Theatre            | Victims |
|------|----------------------|---------|------|--------------------|---------|
| 1772 | Amsterdam . . .      | 48      | 1847 | Carlsruhe . . .    | 63      |
| 1778 | Saragossa . . .      | 137     | 1857 | Leghorn . . .      | 102     |
| 1794 | Capo d'Istria . . .  | 945     | 1867 | Philadelphia . . . | 13      |
| 1811 | Richmond . . .       | 78      | 1876 | Brooklyn . . .     | 283     |
| 1836 | St. Petersburg . . . | 770     | 1880 | Nice . . .         | 790     |
| 1845 | Canton . . .         | 1,660   | 1881 | Vienna . . .       | 1,460   |
| 1846 | Quebec . . .         | 355     | 1883 | Smolensk . . .     | 380     |

## THERMAL SPRINGS

The nature of some of the principal is thus shown:—

|                       | Carbonates |       | Sulphates |       | Chlorides of Sodium | All Fixed |
|-----------------------|------------|-------|-----------|-------|---------------------|-----------|
|                       | Soda       | Lime  | Soda      | Lime  |                     |           |
| Aix-les-Bains . . .   | ...        | 148   | 096       | 016   | 008                 | 430       |
| Aix-la-Chapelle . . . | 650        | 159   | 283       | ...   | 2,639               | 4,102     |
| Baden-Baden . . .     | ...        | 166   | ...       | 300   | 1,600               | 2,314     |
| Bath . . .            | ...        | 126   | 274       | 1,143 | 180                 | 2,060     |
| Bigorre . . .         | ...        | 142   | 400       | 1,900 | 040                 | 2,900     |
| Bilin . . .           | 3,009      | 402   | 827       | ...   | 382                 | 4,960     |
| Bourboule . . .       | 2,272      | 196   | 279       | ...   | 3,346               | 6,519     |
| Bussang . . .         | 789        | 054   | 110       | ...   | 078                 | 1,123     |
| Buxton . . .          | ...        | 111   | ...       | 052   | 034                 | 294       |
| Castellamare . . .    | 825        | 391   | 625       | ...   | 5,851               | 9,794     |
| Cauterets . . .       | ...        | ...   | 024       | ...   | 072                 | 260       |
| Cheltenham . . .      | 125        | ...   | 1,678     | 146   | 3,081               | 5,320     |
| Clifton . . .         | ...        | 252   | 043       | 141   | 084                 | 628       |
| Dax . . .             | ...        | 092   | 043       | 359   | 301                 | 1,022     |
| Eaux Chaudes . . .    | 035        | ...   | 042       | 105   | 115                 | 309       |
| Ems . . .             | 1,979      | 216   | 034       | ...   | 983                 | 3,519     |
| Friedrichshal . . .   | ...        | 015   | 5,434     | 1,463 | 8,381               | 24,933    |
| Gastein . . .         | ...        | 020   | 204       | ...   | 047                 | 339       |
| Harrogate . . .       | ...        | 342   | 204       | 008   | 11,354              | 13,664    |
| Huny. Janos . . .     | 796        | 933   | 15,915    | ...   | 1,305               | 34,855    |
| Lisbon . . .          | ...        | 571   | ...       | 485   | 15,428              | 20,507    |
| Leamington . . .      | ...        | ...   | 3,993     | ...   | 3,424               | 11,513    |
| Malvern . . .         | ...        | ...   | 027       | ...   | ...                 | 076       |
| Neuenahr . . .        | 1,055      | 305   | 250       | ...   | 150                 | 2,313     |
| Ofen . . .            | 029        | 122   | 21,196    | 7,066 | 2,753               | 56,816    |
| Pfeffers . . .        | ...        | 142   | 009       | 007   | 052                 | 291       |
| Royat . . .           | 349        | 1,000 | 183       | ...   | 1,728               | 5,586     |
| St. Galmier . . .     | 238        | ...   | 079       | 180   | 216                 | 1,886     |
| St. Moritz . . .      | 191        | 726   | 272       | ...   | 039                 | 1,446     |
| Schwalbach . . .      | 188        | 439   | 005       | ...   | 007                 | 1,189     |
| Seltzer . . .         | 1,021      | 550   | 150       | ...   | 2,040               | 4,092     |
| Spa . . .             | 127        | 173   | 020       | ...   | 026                 | 658       |
| Tarasp . . .          | 3,545      | 1,619 | 2,155     | ...   | 3,828               | 12,251    |

The temperature, in Fahrenheit, of the principal springs, is shown thus:—

|                  |     |                   |     |                      |     |
|------------------|-----|-------------------|-----|----------------------|-----|
| Bilin . . .      | 66  | Thermopylae . . . | 113 | Ischia . . .         | 140 |
| St. Didier . . . | 70  | Vichy . . .       | 113 | Ofen . . .           | 144 |
| Mallow . . .     | 72  | Bath . . .        | 115 | Arles . . .          | 145 |
| Bristol . . .    | 74  | Gastein . . .     | 117 | Baden-Baden . . .    | 147 |
| Yverdon . . .    | 76  | Bigorre . . .     | 119 | Plombières . . .     | 147 |
| Buxton . . .     | 82  | Töplitz . . .     | 121 | Viseu . . .          | 153 |
| Kreuznach . . .  | 86  | Lucca . . .       | 124 | Wisbaden . . .       | 158 |
| Patras . . .     | 97  | Cauterets . . .   | 130 | Balkan . . .         | 163 |
| Wildbad . . .    | 98  | Ems . . .         | 131 | Acqui . . .          | 167 |
| Pfeffers . . .   | 101 | Aachen . . .      | 135 | Carlsbad . . .       | 167 |
| Alicante . . .   | 104 | Guimaraens . . .  | 138 | Chaudes-Aigues . . . | 174 |
| Pisa . . .       | 106 | Luchon . . .      | 140 | Baths of Nero . . .  | 182 |

In 1882 an official report of the result of some French springs was as follows:—

|                 | Barèges | Amelie | Vichy | Bourbonne | General Average |
|-----------------|---------|--------|-------|-----------|-----------------|
| Cured . . .     | 12      | 9      | 22    | 16        | 15              |
| Improved . . .  | 52      | 45     | 61    | 62        | 55              |
| No effect . . . | 33      | 36     | 14    | 17        | 25              |
| Worse . . .     | 3       | 10     | 3     | 5         | 5               |
| Total . . .     | 100     | 100    | 100   | 100       | 100             |

## TIDES

The height of ordinary tides at various places is:—

|                 | <i>Feet</i> |                   | <i>Feet</i> |                   | <i>Feet</i> |
|-----------------|-------------|-------------------|-------------|-------------------|-------------|
| Bantry . . .    | 11          | Granville . . .   | 21          | Penzance . . .    | 16          |
| Belfast . . .   | 8           | Greenock . . .    | 9           | Portsmouth . . .  | 10          |
| Bergen . . .    | 4           | Harwich . . .     | 9           | Queenstown . . .  | 9           |
| Bordeaux . . .  | 8           | Havre . . .       | 13          | Ramsgate . . .    | 15          |
| Boulogne . . .  | 13          | Holyhead . . .    | 12          | St. Nazare . . .  | 9           |
| Brest . . .     | 13          | Hull . . .        | 15          | St. Malo . . .    | 19          |
| Calais . . .    | 10          | Isle of Man . . . | 19          | Scarborough . . . | 12          |
| Cherbourg . . . | 9           | Inverness . . .   | 12          | Shields . . .     | 9           |
| Dieppe . . .    | 15          | Jersey . . .      | 17          | Sligo . . .       | 8           |
| Dover . . .     | 14          | Kingstown . . .   | 9           | Sunderland . . .  | 10          |
| Drontheim . . . | 8           | Kinsale . . .     | 15          | Thurso . . .      | 9           |
| Dundee . . .    | 15          | Leith . . .       | 12          | Ushant . . .      | 20          |
| Dunkirk . . .   | 9           | Limerick . . .    | 17          | Waterford . . .   | 9           |
| Fundy Bay . . . | 66          | Liverpool . . .   | 19          | Weston-S.-M. . .  | 27          |
| Galway . . .    | 10          | London . . .      | 16          | Westport . . .    | 13          |
| Glasgow . . .   | 9           | Penbroke . . .    | 15          | Whitehaven . . .  | 24          |

Toulon has a tide of 4 inches, which is about the average of the Mediterranean.

## TIME

AT LONDON, NOON

## Forenoon

|                    |       |                    |       |                     |       |
|--------------------|-------|--------------------|-------|---------------------|-------|
| Boston . . .       | 7.15  | Havanna . . .      | 6.30  | Quebec . . .        | 7.12  |
| Buenos Ayres . . . | 8.06  | Lima . . .         | 6.52  | Quito . . .         | 6.45  |
| Caracas . . .      | 7.32  | Lisbon . . .       | 11.24 | Rio Janeiro . . .   | 9.07  |
| Chicago . . .      | 6.26  | Madeira . . .      | 10.48 | San Francisco . . . | 3.52  |
| Demerara . . .     | 8.06  | Madrid . . .       | 11.46 | Sandwich } . . .    | 1.28  |
| Dublin . . .       | 11.35 | Mexico . . .       | 5.24  | Islands } . . .     | 1.28  |
| Edinburgh . . .    | 11.47 | Montreal . . .     | 7.06  | Sierra Leone . . .  | 11.07 |
| Falkland I. . .    | 8.04  | New Orleans . . .  | 6.00  | Teneriffe . . .     | 10.52 |
| Gibraltar . . .    | 11.38 | New York . . .     | 7.05  | Trinidad . . .      | 7.55  |
| Glasgow . . .      | 11.44 | Panama . . .       | 6.42  | Valparaiso . . .    | 7.13  |
| Halifax . . .      | 7.44  | Philadelphia . . . | 6.50  | Washington . . .    | 6.52  |

## Afternoon\*

|                    |       |                  |       |                     |       |
|--------------------|-------|------------------|-------|---------------------|-------|
| Adelaide . . .     | 9.14  | Copenhagen . . . | 12.50 | Paris . . .         | 12.10 |
| Alexandria . . .   | 2.00  | Dresden . . .    | 12.54 | Pekin . . .         | 7.46  |
| Algiers . . .      | 12.13 | Florence . . .   | 12.45 | Prague . . .        | 12.58 |
| Amsterdam . . .    | 12.20 | Geneva . . .     | 12.25 | Rome . . .          | 12.50 |
| Athens . . .       | 1.35  | Jerusalem . . .  | 2.21  | St. Peters- } . . . | 2.04  |
| Berlin . . .       | 12.54 | Lyons . . .      | 12.20 | burg } . . .        | 2.04  |
| Bombay . . .       | 4.51  | Madras . . .     | 5.21  | Singapore . . .     | 6.55  |
| Brussels . . .     | 12.17 | Malta . . .      | 12.58 | Stockholm . . .     | 1.12  |
| Buda-Pesth . . .   | 1.16  | Manilla . . .    | 8.03  | Suez . . .          | 2.10  |
| Cairo . . .        | 2.07  | Mauritius . . .  | 3.48  | Sydney . . .        | 10.05 |
| Calcutta . . .     | 5.54  | Melbourne . . .  | 9.40  | Tunis . . .         | 12.40 |
| Capetown . . .     | 1.12  | Moscow . . .     | 2.30  | Venice . . .        | 12.50 |
| Constanti- } . . . | 1.56  | Munich . . .     | 12.46 | Vienna . . .        | 1.06  |
| nople } . . .      |       | Naples . . .     | 12.57 | Yokohama . . .      | 9.20  |

## TIN

The average yearly consumption of tin metal in Great Britain was:—

| Years           | Tons, Tin Metal |            |        | Value per Ton, £ |
|-----------------|-----------------|------------|--------|------------------|
|                 | British         | Net Import | Total  |                  |
| 1800-20 average | 2,510           | ...        | 2,510  | 76               |
| 1821-40 "       | 4,180           | ...        | 4,180  | 70               |
| 1841-60 "       | 5,910           | 450        | 6,360  | 107              |
| 1861 . . .      | 7,450           | ...        | 7,450  | 122              |
| 1871 . . .      | 10,900          | 810        | 11,710 | 136              |
| 1880 . . .      | 9,200           | 6,550      | 15,750 | 91               |
| 1888 . . .      | 9,200           | 22,000     | 31,200 | 117              |

\* Dresden, for example, 12.54, signifies 54 minutes past noon.

The production in 1882 was as follows:—

|                     | Tons    |           | Value of Ore, £ | Metal Ratio per Cent. |
|---------------------|---------|-----------|-----------------|-----------------------|
|                     | Tin Ore | Tin Metal |                 |                       |
| Great Britain . . . | 13,700  | 9,200     | 670,000         | 56                    |
| Australia . . .     | 24,000  | 17,500    | 1,250,000       | 74                    |
| Java . . .          | 15,000  | 9,000     | 700,000         | 60                    |
| Total . . .         | 52,700  | 35,700    | 2,620,000       | 69                    |

## TOBACCO

In 1884 the production was as follows:—

|                     | Acres     | Tons    |
|---------------------|-----------|---------|
| United States . . . | 610,000   | 210,000 |
| West Indies . . .   | 50,000    | 22,000  |
| Brazil . . .        | 105,000   | 38,000  |
| Japan . . .         | 100,000   | 40,000  |
| Java . . .          | 110,000   | 46,000  |
| India . . .         | 580,000   | 170,000 |
| Russia . . .        | 110,000   | 75,000  |
| Austria . . .       | 140,000   | 65,000  |
| Turkey . . .        | 90,000    | 35,000  |
| Germany . . .       | 52,000    | 32,000  |
| France . . .        | 26,000    | 15,000  |
| Manilla, &c. . .    | 54,000    | 20,000  |
| Total . . .         | 2,029,000 | 768,000 |

The following table shows the consumption in 1883 approximately:—

|                           | Tons    | Oz. per Inhabitant |
|---------------------------|---------|--------------------|
| United Kingdom . . .      | 23,000  | 23                 |
| France . . .              | 32,000  | 29                 |
| Germany . . .             | 61,000  | 48                 |
| Russia . . .              | 54,000  | 24                 |
| Austria . . .             | 48,000  | 42                 |
| Italy . . .               | 18,000  | 22                 |
| Spain and Portugal . . .  | 18,000  | 32                 |
| Belgium and Holland . . . | 23,000  | 84                 |
| Scandinavia . . .         | 10,000  | 40                 |
| Turkey . . .              | 22,000  | 70                 |
| Switzerland . . .         | 7,000   | 82                 |
| Europe . . .              | 383,000 | 44                 |
| United States . . .       | 85,000  | 59                 |
| India . . .               | 165,000 | 30                 |
| Japan . . .               | 38,000  | 39                 |
| Brazil . . .              | 20,000  | 70                 |
| Colonies, &c. . .         | 77,000  | ...                |
| The World . . .           | 768,000 | ...                |

The consumption per inhabitant has increased much more rapidly in France than in the United Kingdom, viz.:—

|      | Million Lbs.   |        | Oz. per Inhabitant |        | Duty, Pence per Lb. |        |
|------|----------------|--------|--------------------|--------|---------------------|--------|
|      | United Kingdom | France | United Kingdom     | France | United Kingdom      | France |
| 1801 | 17             | ...    | 16                 | ...    | 20                  | ...    |
| 1811 | 21             | 20     | 18                 | 11     | 27                  | 6      |
| 1821 | 16             | 22     | 12                 | 12     | 48                  | 6      |
| 1831 | 20             | 24     | 13                 | 12     | 36                  | 12     |
| 1841 | 22             | 36     | 13                 | 17     | 36                  | 12     |
| 1851 | 31             | 44     | 18                 | 20     | 36                  | 24     |
| 1861 | 35             | 56     | 19                 | 24     | 36                  | 30     |
| 1872 | 44             | 61     | 22                 | 26     | 36                  | 40     |
| 1881 | 51             | 70     | 23                 | 29     | 42                  | 40     |
| 1888 | 57             | 80     | 23                 | 33     | 42                  | 40     |

De Foville estimates the consumption as follows:—

|               | Oz. per Inhabitant |               | Oz. per Inhabitant |
|---------------|--------------------|---------------|--------------------|
| France . . .  | 28                 | Austria . . . | 42                 |
| Belgium . . . | 87                 | Norway . . .  | 35                 |
| Holland . . . | 70                 | Denmark . . . | 35                 |
| Germany . . . | 53                 | Russia . . .  | 28                 |

Professor Bochk estimates the annual consumption per head at two epochs as follows:—

|            | Oz. per Inhab. |         |         | Oz. per Inhab. |         |
|------------|----------------|---------|---------|----------------|---------|
|            | 1870-74        | 1880-84 |         | 1870-74        | 1880-84 |
| U. Kingdom | 23             | 23      | Norway  | 40             | 37      |
| France     | 29             | 33      | Holland | 85             | 110     |
| Germany    | 67             | 48      | Belgium | 45             | 51      |
| Sweden     | 32             | 31      | Italy   | 29             | 21      |

Newmann Spallart's estimate (1885) is as follows:—

|             | Oz. per Inhabitant |               | Oz. per Inhabitant |
|-------------|--------------------|---------------|--------------------|
| France      | 33                 | Sweden        | 41                 |
| Germany     | 69                 | Denmark       | 56                 |
| Russia      | 32                 | Norway        | 40                 |
| Austria     | 70                 | Holland       | 98                 |
| Italy       | 24                 | Belgium       | 88                 |
| Switzerland | 80                 | United States | 106                |

The market value of various kinds of tobacco in 1884 was as follows:—

|               | £ per Ton | Value of Crop, £ |
|---------------|-----------|------------------|
| Cuba          | 400       | 4,800,000        |
| Manilla       | 90        | 1,800,000        |
| Algeria       | 45        | 300,000          |
| United States | 50        | 10,000,000       |
| Brazil        | 70        | 2,800,000        |
| Java          | 63        | 1,200,000        |
| Turkey        | 63        | 2,200,000        |

The percentage of nicotine was as follows:—

|          |     |            |     |
|----------|-----|------------|-----|
| Syria    | 0.0 | California | 4.0 |
| Havana   | 2.0 | Kentucky   | 6.1 |
| Maryland | 2.3 | Virginia   | 6.9 |
| Alsace   | 3.0 | France     | 7.5 |

Snuff contains 2½ per cent., Brazilian tobacco 10 per cent. In most countries there are heavy taxes on tobacco, for which see *Taxes*.

#### FRANCE

The tobacco monopoly dates from 1816; the proceeds in 1889 amounted to £14,900,000, and it is believed that the Government makes a profit of 12 millions sterling per annum. The largest factory is that of Lille, which turns out 600,000 tons yearly. Not quite half the tobacco consumed is grown in France, the crop averaging 16,000 tons, imported tobacco 20,000 tons. About 20,000 persons are employed by Government in the manufacture or sale. Cigars and cigarettes form 13 per cent., tobacco for pipes 87 per cent.; the sale of cigars has been as follows:—

| Year | Tons  | Ratio of Total |
|------|-------|----------------|
| 1839 | 226   | 1.5            |
| 1859 | 2,210 | 9.0            |
| 1883 | 4,800 | 13.0           |

Most of the imported tobacco comes from the United States. The tobacco grown in France covers 25,000 acres, the average number of plants being 10,000 to the acre.

#### GERMANY

The cultivation has been as follows:—

| Year | Acres  | Crop, Tons | Value, £ | £ per Ton |
|------|--------|------------|----------|-----------|
| 1871 | 56,000 | 35,900     | 890,000  | 25.5      |
| 1877 | 54,000 | 31,700     | 580,000  | 20.5      |
| 1887 | 54,000 | 38,600     | 820,000  | 21.5      |

The production is short of requirements, imports averaging 25,000 tons yearly.

#### RUSSIA

The production according to N. Spallart has been:—

| Year | Acres   | Tons   | Cwts. per Acre |
|------|---------|--------|----------------|
| 1875 | 140,000 | 49,000 | 7.0            |
| 1885 | 130,000 | 51,000 | 7.8            |

Spallart estimates the consumption at 80,000 tons, which implies an importation of about 30,000 tons, but the trade returns show less than one-tenth of that quantity.

#### AUSTRIA

The production has been approximately as follows:—

| Year | Tons    |         |        |
|------|---------|---------|--------|
|      | Austria | Hungary | Total  |
| 1835 | 7,000   | 15,000  | 22,000 |
| 1877 | 6,000   | 50,000  | 56,000 |
| 1885 | 4,000   | 60,000  | 64,000 |

Besides the above crop, Austria consumes yearly about 15,000 tons imported.

#### ITALY

The consumption according to Spallart was as follows:—

| Year | Tons    |          |        |
|------|---------|----------|--------|
|      | Italian | Imported | Total  |
| 1879 | 4,300   | 12,100   | 16,400 |
| 1885 | 5,200   | 14,600   | 19,800 |

#### CUBA

The quantity of tobacco raised is comparatively small, exports seldom exceeding 8000 tons, including 500 tons of cigars. The quality, however, is so fine that the unmanufactured tobacco ranges from £200 to £800 a ton, and cigars from £1000 to £5000 a ton. Newmann Spallart gives the exportation as follows:—

| Year | Tobacco, Tons | Cigars, Tons | Total |
|------|---------------|--------------|-------|
| 1875 | 7,100         | 700          | 7,800 |
| 1884 | 6,200         | 500          | 6,700 |

In 1888 Cuba exported 220 million cigars and 300,000 bales of tobacco. Porto Rico exports 2500 tons of tobacco.

#### MANILLA

The Compañia General, with a capital of three millions sterling, owns large estates, employs 10,000 hands, and turns out yearly 80 million cigars, 400 million cigarettes, and 2500 tons of cut tobacco. The island of Luzon has 60,000 acres under tobacco. In 1889 there were 112 million cigars exported, of which 26 millions went to Spain, 18 millions to England.

#### UNITED STATES

The United States exported the following quantities:—

|      | Tons    | Value, £  | £ per Ton |
|------|---------|-----------|-----------|
| 1800 | 40,000  | 1,100,000 | 27.5      |
| 1820 | 41,000  | 1,500,000 | 37.0      |
| 1840 | 62,000  | 1,900,000 | 32.0      |
| 1860 | 86,000  | 2,500,000 | 28.8      |
| 1870 | 84,000  | 4,300,000 | 51.5      |
| 1880 | 97,000  | 3,400,000 | 35.0      |
| 1889 | 100,000 | 4,700,000 | 47.0      |

Full details of the tobacco crop of the United States are given under the title of *Agriculture*.

### TOYS

France exported the following in 1889 :—

| To                      | Tons  | Value, £  |
|-------------------------|-------|-----------|
| Great Britain . . . .   | 1,325 | 500,000   |
| Other countries . . . . | 6,335 | 2,300,000 |
| Total . . . .           | 7,660 | 2,800,000 |

Berlin papers in 1890 give statistics of Christmas trees, viz. :—

|                         |         |
|-------------------------|---------|
| Berlin takes . . . . .  | 400,000 |
| Dresden takes . . . . . | 200,000 |

Those of 3 feet sell for a shilling, 10 feet 2s., and 20 feet 10s. to 15s., including the flower-pot.

The following were the most important trade unions in the United Kingdom in 1887 :—

|                           | Number | Funds, £ |
|---------------------------|--------|----------|
| Engineers . . . . .       | 51,900 | 125,100  |
| Carpenters . . . . .      | 25,500 | 40,000   |
| Boiler-makers . . . . .   | 25,100 | 10,200   |
| Cotton-spinners . . . . . | 15,400 | 51,700   |

Mr. Philips Bevan in 1880 compiled the following table of strikes in the United Kingdom in ten preceding years :—

| Trades           | Districts            | Towns           |
|------------------|----------------------|-----------------|
| Builders . 598   | Scotland . . . 473   | London . . 56   |
| Colliers . 339   | York . . . 338       | Manchester . 44 |
| Textile . 277    | Lancashire . . 149   | Leeds . . 73    |
| Carpenters . 187 | Northumberland . 138 | Sheffield . 66  |
| Masons . 151     | South-West . . 135   | Glasgow . 85    |
| Various . 800    | Various . . . 1,119  | Edinburgh . 65  |
|                  |                      | Newcastle . 63  |
| Total . 2,352    | Total . . 2,352      |                 |

### ITALY

In five years ending 1876 there were 206 strikes :—

|                             |     |
|-----------------------------|-----|
| Masters gained . . . . .    | 124 |
| Operatives gained . . . . . | 82  |

Total . . . . . 206

There were 137 for higher wages, and 69 for other causes.

The trades in which the strikes in these States occurred were (1881-86) as follows :—

| Trade               | Hands on Strike |          |          |              |         |         |           |
|---------------------|-----------------|----------|----------|--------------|---------|---------|-----------|
|                     | Massachusetts   | Illinois | New York | Pennsylvania | Ohio    | Various | Total     |
| Mining . . . . .    | ...             | 30,200   | ...      | 118,400      | 50,700  | 59,600  | 258,900   |
| Metals . . . . .    | 4,200           | 22,000   | 11,400   | 90,400       | 27,100  | 38,300  | 193,400   |
| Transport . . . . . | 2,500           | 17,900   | 51,200   | 2,700        | 3,500   | 50,100  | 127,900   |
| Building . . . . .  | 7,600           | 9,700    | 57,100   | 4,200        | 1,900   | 19,400  | 99,900    |
| Tobacco . . . . .   | 1,000           | 1,800    | 74,100   | 2,500        | 2,600   | 15,400  | 97,400    |
| Clothing . . . . .  | 2,500           | 3,900    | 47,200   | 10,800       | 200     | 9,800   | 74,400    |
| Cottons . . . . .   | 17,100          | ...      | 6,300    | 1,900        | 500     | 17,800  | 43,600    |
| Shoes . . . . .     | 22,900          | 900      | 3,500    | 1,200        | 4,500   | 7,800   | 40,800    |
| Food . . . . .      | ...             | 33,000   | 4,700    | 100          | 100     | 2,100   | 40,000    |
| Timber . . . . .    | ...             | 12,000   | ...      | ...          | ...     | 22,900  | 34,900    |
| Furniture . . . . . | 900             | 9,300    | 5,900    | 1,100        | 2,500   | 5,400   | 25,100    |
| Machinery . . . . . | 300             | 4,300    | 4,500    | 2,200        | 2,700   | 8,300   | 22,300    |
| Brick . . . . .     | ...             | 5,000    | 6,500    | 900          | 600     | 7,300   | 20,300    |
| Various . . . . .   | 22,100          | 41,900   | 57,500   | 47,000       | 12,800  | 63,000  | 244,300   |
| Total . . . . .     | 81,100          | 191,900  | 329,900  | 283,400      | 109,700 | 327,200 | 1,323,200 |

### TRADE UNIONS

According to Mr. George Howell, there are about 8000 trade unions in Great Britain, counting 1,200,000 members, with an aggregate revenue of £2,000,000. He publishes the following balance-sheet for 30 years down to 1881 :—

#### Payments

|                                  |            |
|----------------------------------|------------|
| Sick operatives . . . . .        | £1,004,000 |
| Out of work operatives . . . . . | 1,979,000  |
| On strike operatives . . . . .   | 274,000    |
| Pensions . . . . .               | 330,000    |
| Funerals . . . . .               | 319,000    |
| Accidents . . . . .              | 120,000    |
| Loans . . . . .                  | 67,000     |

Total . . . . . £4,093,000

Forty-four principal unions showed as follows :—

|                      | 1871    | 1883    |
|----------------------|---------|---------|
| Members . . . . .    | 224,000 | 253,000 |
| Income, £ . . . . .  | 240,000 | 293,000 |
| Reserve, £ . . . . . | 200,000 | 431,000 |

### UNITED STATES

Commissioner Wadlin, chief of the Bureau of Statistics for Massachusetts, published in 1888 a report on strikes from 1825 to 1886; with a vast amount of detail on all the strikes by operatives and lockouts by employers during the six years ending December 1886. These latter may be summed up thus :—

|                         | Strikes        |                 | Hands after Strike | Lockouts, Hands Involved |
|-------------------------|----------------|-----------------|--------------------|--------------------------|
|                         | Hands Employed | Hands on Strike |                    |                          |
| Massachusetts . . . . . | 114,000        | 81,100          | 109,300            | 14,300                   |
| Illinois . . . . .      | 214,000        | 191,900         | 213,300            | 21,400                   |
| New York . . . . .      | 376,600        | 329,900         | 374,100            | 71,200                   |
| Pennsylvania . . . . .  | 361,600        | 283,400         | 358,100            | 16,700                   |
| Ohio . . . . .          | 132,700        | 109,700         | 130,200            | 7,300                    |
| Various . . . . .       | 461,400        | 327,200         | 450,000            | 29,700                   |
| Total . . . . .         | 1,660,300      | 1,323,200       | 1,635,000          | 160,800                  |

The trades affected by lockouts by masters were (1881-86) as follows :—

|                     | Hands Locked Out |          |        |        |        |         |         |
|---------------------|------------------|----------|--------|--------|--------|---------|---------|
|                     | Tobacco          | Clothing | Shoes  | Food   | Metals | Various | Total   |
| Massachusetts . . . | ...              | ...      | 11,100 | 700    | ...    | 2,500   | 14,300  |
| Illinois . . .      | 500              | 600      | ...    | 16,000 | 1,700  | 2,600   | 21,400  |
| New York . . .      | 23,900           | 23,100   | 500    | ...    | 4,500  | 19,200  | 71,200  |
| Pennsylvania . . .  | 800              | 1,400    | 4,000  | ...    | 5,900  | 4,600   | 16,700  |
| Ohio . . .          | 1,700            | ...      | 2,000  | ...    | 1,000  | 2,800   | 7,500   |
| Various . . .       | 3,600            | 1,900    | 300    | ...    | 3,500  | 20,400  | 29,700  |
| Total . . .         | 30,500           | 27,000   | 17,900 | 16,700 | 16,600 | 52,100  | 160,800 |

The following is a general summary of all strikes in the State of Massachusetts between 1825 and 1886 :—

| Trade            | Number | Locality      | Number |
|------------------|--------|---------------|--------|
| Textiles . . .   | 59     | Boston . . .  | 35     |
| Shoemakers . . . | 34     | Lynn . . .    | 14     |
| Builders . . .   | 10     | Lowell . . .  | 10     |
| Various . . .    | 56     | Various . . . | 90     |
| Total . . .      | 159    | Total . . .   | 159    |

The causes and results were as follows :—

| For                     | Result                 |
|-------------------------|------------------------|
| Better wages . . . 118  | Successful . . . 24    |
| Shorter hours . . . 24  | Unsuccessful . . . 109 |
| Various causes . . . 17 | Compromised . . . 26   |
| Total . . . 159         | Total . . . 159        |

The loss caused in Massachusetts by strikes to employers and operatives in the several trades during the said six years (1881-86) was as follows :—

| Trade               | To Employers | To Operatives | Total     |
|---------------------|--------------|---------------|-----------|
| Shoes . . .         | £ 100,000    | £ 330,000     | £ 430,000 |
| Woollen-mills . . . | 105,000      | 170,000       | 275,000   |
| Cotton-mills . . .  | 15,000       | 130,000       | 145,000   |
| Building . . .      | 90,000       | 50,000        | 140,000   |
| Leather . . .       | 30,000       | 30,000        | 60,000    |
| Sundries . . .      | 70,000       | 160,000       | 230,000   |
| Total . . .         | 410,000      | 870,000       | 1,280,000 |

If the losses in Massachusetts be on a par with those of the other States according to the number of hands on strike and of those involved in lockouts, the total for the Union would be as follows :—

|                    | Aggregate Loss in Strikes of Six Years |               |             | Loss in Lockouts |
|--------------------|----------------------------------------|---------------|-------------|------------------|
|                    | To Employers                           | To Operatives | Total       |                  |
| Massachusetts      | £ 410,000                              | £ 870,000     | £ 1,280,000 | £ 315,000        |
| Illinois . . .     | 950,000                                | 2,060,000     | 3,010,000   | 470,000          |
| New York . . .     | 1,650,000                              | 3,560,000     | 5,210,000   | 1,580,000        |
| Pennsylvania . . . | 1,400,000                              | 3,070,000     | 4,470,000   | 360,000          |
| Ohio . . .         | 540,000                                | 1,160,000     | 1,700,000   | 170,000          |
| Other States . . . | 1,630,000                              | 3,530,000     | 5,160,000   | 650,000          |
| Total . . .        | 6,580,000                              | 14,250,000    | 20,830,000  | 3,545,000        |

This shows a total supposed loss of 24 millions sterling, or 4 millions a year, in disputes between employers and operatives.

The loss caused by lockouts in the same six years was :—

| Trade          | To Employers | To Operatives | Total     |
|----------------|--------------|---------------|-----------|
| Shoes . . .    | £ 27,000     | £ 110,000     | £ 137,000 |
| Building . . . | 63,000       | 5,000         | 68,000    |
| Leather . . .  | 12,000       | 75,000        | 87,000    |
| Sundries . . . | 13,000       | 10,000        | 23,000    |
| Total . . .    | 115,000      | 200,000       | 315,000   |

## TRAMWAYS

Statistics are wanting as regards most countries.

### UNITED KINGDOM

The mileage and cost have been as follows :—

|                | Miles |      | Cost, £   |            | £ per Mile |        |
|----------------|-------|------|-----------|------------|------------|--------|
|                | 1880  | 1889 | 1880      | 1889       | 1880       | 1889   |
| England . . .  | 269   | 758  | 4,200,000 | 11,200,000 | 15,550     | 14,700 |
| Scotland . . . | 50    | 81   | 800,000   | 1,300,000  | 16,000     | 15,500 |
| Ireland . . .  | 48    | 110  | 700,000   | 1,200,000  | 13,500     | 11,000 |
| U. Kingdom     | 367   | 949  | 5,700,000 | 13,700,000 | 15,400     | 14,400 |

Traffic returns in 1889 showed as follows :—

|                | Million Passengers | Passengers per Mile | Receipts, £ | Net, £  | Ratio to Capital |
|----------------|--------------------|---------------------|-------------|---------|------------------|
| England . . .  | 380                | 501,000             | 2,370,000   | 543,000 | 4.9              |
| Scotland . . . | 71                 | 871,000             | 400,000     | 119,000 | 9.3              |
| Ireland . . .  | 27                 | 249,000             | 211,000     | 51,000  | 4.2              |
| U. Kingdom     | 478                | 503,000             | 2,981,000   | 713,000 | 5.2              |

According to Scott Russell, the cost of working tramways by compressed air (as at Nantes) is 5d. per mile, by steam 39d., and by horse 56d. per mile. He also says that a tramcar drawn by two horses on the level will require the following number, according to gradients :—

| Gradient      | Horses |
|---------------|--------|
| 1 in 75 . . . | 4      |
| 1 in 37 . . . | 6      |
| 1 in 25 . . . | 8      |

The above returns show that the average fare in pence is 1.5 in England, 1.3 in Scotland, and 1.8 in Ireland.

### GERMANY

Berlin has 80 miles of tramway, which carried 52 million passengers in 1888.

## FRANCE

In 1889 there were 455 miles of tramway in use. The cost of construction was £5,650,000, or £12,000 per mile, and the traffic in 1888 showed:—

|                       |             |
|-----------------------|-------------|
| Earnings . . . . .    | £ 1,430,000 |
| Expenses . . . . .    | 1,160,000   |
| Net product . . . . . | 270,000     |

This was equal to 4½ per cent. on the capital cost. The Omnibus Co. of Paris has 13,700 horses, of which 10,200 are used for busses and 3500 for trams, being 15 for each bus and 14 for each tramcar.

## UNITED STATES

The United States and Canada showed tramways thus:—

|                 | 1882  | 1890  |
|-----------------|-------|-------|
| Lines . . . . . | 415   | 957   |
| Miles . . . . . | 3,020 | 8,820 |

The lines running in 1882 employed 35,000 men and 100,000 horses, carrying 101 million passengers monthly. The horses drew 18,000 cars, and consumed yearly 150,000 tons hay and 300,000 tons grain: they last four years. The value of tramways in 1890 was:—

|                           |              |
|---------------------------|--------------|
| Horse trams . . . . .     | £ 12,200,000 |
| Steam and cable . . . . . | 11,600,000   |
| Electric . . . . .        | 10,200,000   |
| Total . . . . .           | 34,000,000   |

## BELGIUM

In 1888 there were 42 miles of tramway; traffic of year, 14,800,000 passengers; receipts, £199,000; net earnings, £61,000; cost of construction, £1,030,000.

## HOLLAND

In 1882 the returns were:—

|                     | Miles | Passengers | Receipts, £ |
|---------------------|-------|------------|-------------|
| Amsterdam . . . . . | 38    | 8,400,000  | 85,000      |
| Rotterdam . . . . . | 12    | 4,100,000  | 31,000      |
| Hague . . . . .     | 20    | 2,350,000  | 27,000      |
| Various . . . . .   | 190   | 4,050,000  | 57,000      |
| Total . . . . .     | 260   | 18,900,000 | 210,000     |

Returns for later years show:—

|                       | 1884       | 1888       |
|-----------------------|------------|------------|
| Miles . . . . .       | 380        | 555        |
| Horses . . . . .      | ...        | 1,023      |
| Locomotives . . . . . | 152        | 214        |
| Passengers . . . . .  | 20,100,000 | 30,900,000 |
| Receipts, £ . . . . . | 267,000    | 282,000    |

## SWITZERLAND

In 1888 there were 22 miles of tramway, worked by 5 locomotives and 260 horses, carrying yearly 6,300,000 passengers; receipts, £37,000; net receipts, £8200; cost of construction, £169,000, or £7600 per mile.

## TRANSPORT

The following table shows approximately the weight of sea-borne merchandise yearly:—

|                    | Tons Yearly |            |             |             | Ratio in 1888 |
|--------------------|-------------|------------|-------------|-------------|---------------|
|                    | 1861-70     | 1871-80    | 1880        | 1888        |               |
| Grain . . . . .    | 4,375,000   | 10,072,000 | 10,530,000  | 13,600,000  | 9.3           |
| Cotton . . . . .   | 486,000     | 995,000    | 1,170,000   | 1,450,000   | 1.0           |
| Wool . . . . .     | 121,000     | 252,000    | 301,000     | 440,000     | 0.3           |
| Meat . . . . .     | 125,000     | 380,000    | 660,000     | 730,000     | 0.5           |
| Coal . . . . .     | 14,200,000  | 22,100,000 | 30,400,000  | 38,200,000  | 26.2          |
| Iron . . . . .     | 1,920,000   | 3,490,000  | 4,588,000   | 4,700,000   | 3.2           |
| Sugar . . . . .    | 1,260,000   | 2,086,000  | 2,350,000   | 2,600,000   | 1.8           |
| Clothing . . . . . | 1,410,000   | 2,520,000  | 2,815,000   | 3,100,000   | 2.1           |
| Coffee . . . . .   | 346,000     | 452,000    | 527,000     | 630,000     | 0.4           |
| Timber . . . . .   | 16,170,000  | 21,215,000 | 23,550,000  | 25,400,000  | 17.3          |
| Sundries . . . . . | 13,807,000  | 26,778,000 | 35,875,000  | 55,550,000  | 37.9          |
| Total * . . . . .  | 54,220,000  | 90,340,000 | 112,766,000 | 146,400,000 | 100.0         |

The weight and value of sea-borne merchandise at various dates were approximately as follows:—

| Year           | Tons, Millions | Value, Million £ | Value per Ton |
|----------------|----------------|------------------|---------------|
| 1830 . . . . . | 10             | 193              | £19           |
| 1840 . . . . . | 15             | 287              | 19            |
| 1850 . . . . . | 25             | 438              | 17            |
| 1860 . . . . . | 41             | 701              | 17            |
| 1870 . . . . . | 71             | 995              | 14            |
| 1880 . . . . . | 117            | 1,360            | 12            |
| 1888 . . . . . | 146            | 1,490            | 10            |

The weight borne on canals and rivers was approximately thus:—

|                      | Tons       |                         | Tons        |
|----------------------|------------|-------------------------|-------------|
| U. Kingdom . . . . . | 34,300,000 | Canada . . . . .        | 3,400,000   |
| France . . . . .     | 24,500,000 | United States . . . . . | 51,000,000  |
| Germany . . . . .    | 8,000,000  |                         |             |
| Russia . . . . .     | 8,600,000  | Total . . . . .         | 137,500,000 |
| Belgium . . . . .    | 7,700,000  |                         |             |

The foregoing is an estimate as regards the United States, based on the fact that in 1880 the steamboats alone carried 25,500,000 tons merchandise, without counting flat-boats drawn by tugs.

The weight of merchandise carried by railways was approximately as follows:—

|                          | Millions of Tons |      |       |       |
|--------------------------|------------------|------|-------|-------|
|                          | 1860             | 1870 | 1880  | 1888  |
| United Kingdom . . . . . | 82               | 170  | 256   | 282   |
| Continent . . . . .      | 68               | 231  | 413   | 483   |
| United States . . . . .  | 70               | 150  | 361   | 599   |
| Colonies, &c . . . . .   | 2                | 11   | 40    | 75    |
| The World . . . . .      | 222              | 562  | 1,070 | 1,430 |

\* These totals are equal to 65 per cent. of the aggregate annual tonnage of the port-entries of the world at the various periods (see p. 522).



It appears, therefore, that the annual goods traffic of the world daily, counting 310 days to the year, is as follows:—

|                    | Tons      |
|--------------------|-----------|
| By rail . . . . .  | 4,610,000 |
| On sea . . . . .   | 470,000   |
| By canal . . . . . | 440,000   |
| Total . . . . .    | 5,520,000 |

But as each sea-voyage may be assumed to last ten days, during which the merchandise is being carried, the real goods traffic of the world (allowing three days for canal traffic) averages daily as follows:—

|                    | Tons       |
|--------------------|------------|
| By rail . . . . .  | 4,610,000  |
| By sea . . . . .   | 4,700,000  |
| By canal . . . . . | 1,320,000  |
| Total . . . . .    | 10,630,000 |

As regards passenger traffic, the following table shows approximately the principal sea-routes and their number yearly:—

| Between                                   | Passengers |
|-------------------------------------------|------------|
| Europe and United States . . . . .        | 900,000    |
| England and France . . . . .              | 650,000    |
| Mediterranean and South America . . . . . | 450,000    |
| France and Algeria . . . . .              | 240,000    |
| Danube ports . . . . .                    | 1,650,000  |
| Adriatic and Levant . . . . .             | 280,000    |

The traffic between England and the Continent has been as follows:—

| Year           | Passengers |
|----------------|------------|
| 1842 . . . . . | 109,000    |
| 1848 . . . . . | 124,000    |
| 1889 . . . . . | 730,000    |

Dover and Calais boats carry 360,000; Newhaven and Dieppe, 190,000; Folkestone and Boulogne, 115,000; Dover and Ostend, 56,000.

As regards railway passengers, see *Railways*.

## TRAVELLERS

In 1870 there were 398,000 in Russia, including 237,000 Germans and 123,000 Austrians.

In 1879 there were 947,000 persons who visited Switzerland, of whom 350,000 were Germans, 210,000 Americans, and 160,000 Russians. See *Passengers and Transport*.

## TRUFFLES

Perigord produces 1500 tons per annum, worth £1000 per ton; 90 per cent. are consumed in France.

## TULIPS

One root of the "Viceroy" sold at Amsterdam for £2600, and when a law was passed against paying over £500 for a root, a "Semper Augustus" fetched £460, with a carriage and pair of horses. Holland has 600 acres under tulips, and exports the value of £110,000 per annum.

## TUNNELS

Herodotus mentions a tunnel 8 × 8 feet, with a length of 1100 yards, to supply Samos with water; remains discovered in 1882. The Schemnitz tunnel, completed in 1888, was begun in the 18th century, at a height of 3000 feet over sea-level: the original contract was for £7 a lineal yard, but the works were suspended from

1795 to 1825, and again from 1835 to 1855; the cost has been one million sterling. The Channel tunnel was first proposed by De Gramond in 1867, in the form of a metal telescope 30 × 24 feet, to cost 7 millions sterling, and be completed in seven years. Hawkshaw took up the project in 1869, Bateman and Revy being associated in the plans. A company was formed in 1874; estimated cost, 3 millions sterling; length, 30 miles; opening, 14 × 14 feet; trains to go 40 miles an hour, each having 12 carriages with 400 passengers, and 20 waggons with 100 tons goods; estimated yearly traffic, 6,000,000 passengers and 1,500,000 tons goods. Parliament opposed the project, and the works were suspended in 1883.

The most remarkable tunnels are the following:—

| Date | Tunnel                | Length, Yards | Cost per Yard, £ | Maker                | Years in Making | Aperture, Feet |
|------|-----------------------|---------------|------------------|----------------------|-----------------|----------------|
| 1827 | Harecastle . . . . .  | 2,926         | ...              | Telford . . . . .    | 3               | 14 × 16        |
| 1835 | Kilsby . . . . .      | 2,070         | 154              | Stephenson . . . . . | ...             | 27 × 24        |
| 1843 | Thames . . . . .      | 560           | 1,100            | Brunel . . . . .     | 11              | 38 × 22        |
| 1870 | Mont Ceniz . . . . .  | 13,540        | 201              | Grattoni . . . . .   | 13              | 10 × 8         |
| 1879 | Baltimore . . . . .   | 10,800        | ...              | ...                  | ...             | ...            |
| 1881 | St. Gothard . . . . . | 16,390        | 152              | Favre . . . . .      | 8               | 9 × 8          |
| 1884 | Aariberg . . . . .    | 6,720         | 220              | Favre . . . . .      | 20              | ...            |
| 1884 | Hudson . . . . .      | 1,833         | 1,100            | Richardson . . . . . | 4               | 18 × 18        |
| 1885 | Mersey . . . . .      | 2,700         | 200              | Favre . . . . .      | 4               | 27 × 20        |
| 1885 | Severn . . . . .      | ...           | ...              | Richardson . . . . . | 12              | ...            |
| 1886 | Hoosac . . . . .      | 7,900         | ...              | ...                  | 16              | 24 × 9         |
| 1888 | Schemnitz . . . . .   | 19,400        | 52               | ...                  | 106             | 9 × 7          |

The following engines have been used for tunnels:—

| Date | Inventor             | Strokes per Minute | Date | Inventor             | Strokes per Minute |
|------|----------------------|--------------------|------|----------------------|--------------------|
| 1813 | Trevethick . . . . . | ...                | 1873 | Darlington . . . . . | 500                |
| 1853 | Bartlett . . . . .   | ...                | 1873 | Ferroux . . . . .    | ...                |
| 1857 | Sommeiller . . . . . | 400                | 1873 | Ingersoll . . . . .  | 400                |
| 1863 | Sachs . . . . .      | 400                | 1875 | Barrow . . . . .     | ...                |
| 1868 | Dubois . . . . .     | 300                | 1875 | Ullathorne . . . . . | ...                |
| 1868 | François . . . . .   | 300                | 1876 | Beaumont . . . . .   | ...                |
| 1869 | Burleigh . . . . .   | 400                | 1876 | Geach . . . . .      | 500                |
| 1869 | Ostercamp . . . . .  | 220                | 1877 | Jordan . . . . .     | ...                |
| 1872 | M'Kean . . . . .     | 500                | 1877 | Schramm . . . . .    | 500                |

Brunton's borer has been found in late years to make 49 inches of tunnel per hour, with 7 feet diameter. The following table shows various methods:—

| Tunnel                | Feet Opening | Engine               | Pressure, Lbs. Sq. Inch | Tons Excavated | Tons Daily |
|-----------------------|--------------|----------------------|-------------------------|----------------|------------|
| Thames . . . . .      | 800          | Brunel . . . . .     | ...                     | 45,000         | 12         |
| Mont Ceniz . . . . .  | 81           | Sommeiller . . . . . | 90                      | 240,000        | 60         |
| Airolo . . . . .      | 70           | M'Kean . . . . .     | 90                      | ...            | ...        |
| Schemnitz . . . . .   | 60           | Sachs . . . . .      | 60                      | 45,000         | 15         |
| Comstock . . . . .    | 140          | Burleigh . . . . .   | 70                      | ...            | 155        |
| Hudson . . . . .      | 324          | ...                  | ...                     | 52,000         | 80         |
| Ronchamps . . . . .   | 52           | Dubois . . . . .     | 67                      | ...            | ...        |
| Belmore . . . . .     | 27           | Darlington . . . . . | 50                      | ...            | 3          |
| St. Gothard . . . . . | 72           | Ferroux . . . . .    | 90                      | 265,000        | 102        |

The Channel and Mersey tunnels employed Beaumont's compressed-air borer. The cost of excavation was £13 per ton of clay in the Thames tunnel, £11 per ton of rock in Mont Ceniz, and £9 per ton in St Gothard.

U. AND V.

UMBRELLAS

In France the value of those made yearly is known, and if four francs be taken as the average price, the account will stand thus :—

| Year       | Makers | Umbrellas | Value, £  |
|------------|--------|-----------|-----------|
| 1830 . . . | 160    | 1,800,000 | 280,000   |
| 1847 . . . | 303    | 2,500,000 | 405,000   |
| 1882 . . . | 890    | 7,500,000 | 1,180,000 |

The value of British umbrellas exported from the United Kingdom was :—

| Year           | £       |
|----------------|---------|
| 1875 . . . . . | 360,000 |
| 1889 . . . . . | 610,000 |

London imports about 3,000,000 umbrellas from the United Kingdom, and one million from other countries. China exports a large number of paper-covered umbrellas.

VITAL STATISTICS

The following is a conspectus of births, deaths, and marriages in various countries, showing the average for ten years ending 1888, or the latest available group of years :—

|               | Births     | Deaths    | Surplus of Births | Marriages |
|---------------|------------|-----------|-------------------|-----------|
| England . .   | 890,000    | 521,000   | 369,000           | 202,000   |
| Scotland . .  | 125,000    | 74,000    | 51,000            | 26,000    |
| Ireland . .   | 117,000    | 90,000    | 27,000            | 21,000    |
| U. Kingdom    | 1,132,000  | 685,000   | 447,000           | 249,000   |
| France . .    | 923,000    | 844,000   | 79,000            | 282,000   |
| Germany . .   | 1,722,000  | 1,177,000 | 545,000           | 357,000   |
| Russia . .    | 3,790,000  | 2,733,000 | 1,057,000         | 695,000   |
| Austria . .   | 862,000    | 674,000   | 188,000           | 175,000   |
| Hungary . .   | 713,000    | 556,000   | 157,000           | 159,000   |
| Italy . .     | 1,074,000  | 813,000   | 261,000           | 221,000   |
| Spain . .     | 575,000    | 514,000   | 61,000            | 118,000   |
| Portugal . .  | 155,000    | 110,000   | 45,000            | 33,300    |
| Sweden . .    | 137,000    | 79,000    | 58,000            | 29,500    |
| Norway . .    | 60,000     | 32,000    | 28,000            | 12,700    |
| Denmark . .   | 65,500     | 38,500    | 27,000            | 15,200    |
| Holland . .   | 147,000    | 91,000    | 56,000            | 30,300    |
| Belgium . .   | 175,000    | 119,000   | 56,000            | 39,800    |
| Switzerland . | 82,500     | 61,000    | 21,500            | 19,900    |
| Roumania . .  | 198,000    | 137,000   | 61,000            | 41,600    |
| Servia . .    | 90,500     | 52,000    | 38,500            | 21,200    |
| Greece . .    | 46,000     | 32,500    | 13,500            | 10,200    |
| Europe . .    | 11,947,500 | 8,748,000 | 3,199,500         | 2,512,700 |
| Australia . . | 121,500    | 48,000    | 73,500            | 25,800    |
| Uruguay . .   | 23,600     | 10,300    | 13,300            | 3,400     |
| Japan . .     | 981,000    | 739,000   | 242,000           | 305,000   |

Under the title of *Births, Deaths, and Marriages*, detailed statistics will be found, showing the birth-rate, death-rate, and other important considerations bearing on vital statistics. The above table shows that there are in Europe 33,000 births and 24,000 deaths daily, or 16 births and 12 deaths a minute. It shows also that the ordinary excess of births over deaths in Europe is 3,200,000 yearly; but the increase of population is not more than 2,400,000, as the ordinary emigration is 960,000, the number of emigrants returning to Europe being under 200,000.

UNITED KINGDOM

The number of births, deaths, and marriages was as follows :—

Births

| Year      | England | Scotland | Ireland | U. Kingdom |
|-----------|---------|----------|---------|------------|
| 1870 . .  | 793,000 | 115,000  | 150,000 | 1,058,000  |
| 1871 . .  | 797,000 | 116,000  | 152,000 | 1,065,000  |
| 1872 . .  | 826,000 | 119,000  | 149,000 | 1,094,000  |
| 1873 . .  | 830,000 | 120,000  | 144,000 | 1,094,000  |
| 1874 . .  | 855,000 | 124,000  | 141,000 | 1,120,000  |
| 1875 . .  | 851,000 | 124,000  | 138,000 | 1,113,000  |
| 1876 . .  | 888,000 | 127,000  | 140,000 | 1,155,000  |
| 1877 . .  | 888,000 | 127,000  | 140,000 | 1,155,000  |
| 1878 . .  | 892,000 | 127,000  | 134,000 | 1,153,000  |
| 1879 . .  | 883,000 | 126,000  | 135,000 | 1,144,000  |
| Average . | 850,000 | 124,000  | 142,000 | 1,116,000  |
| 1880 . .  | 882,000 | 125,000  | 128,000 | 1,135,000  |
| 1881 . .  | 884,000 | 126,000  | 126,000 | 1,136,000  |
| 1882 . .  | 889,000 | 126,000  | 123,000 | 1,138,000  |
| 1883 . .  | 891,000 | 124,000  | 118,000 | 1,133,000  |
| 1884 . .  | 907,000 | 129,000  | 119,000 | 1,155,000  |
| 1885 . .  | 894,000 | 126,000  | 116,000 | 1,136,000  |
| 1886 . .  | 904,000 | 128,000  | 114,000 | 1,146,000  |
| 1887 . .  | 886,000 | 124,000  | 112,000 | 1,122,000  |
| 1888 . .  | 880,000 | 123,000  | 110,000 | 1,113,000  |
| 1889 . .  | 885,000 | 123,000  | 108,000 | 1,116,000  |
| Average . | 890,000 | 125,000  | 117,000 | 1,132,000  |

Deaths

| Year      | England | Scotland | Ireland | U. Kingdom |
|-----------|---------|----------|---------|------------|
| 1870 . .  | 515,000 | 74,000   | 91,000  | 680,000    |
| 1871 . .  | 515,000 | 75,000   | 89,000  | 679,000    |
| 1872 . .  | 492,000 | 76,000   | 98,000  | 666,000    |
| 1873 . .  | 493,000 | 77,000   | 98,000  | 668,000    |
| 1874 . .  | 527,000 | 81,000   | 92,000  | 700,000    |
| 1875 . .  | 546,000 | 82,000   | 98,000  | 726,000    |
| 1876 . .  | 510,000 | 74,000   | 92,000  | 676,000    |
| 1877 . .  | 500,000 | 74,000   | 94,000  | 668,000    |
| 1878 . .  | 540,000 | 77,000   | 100,000 | 717,000    |
| 1879 . .  | 528,000 | 73,000   | 105,000 | 706,000    |
| Average . | 517,000 | 76,000   | 96,000  | 689,000    |
| 1880 . .  | 529,000 | 76,000   | 103,000 | 708,000    |
| 1881 . .  | 492,000 | 72,000   | 90,000  | 654,000    |
| 1882 . .  | 517,000 | 73,000   | 89,000  | 679,000    |
| 1883 . .  | 523,000 | 77,000   | 96,000  | 696,000    |
| 1884 . .  | 531,000 | 75,000   | 87,000  | 693,000    |
| 1885 . .  | 523,000 | 75,000   | 91,000  | 689,000    |
| 1886 . .  | 537,000 | 74,000   | 87,000  | 698,000    |
| 1887 . .  | 531,000 | 75,000   | 89,000  | 695,000    |
| 1888 . .  | 511,000 | 71,000   | 86,000  | 668,000    |
| 1889 . .  | 517,000 | 73,000   | 83,000  | 673,000    |
| Average . | 521,000 | 74,000   | 90,000  | 685,000    |

Surplus of Births over Deaths

| Year      | England | Scotland | Ireland | U. Kingdom |
|-----------|---------|----------|---------|------------|
| 1870 . .  | 278,000 | 41,000   | 59,000  | 378,000    |
| 1871 . .  | 282,000 | 41,000   | 63,000  | 386,000    |
| 1872 . .  | 334,000 | 43,000   | 51,000  | 428,000    |
| 1873 . .  | 337,000 | 43,000   | 46,000  | 426,000    |
| 1874 . .  | 328,000 | 43,000   | 49,000  | 420,000    |
| 1875 . .  | 305,000 | 48,000   | 40,000  | 393,000    |
| 1876 . .  | 378,000 | 53,000   | 48,000  | 479,000    |
| 1877 . .  | 388,000 | 53,000   | 46,000  | 487,000    |
| 1878 . .  | 352,000 | 50,000   | 34,000  | 436,000    |
| 1879 . .  | 355,000 | 53,000   | 30,000  | 438,000    |
| Average . | 334,000 | 46,000   | 47,000  | 427,000    |

*Surplus of Births over Deaths.*

| Year      | England | Scotland | Ireland | U. Kingdom |
|-----------|---------|----------|---------|------------|
| 1880 . .  | 353,000 | 49,000   | 25,000  | 427,000    |
| 1881 . .  | 392,000 | 54,000   | 36,000  | 482,000    |
| 1882 . .  | 372,000 | 53,000   | 34,000  | 459,000    |
| 1883 . .  | 368,000 | 47,000   | 22,000  | 437,000    |
| 1884 . .  | 376,000 | 54,000   | 32,000  | 462,000    |
| 1885 . .  | 371,000 | 51,000   | 25,000  | 451,000    |
| 1886 . .  | 367,000 | 54,000   | 27,000  | 448,000    |
| 1887 . .  | 355,000 | 49,000   | 23,000  | 427,000    |
| 1888 . .  | 369,000 | 52,000   | 24,000  | 445,000    |
| 1889 . .  | 368,000 | 50,000   | 25,000  | 443,000    |
| Average . | 369,000 | 51,000   | 27,000  | 447,000    |

*Marriages*

|           |         |        |        |         |
|-----------|---------|--------|--------|---------|
| 1870 . .  | 182,000 | 24,000 | 29,000 | 235,000 |
| 1871 . .  | 190,000 | 24,000 | 29,000 | 243,000 |
| 1872 . .  | 201,000 | 26,000 | 27,000 | 254,000 |
| 1873 . .  | 206,000 | 27,000 | 26,000 | 259,000 |
| 1874 . .  | 202,000 | 26,000 | 24,000 | 252,000 |
| 1875 . .  | 201,000 | 26,000 | 24,000 | 251,000 |
| 1876 . .  | 202,000 | 27,000 | 26,000 | 255,000 |
| 1877 . .  | 194,000 | 26,000 | 25,000 | 245,000 |
| 1878 . .  | 190,000 | 24,000 | 25,000 | 239,000 |
| 1879 . .  | 182,000 | 23,000 | 23,000 | 228,000 |
| Average . | 195,000 | 25,000 | 26,000 | 246,000 |
| 1880 . .  | 192,000 | 25,000 | 20,000 | 237,000 |
| 1881 . .  | 197,000 | 26,000 | 22,000 | 245,000 |
| 1882 . .  | 204,000 | 27,000 | 22,000 | 253,000 |
| 1883 . .  | 206,000 | 27,000 | 21,000 | 254,000 |
| 1884 . .  | 205,000 | 26,000 | 23,000 | 254,000 |
| 1885 . .  | 198,000 | 25,000 | 21,000 | 244,000 |
| 1886 . .  | 196,000 | 25,000 | 21,000 | 242,000 |
| 1887 . .  | 201,000 | 25,000 | 21,000 | 247,000 |
| 1888 . .  | 204,000 | 25,000 | 20,000 | 249,000 |
| 1889 . .  | 214,000 | 26,000 | 21,000 | 261,000 |
| Average . | 202,000 | 26,000 | 21,000 | 249,000 |

## INDIA

In 1887 the birth-rates and death-rates per 1000 of population were :—

|                         | <i>Births</i> | <i>Deaths</i> |
|-------------------------|---------------|---------------|
| Bengal . . . . .        | 24.7          | 22.7          |
| North-West and Oude . . | 41.2          | 32.0          |
| Punjab . . . . .        | 38.8          | 26.9          |
| Central Provinces . . . | 45.4          | 34.2          |
| Lower Burmah . . . . .  | 25.5          | 19.9          |
| Assam . . . . .         | 28.0          | 27.9          |
| Madras . . . . .        | 29.3          | 21.8          |
| Bombay . . . . .        | 34.8          | 28.8          |
| Mysore . . . . .        | 24.1          | 15.9          |

Official returns are as follow :—

## GERMANY

*Births*

| Year              | Prussia   | Bavaria | Saxony  | Wurtemberg | Duchies, &c. | Empire    |
|-------------------|-----------|---------|---------|------------|--------------|-----------|
| 1879 . . . . .    | 1,052,000 | 208,000 | 125,000 | 81,000     | 270,000      | 1,736,000 |
| 1880 . . . . .    | 1,029,000 | 203,000 | 123,000 | 78,000     | 263,000      | 1,696,000 |
| 1881 . . . . .    | 1,013,000 | 204,000 | 125,000 | 77,000     | 263,000      | 1,682,000 |
| 1882 . . . . .    | 1,036,000 | 202,000 | 127,000 | 76,000     | 261,000      | 1,702,000 |
| 1883 . . . . .    | 1,029,000 | 197,000 | 127,000 | 73,000     | 258,000      | 1,684,000 |
| 1884 . . . . .    | 1,051,000 | 204,000 | 133,000 | 74,000     | 264,000      | 1,726,000 |
| 1885 . . . . .    | 1,065,000 | 200,000 | 133,000 | 72,000     | 260,000      | 1,730,000 |
| 1886 . . . . .    | 1,074,000 | 200,000 | 137,000 | 71,000     | 264,000      | 1,746,000 |
| 1887 . . . . .    | 1,085,000 | 200,000 | 137,000 | 70,000     | 265,000      | 1,757,000 |
| 1888 . . . . .    | 1,091,000 | 197,000 | 140,000 | 69,000     | 264,000      | 1,761,000 |
| Average . . . . . | 1,052,000 | 202,000 | 131,000 | 74,000     | 263,000      | 1,722,000 |

## FRANCE

*Births*

| Year           | Males   | Females | Total   |
|----------------|---------|---------|---------|
| 1810 . . . . . | 481,000 | 451,000 | 932,000 |
| 1820 . . . . . | 495,000 | 465,000 | 960,000 |
| 1830 . . . . . | 497,000 | 471,000 | 968,000 |
| 1840 . . . . . | 489,000 | 463,000 | 952,000 |
| 1850 . . . . . | 490,000 | 464,000 | 954,000 |
| 1860 . . . . . | 490,000 | 467,000 | 957,000 |
| 1870 . . . . . | 483,000 | 461,000 | 944,000 |
| 1880 . . . . . | 469,000 | 451,000 | 920,000 |
| 1885 . . . . . | 474,000 | 450,000 | 924,000 |

*Deaths*

| Year           | Males   | Females | Total     |
|----------------|---------|---------|-----------|
| 1810 . . . . . | 379,000 | 351,000 | 730,000   |
| 1820 . . . . . | 367,000 | 402,000 | 769,000   |
| 1830 . . . . . | 407,000 | 401,000 | 808,000   |
| 1840 . . . . . | 406,000 | 403,000 | 809,000   |
| 1850 . . . . . | 381,000 | 381,000 | 762,000   |
| 1860 . . . . . | 393,000 | 389,000 | 782,000   |
| 1870 . . . . . | 553,000 | 494,000 | 1,047,000 |
| 1880 . . . . . | 443,000 | 415,000 | 858,000   |
| 1885 . . . . . | 435,000 | 402,000 | 837,000   |

*Surplus of Births over Deaths*

|                |         |         |         |
|----------------|---------|---------|---------|
| 1810 . . . . . | 102,000 | 100,000 | 202,000 |
| 1820 . . . . . | 128,000 | 63,000  | 191,000 |
| 1830 . . . . . | 90,000  | 70,000  | 160,000 |
| 1840 . . . . . | 83,000  | 60,000  | 143,000 |
| 1850 . . . . . | 109,000 | 83,000  | 192,000 |
| 1860 . . . . . | 97,000  | 78,000  | 175,000 |
| 1870 . . . . . | ...     | ...     | ...     |
| 1880 . . . . . | 26,000  | 36,000  | 62,000  |
| 1885 . . . . . | 39,000  | 48,000  | 87,000  |

In 1870 the deaths exceeded the births by 103,000.

The sterility of the French people in late years is ominous, the surplus of births over deaths being much less than half what it was seventy years ago.

*Marriages*

| Year           | Number  | Year           | Number  | Year           | Number  |
|----------------|---------|----------------|---------|----------------|---------|
| 1810 . . . . . | 233,000 | 1840 . . . . . | 283,000 | 1870 . . . . . | 224,000 |
| 1820 . . . . . | 209,000 | 1850 . . . . . | 298,000 | 1880 . . . . . | 279,000 |
| 1830 . . . . . | 270,000 | 1860 . . . . . | 289,000 | 1885 . . . . . | 283,000 |

The returns for the latest years were as follows :—

| Year              | Births  | Deaths  | Marriages | Still-births |
|-------------------|---------|---------|-----------|--------------|
| 1886 . . . . .    | 913,000 | 860,000 | 283,000   | 43,600       |
| 1887 . . . . .    | 899,000 | 843,000 | 277,000   | 42,900       |
| 1888 . . . . .    | 883,000 | 838,000 | 277,000   | 42,100       |
| 1879-88 . . . . . | 923,000 | 844,000 | 282,000   | 43,500       |

## Deaths

| Year    | Prussia | Bavaria | Saxony | Wurtemberg | Duchies, &c. | Empire    |
|---------|---------|---------|--------|------------|--------------|-----------|
| 1879    | 667,000 | 155,000 | 81,000 | 58,000     | 183,000      | 1,144,000 |
| 1880    | 693,000 | 152,000 | 87,000 | 56,000     | 185,000      | 1,173,000 |
| 1881    | 682,000 | 152,000 | 83,000 | 54,000     | 185,000      | 1,156,000 |
| 1882    | 700,000 | 153,000 | 86,000 | 54,000     | 184,000      | 1,177,000 |
| 1883    | 711,000 | 155,000 | 90,000 | 51,000     | 183,000      | 1,190,000 |
| 1884    | 718,000 | 154,000 | 95,000 | 53,000     | 183,000      | 1,203,000 |
| 1885    | 717,000 | 153,000 | 91,000 | 53,000     | 186,000      | 1,200,000 |
| 1886    | 743,000 | 154,000 | 96,000 | 50,000     | 191,000      | 1,234,000 |
| 1887    | 686,000 | 151,000 | 88,000 | 46,000     | 181,000      | 1,152,000 |
| 1888    | 665,000 | 156,000 | 87,000 | 50,000     | 185,000      | 1,143,000 |
| Average | 698,000 | 154,000 | 88,000 | 53,000     | 184,000      | 1,177,000 |

## Surplus of Births over Deaths

|         |         |        |        |        |        |         |
|---------|---------|--------|--------|--------|--------|---------|
| 1879    | 385,000 | 53,000 | 44,000 | 23,000 | 87,000 | 592,000 |
| 1880    | 335,000 | 51,000 | 36,000 | 22,000 | 78,000 | 523,000 |
| 1881    | 331,000 | 52,000 | 42,000 | 23,000 | 78,000 | 526,000 |
| 1882    | 336,000 | 49,000 | 41,000 | 22,000 | 77,000 | 525,000 |
| 1883    | 318,000 | 42,000 | 37,000 | 22,000 | 75,000 | 494,000 |
| 1884    | 333,000 | 50,000 | 38,000 | 21,000 | 81,000 | 523,000 |
| 1885    | 348,000 | 47,000 | 42,000 | 19,000 | 74,000 | 530,000 |
| 1886    | 331,000 | 46,000 | 41,000 | 21,000 | 73,000 | 512,000 |
| 1887    | 399,000 | 49,000 | 49,000 | 24,000 | 84,000 | 605,000 |
| 1888    | 426,000 | 41,000 | 53,000 | 19,000 | 79,000 | 618,000 |
| Average | 354,000 | 48,000 | 43,000 | 21,000 | 79,000 | 545,000 |

## Marriages

|         |         |        |        |        |        |         |
|---------|---------|--------|--------|--------|--------|---------|
| 1879    | 207,000 | 35,000 | 25,000 | 13,000 | 55,000 | 335,000 |
| 1880    | 208,000 | 35,000 | 26,000 | 13,000 | 55,000 | 337,000 |
| 1881    | 210,000 | 36,000 | 26,000 | 12,000 | 55,000 | 339,000 |
| 1882    | 217,000 | 38,000 | 27,000 | 13,000 | 55,000 | 350,000 |
| 1883    | 221,000 | 36,000 | 27,000 | 12,000 | 57,000 | 353,000 |
| 1884    | 226,000 | 37,000 | 29,000 | 12,000 | 59,000 | 363,000 |
| 1885    | 231,000 | 35,000 | 29,000 | 13,000 | 60,000 | 369,000 |
| 1886    | 232,000 | 37,000 | 30,000 | 13,000 | 60,000 | 372,000 |
| 1887    | 230,000 | 37,000 | 30,000 | 14,000 | 60,000 | 371,000 |
| 1888    | 233,000 | 38,000 | 30,000 | 13,000 | 63,000 | 377,000 |
| Average | 221,000 | 37,000 | 28,000 | 13,000 | 58,000 | 357,000 |

## Still-Births

|         |        |       |       |       |        |        |
|---------|--------|-------|-------|-------|--------|--------|
| 1879    | 45,000 | 7,200 | 5,300 | 3,100 | 10,400 | 71,000 |
| 1880    | 43,000 | 7,000 | 5,100 | 3,100 | 9,800  | 68,000 |
| 1881    | 42,000 | 6,900 | 5,000 | 2,900 | 10,200 | 67,000 |
| 1882    | 43,000 | 7,000 | 5,000 | 2,800 | 9,200  | 67,000 |
| 1883    | 42,000 | 6,900 | 4,900 | 2,700 | 9,500  | 66,000 |
| 1884    | 43,000 | 7,200 | 5,100 | 2,900 | 9,800  | 68,000 |
| 1885    | 44,000 | 7,000 | 5,100 | 2,800 | 10,100 | 69,000 |
| 1886    | 44,000 | 6,800 | 5,300 | 2,800 | 9,100  | 68,000 |
| 1887    | 44,000 | 6,900 | 5,300 | 2,500 | 9,300  | 68,000 |
| 1888    | 43,000 | 6,600 | 5,500 | 2,500 | 9,400  | 67,000 |
| Average | 43,000 | 7,000 | 5,100 | 2,800 | 9,700  | 68,000 |

## RUSSIA

Official returns are as follows:—

| Year    | Births    | Deaths    | Marriages | Surplus of Births |
|---------|-----------|-----------|-----------|-------------------|
| 1856    | 2,706,900 | 2,146,900 | 557,100   | 560,000           |
| 1863    | 3,045,000 | 2,308,000 | 577,300   | 737,000           |
| 1876    | 3,549,000 | 2,443,000 | 590,000   | 1,106,000         |
| 1877    | 3,531,000 | 2,451,000 | 527,000   | 1,080,000         |
| 1878    | 3,418,000 | 2,760,000 | 665,000   | 658,000           |
| 1879    | 3,662,000 | 2,541,000 | 743,000   | 1,121,000         |
| 1880    | 3,669,000 | 2,658,000 | 702,000   | 1,011,000         |
| 1881    | 3,678,000 | 2,633,000 | 769,000   | 1,045,000         |
| 1882    | 3,906,000 | 3,034,000 | 716,000   | 872,000           |
| 1883    | 3,881,000 | 2,879,000 | 733,000   | 1,002,000         |
| 1884    | 4,336,000 | 2,857,000 | 754,000   | 1,479,000         |
| 1885    | 4,266,000 | 3,071,000 | 747,000   | 1,195,000         |
| 1876-85 | 3,790,000 | 2,733,000 | 695,000   | 1,057,000         |

The above is only European Russia, exclusive of Poland, Finland, &amp;c.

The following table shows the births and deaths of the whole Empire in 1887:—

|                | Births    | Deaths    | Surplus of Births |
|----------------|-----------|-----------|-------------------|
| Russia         | 3,942,000 | 2,742,000 | 1,200,000         |
| Poland         | 329,000   | 202,000   | 127,000           |
| Finland (1886) | 79,000    | 50,000    | 29,000            |
| Siberia        | 212,000   | 150,000   | 62,000            |
| Caucasus       | 268,000   | 172,000   | 96,000            |
| Turkestan      | 52,000    | 42,000    | 10,000            |
| Total          | 4,882,000 | 3,358,000 | 1,524,000         |

Exclusive of the Asiatic provinces, Russia has an increase of 1,300,000 souls yearly.

# VITAL STATISTICS

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# VITAL STATISTICS

## AUSTRIA

The official returns for ten years ending 1887 were :—

### Births

| Year        | Austria | Hungary | Total     |
|-------------|---------|---------|-----------|
| 1878 . . .  | 855,000 | 665,000 | 1,520,000 |
| 1879 . . .  | 857,000 | 714,000 | 1,571,000 |
| 1880 . . .  | 829,000 | 672,000 | 1,501,000 |
| 1881 . . .  | 833,000 | 677,000 | 1,510,000 |
| 1882 . . .  | 874,000 | 697,000 | 1,571,000 |
| 1883 . . .  | 859,000 | 719,000 | 1,578,000 |
| 1884 . . .  | 878,000 | 741,000 | 1,619,000 |
| 1885 . . .  | 861,000 | 737,000 | 1,598,000 |
| 1886 . . .  | 876,000 | 760,000 | 1,636,000 |
| 1887 . . .  | 889,000 | 744,000 | 1,633,000 |
| Average . . | 862,000 | 713,000 | 1,575,000 |

### Deaths

|             |         |         |           |
|-------------|---------|---------|-----------|
| 1878 . . .  | 684,000 | 586,000 | 1,270,000 |
| 1879 . . .  | 652,000 | 566,000 | 1,218,000 |
| 1880 . . .  | 654,000 | 593,000 | 1,247,000 |
| 1881 . . .  | 677,000 | 553,000 | 1,230,000 |
| 1882 . . .  | 687,000 | 572,000 | 1,259,000 |
| 1883 . . .  | 677,000 | 527,000 | 1,204,000 |
| 1884 . . .  | 667,000 | 515,000 | 1,182,000 |
| 1885 . . .  | 689,000 | 536,000 | 1,225,000 |
| 1886 . . .  | 678,000 | 540,000 | 1,218,000 |
| 1887 . . .  | 672,000 | 569,000 | 1,241,000 |
| Average . . | 674,000 | 556,000 | 1,230,000 |

### Surplus of Births over Deaths

|             |         |         |         |
|-------------|---------|---------|---------|
| 1878 . . .  | 171,000 | 79,000  | 250,000 |
| 1879 . . .  | 205,000 | 148,000 | 353,000 |
| 1880 . . .  | 175,000 | 79,000  | 254,000 |
| 1881 . . .  | 156,000 | 124,000 | 280,000 |
| 1882 . . .  | 187,000 | 125,000 | 312,000 |
| 1883 . . .  | 182,000 | 192,000 | 374,000 |
| 1884 . . .  | 211,000 | 226,000 | 437,000 |
| 1885 . . .  | 187,000 | 201,000 | 388,000 |
| 1886 . . .  | 198,000 | 220,000 | 418,000 |
| 1887 . . .  | 217,000 | 175,000 | 392,000 |
| Average . . | 188,000 | 157,000 | 345,000 |

### Marriages

|             |         |         |         |
|-------------|---------|---------|---------|
| 1878 . . .  | 164,000 | 147,000 | 311,000 |
| 1879 . . .  | 169,000 | 162,000 | 331,000 |
| 1880 . . .  | 167,000 | 144,000 | 311,000 |
| 1881 . . .  | 177,000 | 158,000 | 335,000 |
| 1882 . . .  | 183,000 | 164,000 | 347,000 |
| 1883 . . .  | 176,000 | 168,000 | 344,000 |
| 1884 . . .  | 179,000 | 167,000 | 346,000 |
| 1885 . . .  | 175,000 | 165,000 | 340,000 |
| 1886 . . .  | 180,000 | 161,000 | 341,000 |
| 1887 . . .  | 182,000 | 152,000 | 334,000 |
| Average . . | 175,000 | 159,000 | 334,000 |

### Still-Births

|             |        |        |        |
|-------------|--------|--------|--------|
| 1878 . . .  | 21,500 | 9,400  | 30,900 |
| 1879 . . .  | 22,500 | 10,800 | 33,300 |
| 1880 . . .  | 22,000 | 10,400 | 32,400 |
| 1881 . . .  | 22,500 | 10,900 | 33,400 |
| 1882 . . .  | 24,000 | 11,300 | 35,300 |
| 1883 . . .  | 23,800 | 12,300 | 36,100 |
| 1884 . . .  | 24,500 | 12,700 | 37,200 |
| 1885 . . .  | 24,500 | 13,100 | 37,600 |
| 1886 . . .  | 24,900 | 13,600 | 38,500 |
| 1887 . . .  | 26,100 | 13,800 | 39,900 |
| Average . . | 23,600 | 11,800 | 35,400 |

## ITALY

Official returns come down to 1887, and show thus for ten years :—

| Year        | Births    | Deaths  | Surplus of Births | Marriages | Still-Births |
|-------------|-----------|---------|-------------------|-----------|--------------|
| 1878 . . .  | 1,012,000 | 814,000 | 198,000           | 200,000   | 31,300       |
| 1879 . . .  | 1,064,000 | 837,000 | 227,000           | 213,000   | 33,600       |
| 1880 . . .  | 958,000   | 870,000 | 88,000            | 197,000   | 30,400       |
| 1881 . . .  | 1,081,000 | 784,000 | 297,000           | 230,000   | 35,500       |
| 1882 . . .  | 1,061,000 | 787,000 | 274,000           | 224,000   | 35,400       |
| 1883 . . .  | 1,071,000 | 794,000 | 277,000           | 232,000   | 37,200       |
| 1884 . . .  | 1,131,000 | 780,000 | 351,000           | 240,000   | 38,300       |
| 1885 . . .  | 1,126,000 | 787,000 | 339,000           | 234,000   | 39,300       |
| 1886 . . .  | 1,087,000 | 845,000 | 242,000           | 233,000   | 39,200       |
| 1887 . . .  | 1,153,000 | 829,000 | 324,000           | 236,000   | 42,500       |
| Average . . | 1,074,000 | 813,000 | 261,000           | 224,000   | 36,300       |

## SPAIN

Vital statistics are neglected and much in arrear :—

| Year        | Births  | Deaths  | Surplus of Births | Marriages |
|-------------|---------|---------|-------------------|-----------|
| 1868 . . .  | 580,000 | 549,000 | 31,000            | 112,000   |
| 1869 . . .  | 602,000 | 551,000 | 51,000            | 137,000   |
| 1870 . . .  | 600,000 | 510,000 | 90,000            | 106,000   |
| 1884 . . .  | 518,000 | 444,000 | 74,000            | ...       |
| Average . . | 575,000 | 514,000 | 61,000            | 118,000   |

## PORTUGAL

According to the official returns we find :—

| Year        | Births  | Deaths  | Surplus of Births | Marriages |
|-------------|---------|---------|-------------------|-----------|
| 1873 . . .  | 148,000 | 116,000 | 32,000            | 32,100    |
| 1874 . . .  | 153,000 | 117,000 | 36,000            | 33,300    |
| 1875 . . .  | 154,000 | 107,000 | 47,000            | 33,100    |
| 1886 . . .  | 156,000 | 99,000  | 57,000            | 33,700    |
| 1887 . . .  | 166,000 | 109,000 | 57,000            | 34,300    |
| Average . . | 155,000 | 110,000 | 45,000            | 33,300    |

## SWEDEN

| Year        | Births  | Deaths | Surplus of Births | Marriages | Still-Births |
|-------------|---------|--------|-------------------|-----------|--------------|
| 1879 . . .  | 139,000 | 77,000 | 62,000            | 28,600    | 4,200        |
| 1880 . . .  | 134,000 | 83,000 | 51,000            | 28,900    | 4,000        |
| 1881 . . .  | 133,000 | 81,000 | 52,000            | 28,300    | 3,900        |
| 1882 . . .  | 134,000 | 79,000 | 55,000            | 29,000    | 3,800        |
| 1883 . . .  | 133,000 | 79,000 | 54,000            | 29,400    | 3,700        |
| 1884 . . .  | 139,000 | 81,000 | 58,000            | 30,200    | 3,800        |
| 1885 . . .  | 137,000 | 83,000 | 54,000            | 30,900    | 4,000        |
| 1886 . . .  | 140,000 | 78,000 | 62,000            | 30,100    | 4,000        |
| 1887 . . .  | 140,000 | 76,000 | 64,000            | 29,500    | 3,900        |
| 1888 . . .  | 136,000 | 76,000 | 60,000            | 28,100    | 3,800        |
| Average . . | 137,000 | 79,000 | 58,000            | 29,500    | 3,900        |

## NORWAY

|             |        |        |        |        |       |
|-------------|--------|--------|--------|--------|-------|
| 1879 . . .  | 61,000 | 29,000 | 32,000 | 12,900 | 2,200 |
| 1880 . . .  | 59,000 | 31,000 | 28,000 | 12,800 | 2,100 |
| 1881 . . .  | 58,000 | 32,000 | 26,000 | 12,300 | 2,000 |
| 1882 . . .  | 59,000 | 35,000 | 24,000 | 12,900 | 1,900 |
| 1883 . . .  | 59,000 | 33,000 | 26,000 | 12,700 | 1,800 |
| 1884 . . .  | 60,000 | 32,000 | 28,000 | 13,300 | 1,800 |
| 1885 . . .  | 61,000 | 32,000 | 29,000 | 13,000 | 1,800 |
| 1886 . . .  | 61,000 | 32,000 | 29,000 | 12,800 | 1,800 |
| 1887 . . .  | 61,000 | 32,000 | 29,000 | 12,500 | 1,700 |
| 1888 . . .  | 61,000 | 34,000 | 27,000 | 12,200 | 1,800 |
| Average . . | 60,000 | 32,000 | 28,000 | 12,700 | 1,900 |

## DENMARK

| Year      | Births | Deaths | Surplus of Births | Marriages | Still-Births |
|-----------|--------|--------|-------------------|-----------|--------------|
| 1879 . .  | 62,000 | 39,000 | 23,000            | 14,300    | 1,900        |
| 1880 . .  | 63,000 | 40,000 | 23,000            | 15,000    | 1,900        |
| 1881 . .  | 64,000 | 36,000 | 28,000            | 15,500    | 2,000        |
| 1882 . .  | 65,000 | 39,000 | 26,000            | 15,500    | 1,900        |
| 1883 . .  | 64,000 | 37,000 | 27,000            | 15,600    | 1,900        |
| 1884 . .  | 68,000 | 38,000 | 30,000            | 16,000    | 1,900        |
| 1885 . .  | 67,000 | 37,000 | 30,000            | 15,600    | 2,100        |
| 1886 . .  | 68,000 | 38,000 | 30,000            | 14,800    | 2,000        |
| 1887 . .  | 67,000 | 39,000 | 28,000            | 14,700    | 2,000        |
| 1888 . .  | 67,000 | 42,000 | 25,000            | 15,100    | 1,800        |
| Average . | 65,500 | 38,500 | 27,000            | 15,200    | 1,940        |

## HOLLAND

| Year      | Births  | Deaths | Surplus of Births | Marriages | Still-Births |
|-----------|---------|--------|-------------------|-----------|--------------|
| 1879 . .  | 147,000 | 90,000 | 57,000            | 30,700    | 8,100        |
| 1880 . .  | 144,000 | 95,000 | 49,000            | 30,300    | 7,500        |
| 1881 . .  | 143,000 | 88,000 | 55,000            | 29,800    | 7,700        |
| 1882 . .  | 146,000 | 86,000 | 60,000            | 29,600    | 7,400        |
| 1883 . .  | 144,000 | 92,000 | 52,000            | 29,800    | 7,700        |
| 1884 . .  | 148,000 | 94,000 | 54,000            | 30,500    | 7,600        |
| 1885 . .  | 148,000 | 90,000 | 58,000            | 29,900    | 7,800        |
| 1886 . .  | 151,000 | 95,000 | 56,000            | 30,300    | 7,800        |
| 1887 . .  | 149,000 | 87,000 | 62,000            | 30,900    | 7,700        |
| 1888 . .  | 151,000 | 91,000 | 60,000            | 30,900    | 7,800        |
| Average . | 147,000 | 91,000 | 56,000            | 30,300    | 7,710        |

## BELGIUM

Official returns from 1831 to 1887 show as follows:—

| Period      | Births  | Deaths  | Surplus of Births | Marriages |
|-------------|---------|---------|-------------------|-----------|
| 1831-40 . . | 140,000 | 108,000 | 32,000            | 30,200    |
| 1841-50 . . | 130,000 | 104,000 | 26,000            | 29,000    |
| 1851-60 . . | 137,000 | 102,000 | 35,000            | 33,600    |
| 1861-70 . . | 155,000 | 114,000 | 41,000            | 36,100    |
| 1871-80 . . | 172,000 | 120,000 | 52,000            | 38,900    |
| 1881-87 . . | 175,000 | 118,000 | 57,000            | 39,900    |

## SWITZERLAND

| Year      | Births | Deaths | Surplus of Births | Marriages | Still-Births |
|-----------|--------|--------|-------------------|-----------|--------------|
| 1879 . .  | 86,000 | 64,000 | 22,000            | 19,500    | 3,500        |
| 1880 . .  | 84,000 | 62,000 | 22,000            | 19,400    | 3,200        |
| 1881 . .  | 85,000 | 64,000 | 21,000            | 19,400    | 3,400        |
| 1882 . .  | 83,000 | 63,000 | 20,000            | 19,400    | 3,300        |
| 1883 . .  | 82,000 | 59,000 | 23,000            | 19,700    | 3,200        |
| 1884 . .  | 82,000 | 58,000 | 24,000            | 19,800    | 3,200        |
| 1885 . .  | 80,000 | 62,000 | 18,000            | 20,100    | 3,200        |
| 1886 . .  | 81,000 | 60,000 | 21,000            | 20,100    | 3,400        |
| 1887 . .  | 81,000 | 59,000 | 22,000            | 20,600    | 3,400        |
| 1888 . .  | 81,000 | 58,000 | 23,000            | 20,700    | 3,300        |
| Average . | 82,500 | 61,000 | 21,500            | 19,900    | 3,300        |

## ROUMANIA

| Year      | Births  | Deaths  | Surplus of Births | Marriages | Still-Births |
|-----------|---------|---------|-------------------|-----------|--------------|
| 1879 . .  | 168,000 | 132,000 | 36,000            | 46,000    | 1,900        |
| 1880 . .  | 171,000 | 163,000 | 8,000             | 40,000    | 2,300        |
| 1881 . .  | 192,000 | 123,000 | 69,000            | 42,000    | 1,900        |
| 1882 . .  | 189,000 | 132,000 | 57,000            | 44,000    | 2,200        |
| 1883 . .  | 204,000 | 124,000 | 80,000            | 47,000    | 2,000        |
| 1884 . .  | 201,000 | 124,000 | 77,000            | 41,000    | 2,300        |
| 1885 . .  | 214,000 | 124,000 | 90,000            | 40,000    | 2,200        |
| 1886 . .  | 213,000 | 135,000 | 78,000            | 39,000    | 2,400        |
| 1887 . .  | 210,000 | 156,000 | 54,000            | 39,000    | 2,500        |
| 1888 . .  | 220,000 | 159,000 | 61,000            | 38,000    | 2,500        |
| Average . | 198,000 | 137,000 | 61,000            | 41,600    | 2,200        |

## SERVIA

| Year      | Births | Deaths | Surplus of Births | Marriages | Still-Births |
|-----------|--------|--------|-------------------|-----------|--------------|
| 1884 . .  | 90,000 | 48,000 | 42,000            | 20,400    | 1,100        |
| 1885 . .  | 91,000 | 52,000 | 39,000            | 17,100    | 1,300        |
| 1886 . .  | 83,000 | 59,000 | 24,000            | 23,300    | 1,400        |
| 1887 . .  | 94,000 | 50,000 | 44,000            | 22,600    | 1,400        |
| 1888 . .  | 95,000 | 51,000 | 44,000            | 22,800    | 1,500        |
| Average . | 90,500 | 52,000 | 38,500            | 21,200    | 1,340        |
| 1868-77 . | 56,100 | 44,700 | 11,400            | 14,700    | ...          |

## GREECE

| Year        | Births | Deaths | Surplus of Births | Marriages |
|-------------|--------|--------|-------------------|-----------|
| 1864-73 . . | 41,000 | 30,700 | 10,300            | 8,900     |
| 1880 . .    | 41,300 | 30,300 | 11,000            | 8,500     |
| 1881 . .    | 41,700 | 32,200 | 9,500             | 7,800     |
| 1882 . .    | 43,200 | 32,200 | 11,000            | 11,200    |
| 1884 . .    | 58,000 | 35,900 | 22,100            | 13,700    |
| 1880-84 . . | 46,000 | 32,500 | 13,500            | 10,200    |

## URUGUAY

| Year       | Births | Deaths | Surplus of Births | Marriages |
|------------|--------|--------|-------------------|-----------|
| 1882 . . . | 21,700 | 9,100  | 12,600            | 3,300     |
| 1883 . . . | 22,300 | 8,500  | 13,800            | 3,400     |
| 1884 . . . | 21,800 | 9,700  | 12,100            | 3,500     |
| 1885 . . . | 23,800 | 9,700  | 14,100            | 3,700     |
| 1886 . . . | 24,700 | 11,100 | 13,600            | 3,100     |
| 1887 . . . | 25,100 | 12,000 | 13,100            | 3,400     |
| 1888 . . . | 25,800 | 11,600 | 14,200            | 4,000     |
| Average .  | 23,600 | 10,300 | 13,300            | 3,400     |

## AUSTRALIA (1888)

|                     | Births  | Deaths | Surplus of Births | Marriages |
|---------------------|---------|--------|-------------------|-----------|
| New South Wales .   | 38,500  | 14,400 | 24,100            | 7,800     |
| Victoria . . .      | 34,500  | 16,300 | 18,200            | 8,500     |
| Queensland . . .    | 14,200  | 5,500  | 8,700             | 3,300     |
| South Australia .   | 10,500  | 3,800  | 6,700             | 2,100     |
| New Zealand . . .   | 18,900  | 5,700  | 13,200            | 3,600     |
| Tasmania . . .      | 4,800   | 2,000  | 2,800             | 990       |
| Western Australia . | 1,500   | 700    | 800               | 300       |
| Total . . .         | 122,900 | 48,400 | 74,500            | 26,590    |
| 1861 . . .          | 52,300  | 21,200 | 31,100            | 10,900    |
| 1871 . . .          | 74,200  | 24,800 | 49,400            | 13,500    |
| 1881 . . .          | 98,700  | 38,800 | 59,900            | 20,500    |
| 1887 . . .          | 120,100 | 47,600 | 72,500            | 25,100    |

## JAPAN

| Year        | Births    | Deaths  | Surplus of Births | Marriages |
|-------------|-----------|---------|-------------------|-----------|
| 1879 . . .  | 877,000   | 721,000 | 156,000           | ...       |
| 1880 . . .  | 884,000   | 603,000 | 281,000           | ...       |
| 1881 . . .  | 941,000   | 686,000 | 255,000           | ...       |
| 1882 . . .  | 923,000   | 668,000 | 255,000           | ...       |
| 1883 . . .  | 1,005,000 | 676,000 | 329,000           | ...       |
| 1884 . . .  | 975,000   | 705,000 | 270,000           | 288,000   |
| 1885 . . .  | 1,025,000 | 887,000 | 138,000           | 299,000   |
| 1886 . . .  | 1,051,000 | 938,000 | 113,000           | 315,000   |
| 1887 . . .  | 1,058,000 | 753,000 | 305,000           | 334,000   |
| 1888 . . .  | 1,073,000 | 753,000 | 320,000           | 330,000   |
| Average . . | 981,000   | 739,000 | 242,000           | 305,000   |

## W.

## WAGES

The earliest scale of wages is that fixed by the Emperor Diocletian, A.D. 303, for the whole Roman Empire, viz. :—

*Wages Daily without Food, Pence English*

|                     |                    |                    |
|---------------------|--------------------|--------------------|
| Shepherd . . . 10   | Labourer . . . 10  | Painter . . . 30   |
| Ass-driver . . . 10 | Mason . . . 20     | Smith . . . 20     |
| Baker . . . 20      | Carpenter . . . 20 | Stonecutter . . 25 |

The pay to a brickmaker was 12d. per 100; to a sheep-shearer, 80d. per 100; to a common schoolmaster, 30d. per month; to one who taught Greek or geometry, 100d. per month for each pupil; and a lawyer's fee was 600d.

The following is a table of international wages at three periods of the present century, reduced to English money (see Embassy Reports, 1869) :—

|                  | Day Labour, Pence |      |      | Indoor Labour, £ per Annum |      | Female Labour, £ per Annum |      |
|------------------|-------------------|------|------|----------------------------|------|----------------------------|------|
|                  | 1835              | 1865 | 1880 | 1835                       | 1880 | 1835                       | 1880 |
| England . . .    | 20                | 26   | 30   | 12                         | 20   | 6                          | 9    |
| Scotland . . .   | 16                | 25   | 28   | 9                          | 18   | 5                          | 8    |
| Ireland . . .    | 8                 | 14   | 18   | 5                          | 10   | 2                          | 5    |
| France . . .     | 15                | 20   | 25   | 8                          | 12   | 3                          | 5    |
| Germany . . .    | 8                 | 16   | 18   | 4                          | 10   | 2                          | 5    |
| Russia . . .     | 6                 | 12   | 12   | 3                          | 8    | 2                          | 4    |
| Austria . . .    | 10                | 16   | 20   | 8                          | 12   | 2                          | 4    |
| Italy . . .      | 4                 | 8    | 10   | 2                          | 6    | 1                          | 3    |
| Holland . . .    | 9                 | 15   | 20   | 6                          | 10   | 3                          | 5    |
| Belgium . . .    | 9                 | 18   | 20   | 6                          | 10   | 3                          | 5    |
| Scandinavia . .  | 8                 | ...  | 14   | 4                          | 8    | 2                          | 4    |
| Spain & Portugal | 8                 | 10   | 16   | ...                        | 8    | ...                        | 5    |
| United States .  | 42                | 74   | 66   | 28                         | 40   | ...                        | ...  |

Tradesmen's wages in 1880 in various countries were as follows :—

|                 | Shillings per Week |        |         |         |       |          |         |
|-----------------|--------------------|--------|---------|---------|-------|----------|---------|
|                 | Great Britain      | France | Belgium | Germany | Italy | New York | Chicago |
| Printer . . .   | 32                 | 20     | 19      | 20      | 16    | 54       | 62      |
| Painter . . .   | 32                 | 21     | 18      | 16      | 19    | 54       | 38      |
| Plumber . . .   | 33                 | 23     | 25      | 15      | 16    | 62       | 66      |
| Tailor . . .    | 25                 | 21     | 17      | 15      | 18    | 58       | 50      |
| Shoemaker . . . | 31                 | 20     | 14      | 13      | 18    | 62       | 56      |
| Carpenter . . . | 33                 | 23     | 23      | 16      | 17    | 44       | 42      |
| Mason . . .     | 35                 | 17     | 25      | 15      | 15    | 56       | 33      |
| Smith . . .     | 31                 | 23     | 18      | 15      | 16    | 50       | 44      |
| Tinsmith . . .  | 28                 | 18     | 20      | 16      | 15    | 50       | 44      |
| Baker . . .     | 27                 | 23     | 18      | 15      | 16    | ...      | 42      |
| Collier . . .   | 24                 | 15     | 14      | 16      | ...   | ...      | ...     |

The wages of farm labourers by the week in various countries were :—

|                 | 1850 |    |    | 1870 |    |    | 1880 |    |    |
|-----------------|------|----|----|------|----|----|------|----|----|
|                 | £    | s. | d. | £    | s. | d. | £    | s. | d. |
| England . . .   | 0    | 9  | 6  | 0    | 15 | 0  | 0    | 17 | 6  |
| France . . .    | 0    | 9  | 0  | 0    | 12 | 6  | 0    | 14 | 0  |
| Germany . . .   | 0    | 8  | 6  | 0    | 10 | 6  | 0    | 12 | 6  |
| United States . | 0    | 16 | 0  | 1    | 0  | 0  | 1    | 5  | 0  |

Young's table of wages in Europe is as follows :—

|                    | Pence per Day |         |         |         |      |
|--------------------|---------------|---------|---------|---------|------|
|                    | 1830-39       | 1840-49 | 1850-59 | 1860-65 | 1872 |
| Boilermaker . . .  | 13            | 15      | 17      | 21      | 31   |
| Cabinetmaker . . . | 13            | 14      | 17      | 20      | 28   |
| Carpenter . . .    | 14            | 15      | 18      | 25      | 31   |
| Chemical operator  | 12            | 14      | 15      | 19      | 23   |
| Cutler . . .       | 14            | 16      | 20      | 22      | 26   |
| Dyer . . .         | 14            | 16      | 19      | 21      | 26   |
| Jeweller . . .     | 20            | 24      | 25      | 32      | 50   |
| Mason . . .        | 14            | 16      | 19      | 26      | 32   |
| Papermaker . . .   | 12            | 14      | 17      | 19      | 26   |
| Pianomaker . . .   | 18            | 21      | 26      | 32      | 50   |
| Printer . . .      | 22            | 25      | 25      | 34      | 50   |
| Painter . . .      | 19            | 22      | 26      | 33      | 40   |
| Sawyer . . .       | 13            | 14      | 17      | 21      | 28   |
| Shoemaker . . .    | 11            | 12      | 14      | 17      | 25   |
| Smith . . .        | 12            | 14      | 19      | 21      | 26   |
| Stonecutter . . .  | 17            | 20      | 24      | 32      | 45   |
| Spinner . . .      | 14            | 15      | 19      | 22      | 27   |
| Tailor . . .       | 11            | 12      | 15      | 18      | 26   |
| Tanner . . .       | 14            | 15      | 18      | 21      | 27   |
| Turner . . .       | 12            | 13      | 16      | 18      | 27   |
| Average . . .      | 13            | 15      | 18      | 22      | 27   |

An Italian economist compares a bricklayer's wages at various dates in three countries thus :—

| Year       | Pence per Day |             |       |
|------------|---------------|-------------|-------|
|            | France        | Switzerland | Italy |
| 1850 . . . | 21            | 17          | 15    |
| 1857 . . . | 24            | 25          | 17    |
| 1874 . . . | 31            | 38          | 35    |

White's memoir gives the following scale of wages in England, France, and United States in 1825 (an asterisk signifies "with food") :—

|                          | England | France | U. States |
|--------------------------|---------|--------|-----------|
|                          | s. d.   | s. d.  | s. d.     |
| Carpenter, by day . .    | 4 0     | 2 6    | 6 0       |
| Mason, " . . .           | 4 6     | 3 0    | 6 8       |
| Machinist, " . . .       | 4 6     | 3 6    | 5 6       |
| Cotton-spinner, by day . | 4 0     | 3 6    | 5 0       |
| Woollen-spinner, " . .   | 3 9     | 3 8    | 4 6       |
| Weaver, " . . .          | 3 0     | 2 0    | 3 9       |
| Farm labourer, * month . | 27 0    | 20 0   | 38 0      |
| Housemaid, * week . .    | 3 0     | ...    | 5 0       |

Tailors' wages in various countries in 1880 were as follows :—

| Shillings Weekly    |    |                |    |
|---------------------|----|----------------|----|
| Great Britain . . . | 25 | Belgium . . .  | 17 |
| France . . .        | 21 | Italy . . .    | 18 |
| Germany . . .       | 15 | New York . . . | 58 |

The pay in European armies in 1880 was as follows :—

|                        | £ Sterling per Annum |        |         |
|------------------------|----------------------|--------|---------|
|                        | English              | French | Italian |
| General . . .          | ...                  | 660    | 600     |
| Colonel . . .          | 1,000                | 280    | 280     |
| Lieutenant-colonel . . | 320                  | 220    | 210     |
| Major . . .            | 292                  | 180    | 170     |
| Captain . . .          | 212                  | 120    | 120     |
| Lieutenant . . .       | 118                  | 80     | 90      |
| Ensign . . .           | 100                  | 52     | ...     |
| Sergeant . . .         | 36                   | 15     | ...     |
| Private . . .          | 18                   | 5      | ...     |

The wages in woollen mills in various countries in 1880 were as follows:—

|             | Shillings per Week |        |         |         |           |
|-------------|--------------------|--------|---------|---------|-----------|
|             | England            | France | Belgium | Germany | U. States |
| Sorter . .  | 24                 | 22     | 10*     | 5*      | 44        |
| Carder . .  | 24                 | 11*    | 8*      | 8*      | 25        |
| Spinner . . | 12*                | 11*    | ...     | 12      | 26*       |
| Dresser . . | 24                 | 16     | 12      | 7*      | 54        |
| Weaver . .  | 30                 | 24     | 18      | 12      | 35        |
| Fireman . . | 26                 | 19     | 15      | ...     | 35        |
| Carpenter . | 33                 | 27     | 15      | ...     | 52        |
| Engineer .  | 40                 | 27     | 18      | 16      | 75        |

(The asterisk signifies female hands).

In 1880 was published the following table of relation between wages and food in various countries:—

|                   | Shillings per Week |      |         | Ratio |      |         |
|-------------------|--------------------|------|---------|-------|------|---------|
|                   | Wages              | Food | Surplus | Wages | Food | Surplus |
| Great Britain . . | 31                 | 14   | 19      | 100   | 45   | 55      |
| France . . . .    | 21                 | 12   | 10      | 100   | 57   | 43      |
| Germany . . . .   | 16                 | 10   | 6       | 100   | 62   | 38      |
| Belgium . . . .   | 20                 | 12   | 8       | 100   | 60   | 40      |
| Italy . . . . .   | 15                 | 9    | 6       | 100   | 60   | 40      |
| Spain . . . . .   | 16                 | 10   | 6       | 100   | 62   | 38      |
| United States . . | 48                 | 16   | 32      | 100   | 33   | 67      |
| Australia . . .   | 40                 | 11   | 29      | 100   | 28   | 72      |

## UNITED KINGDOM

| Year     | Nominal Wage      |                   |                  |                  | In Weight of Silver |                  |                   |                   | In Purchasing Value |                  |                  |                  |
|----------|-------------------|-------------------|------------------|------------------|---------------------|------------------|-------------------|-------------------|---------------------|------------------|------------------|------------------|
|          | Shepherd          | Labourer          | Woman            | Boy              | Shepherd            | Labourer         | Woman             | Boy               | Shepherd            | Labourer         | Woman            | Boy              |
| 1400 . . | £ s. d.<br>0 16 0 | £ s. d.<br>0 12 0 | £ s. d.<br>0 8 0 | £ s. d.<br>0 6 0 | £ s. d.<br>1 17 0   | £ s. d.<br>1 8 0 | £ s. d.<br>0 14 6 | £ s. d.<br>0 14 0 | £ s. d.<br>5 18 0   | £ s. d.<br>4 8 0 | £ s. d.<br>3 0 0 | £ s. d.<br>2 4 0 |
| 1450 . . | 1 0 0             | 0 16 0            | 0 12 0           | 0 8 0            | 1 18 0              | 1 10 0           | 1 3 0             | 0 15 6            | 6 10 0              | 5 5 0            | 4 0 0            | 2 10 0           |
| 1500 . . | 1 6 0             | 1 0 0             | 0 14 0           | 0 10 0           | 2 0 0               | 1 11 0           | 1 2 0             | 0 15 6            | 7 16 0              | 6 0 0            | 4 4 0            | 3 0 0            |
| 1550 . . | 1 10 0            | 1 6 0             | 0 16 0           | 0 12 0           | 2 0 0               | 1 15 0           | 1 1 0             | 0 16 0            | 8 0 0               | 7 0 0            | 4 4 0            | 3 4 0            |
| 1600 . . | 1 16 0            | 1 12 0            | 1 0 0            | 0 18 0           | 2 0 0               | 1 15 0           | 1 2 0             | 1 0 0             | 6 0 0               | 5 5 0            | 3 6 0            | 3 0 0            |
| 1650 . . | 4 0 0             | 2 10 0            | 1 12 0           | 1 4 0            | 4 0 0               | 2 12 0           | 1 14 0            | 1 5 0             | 8 0 0               | 5 4 0            | 3 8 0            | 2 10 0           |
| 1700 . . | 5 0 0             | 4 0 0             | 3 0 0            | 2 10 0           | 5 5 0               | 4 4 0            | 3 3 0             | 2 12 0            | 10 10 0             | 8 8 0            | 6 6 0            | 5 4 0            |
| 1750 . . | 6 10 0            | 5 0 0             | 4 0 0            | 3 0 0            | 6 16 0              | 5 5 0            | 4 4 0             | 3 3 0             | 10 0 0              | 7 15 0           | 6 6 0            | 4 15 0           |
| 1800 . . | 16 0 0            | 12 0 0            | 8 0 0            | 6 0 0            | 16 16 0             | 12 12 0          | 8 8 0             | 6 6 0             | 16 16 0             | 12 12 0          | 8 8 0            | 6 6 0            |
| 1850 . . | 25 0 0            | 20 0 0            | 10 0 0           | 8 0 0            | 25 0 0              | 20 0 0           | 10 0 0            | 8 0 0             | 25 0 0              | 20 0 0           | 10 0 0           | 8 0 0            |
| 1880 . . | 36 0 0            | 30 0 0            | 15 0 0           | 10 0 0           | 36 0 0              | 30 0 0           | 15 0 0            | 10 0 0            | 36 0 0              | 30 0 0           | 15 0 0           | 10 0 0           |

In the Middle Ages the pay of fighting men was:—

|                | Old Money, Present Value, Groats | £ s. d. |
|----------------|----------------------------------|---------|
| Count . . . .  | 40                               | 2 2 0   |
| Baron . . . .  | 20                               | 1 1 0   |
| Knight . . . . | 12                               | 0 13 0  |
| Man-at-arms .  | 3                                | 0 3 0   |
| Cross-bowman . | 1                                | 0 1 0   |
| Archer . . . . | 1                                | 0 0 6   |

Artisans' wages in England have been approximately as follows:—

| Year         | Shillings per Week |       |           |         |                |
|--------------|--------------------|-------|-----------|---------|----------------|
|              | Blacksmith         | Mason | Carpenter | Plumber | Cotton-spinner |
| 1740 . . . . | 16                 | 16    | 15        | 18      | 12             |
| 1780 . . . . | 17                 | 17    | 15        | 18      | 12             |
| 1820 . . . . | 24                 | 25    | 20        | 25      | 16             |
| 1840 . . . . | 21                 | 23    | 20        | 22      | 18             |
| 1860 . . . . | 28                 | 30    | 25        | 30      | 20             |
| 1880 . . . . | 32                 | 35    | 30        | 35      | 24             |

Wages in cotton-mills, according to Ellison, have been as follows:—

|                 | 1839           | 1849           | 1859           | 1887            |
|-----------------|----------------|----------------|----------------|-----------------|
|                 | 69 Hours       | 60 Hours       | 57 Hours       |                 |
| Scutcher . . .  | £ s. d.<br>7 0 | £ s. d.<br>7 6 | £ s. d.<br>8 0 | £ s. d.<br>13 0 |
| Stripper . . .  | 11 0           | 12 0           | 14 0           | 17 0            |
| Overlooker . .  | 25 0           | 28 0           | 28 0           | 44 0            |
| Mule-minder . . | 16 0           | 18 0           | 20 0           | 31 0            |
| Piecer . . . .  | 8 0            | 9 0            | 10 0           | 15 0            |
| Spinner . . . . | 4 0            | 4 6            | 5 0            | 11 0            |
| Winder . . . .  | 9 0            | 9 6            | 9 6            | 15 0            |
| Sizer . . . . . | 23 0           | 23 0           | 25 0           | 35 0            |
| Weaver . . . .  | 13 0           | 13 0           | 15 0           | 17 c            |

In 1886 Giffen gave the following factory averages:—

|                 | Wages, Shillings Weekly |         |       |
|-----------------|-------------------------|---------|-------|
|                 | Cotton                  | Woollen | Linen |
| Men . . . . .   | 25.2                    | 23.2    | 19.7  |
| Women . . . .   | 15.2                    | 13.2    | 8.9   |
| Boys . . . . .  | 9.3                     | 8.5     | 6.2   |
| Girls . . . . . | 6.8                     | 7.4     | 4.9   |

Arthur Young found the weekly wages in 1768 thus:—

|                    |                  |                   |                   |
|--------------------|------------------|-------------------|-------------------|
| Farm labourer . .  | £ s. d.<br>0 7 0 | Cutler . . . . .  | £ s. d.<br>0 14 0 |
| Woman labourer . . | 0 3 0            | Weaver . . . . .  | 0 7 6             |
| Collier . . . . .  | 0 15 0           | Woman do. . . . . | 0 4 7             |

Dr. Giffen gives the following table of agricultural wages in 1835 and 1885 per week:—

|                   | 1835    | 1885    |
|-------------------|---------|---------|
|                   | £ s. d. | £ s. d. |
| Surrey . . . . .  | 0 10 6  | 0 16 0  |
| Sussex . . . . .  | 0 10 7  | 0 14 0  |
| Essex . . . . .   | 0 10 4  | 0 13 6  |
| Dorset . . . . .  | 0 7 6   | 0 12 6  |
| Warwick . . . .   | 0 10 0  | 0 16 0  |
| Cheshire . . . .  | 0 13 0  | 0 15 6  |
| York . . . . .    | 0 12 0  | 0 17 6  |
| Wales . . . . .   | 0 7 6   | 0 14 6  |
| Scotland . . . .  | 0 9 6   | 0 16 6  |
| Ireland . . . . . | 0 4 6   | 0 8 0   |

In 1881 was published the following comparison between the wages of cotton-mill operatives in Great Britain and those in the United States:—

| England         |    | United States   |    |
|-----------------|----|-----------------|----|
| Sizers . . . .  |    | Cardboys . . .  |    |
| 36              | 40 | 14              | 10 |
| Weavers . . .   | 30 | Doffers . . . . | 15 |
| Pickers . . . . | 15 | 28              | 15 |
| Strippers . . . | 17 | 28              | 15 |
|                 |    | Winders . . . . | 15 |



In 1867 Leone Levi summed up the earnings of the working classes as follows:—

|                    | Millions Sterling per Annum |          |         |                |
|--------------------|-----------------------------|----------|---------|----------------|
|                    | England                     | Scotland | Ireland | United Kingdom |
| Agriculture . . .  | 44                          | 8        | 23      | 75             |
| Textiles . . .     | 33                          | 6        | 8       | 47             |
| Building . . .     | 35                          | 4        | 4       | 43             |
| Clothing . . .     | 21                          | 5        | 7       | 33             |
| Metals . . .       | 27                          | 3        | 2       | 32             |
| Ships and railways | 25                          | 2        | 1       | 28             |
| Mines . . .        | 13                          | 2        | ...     | 15             |
| Servants . . .     | 47                          | 5        | 8       | 60             |
| Various . . .      | 66                          | 8        | 12      | 86             |
| Total . .          | 311                         | 43       | 65      | 419            |

In 1884 he published a second table in which he compared the earnings with 1867 thus:—

|                     | Per Head, £ |      | Total, Millions £ |      |
|---------------------|-------------|------|-------------------|------|
|                     | 1867        | 1884 | 1867              | 1884 |
| Males under 20 . .  | 19          | 18   | 23                | 29   |
| Females . . .       | 20          | 23   | 27                | 30   |
| Males over 20 . .   | 50          | 56   | 294               | 363  |
| Females . . .       | 29          | 37   | 75                | 99   |
| General average . . | 38          | 43   | 419               | 521  |

The wages of able-bodied seamen, according to the *Year-Book of Commerce*, averaged as follows:—

| Voyage            | Shillings per Month |      |      |      |      |      |
|-------------------|---------------------|------|------|------|------|------|
|                   | 1860                | 1865 | 1870 | 1875 | 1880 | 1889 |
| Mediterranean . . | 55                  | 55   | 52   | 70   | 55   | 60   |
| North America . . | 55                  | 50   | 55   | 70   | 50   | 60   |
| South America . . | 50                  | 50   | 50   | 65   | 50   | 60   |
| Africa . . .      | 55                  | 50   | 50   | 65   | 53   | 60   |
| India . . .       | 50                  | 50   | 50   | 65   | 50   | 60   |
| Australia . . .   | 50                  | 50   | 50   | 65   | 50   | 60   |
| Average . . .     | 53                  | 51   | 51   | 67   | 51   | 60   |

The above were the rates in sailing vessels, the pay in steamers being usually 10s. a month higher.

From miscellaneous statistics published by the Board of Trade, the wages in 1880 appear as follows:—

| Trade             | Locality   | Shillings Weekly | Hours per Week |
|-------------------|------------|------------------|----------------|
| Bookbinding . .   | Edinburgh  | 24               | 54             |
| Builders . . .    | London     | 25               | 52             |
| " . . .           | Portsmouth | 21               | 56             |
| " . . .           | Bristol    | 21               | 54             |
| " . . .           | Liverpool  | 22               | 50             |
| " . . .           | Sheffield  | 20               | 48             |
| " . . .           | Edinburgh  | 20               | 48             |
| " . . .           | Glasgow    | 18               | 48             |
| Chandlery . . .   | London     | 22               | ...            |
| " . . .           | Bristol    | 21               | 64             |
| " . . .           | Liverpool  | 21               | 54             |
| Chemical . . .    | Liverpool  | 18               | 54             |
| " . . .           | Manchester | 20               | 60             |
| Coachbuilding . . | London     | 23               | ...            |
| " . . .           | Liverpool  | 20               | 56             |
| " . . .           | Dublin     | 16               | 58             |
| Cottlery . . .    | Stafford   | 20               | 54             |
| " . . .           | Glasgow    | 18               | 57             |
| Cotton-mills . .  | Manchester | 19               | ...            |

| Trade             | Locality      | Shillings Weekly | Hours per Week |
|-------------------|---------------|------------------|----------------|
| Cotton-mills . .  | Glasgow       | 16               | 56             |
| Foundry . . .     | Birmingham    | 18               | 54             |
| " . . .           | Wolverhampton | 18               | 60             |
| " . . .           | Nottingham    | 19               | 54             |
| " . . .           | Manchester    | 18               | 54             |
| " . . .           | Sheffield     | 19               | 54             |
| " . . .           | Cleveland     | 19               | 60             |
| Gasworks . . .    | London        | 25               | ...            |
| " . . .           | Bristol       | 21               | 70             |
| " . . .           | Birmingham    | 20               | 54             |
| " . . .           | Liverpool     | 21               | 56             |
| " . . .           | Manchester    | 20               | 60             |
| " . . .           | Edinburgh     | 20               | ...            |
| " . . .           | Dublin        | 18               | 56             |
| Hosiery . . .     | Leicester     | 18               | 54             |
| Jute . . .        | Dundee        | 15               | 56             |
| Linen-mills . .   | Dundee        | 19               | 56             |
| Machinery . . .   | Manchester    | 17               | 54             |
| " . . .           | Glasgow       | 17               | 54             |
| " . . .           | Birmingham    | 18               | 54             |
| Paper-mills . .   | London        | 21               | 60             |
| " . . .           | Manchester    | 19               | 60             |
| " . . .           | Edinburgh     | 15               | 60             |
| Porcelain . . .   | Stafford      | 15               | ...            |
| Screws . . .      | Birmingham    | 24               | 54             |
| Shipbuilding . .  | Glasgow       | 16               | 54             |
| " . . .           | Liverpool     | 21               | 54             |
| " . . .           | Hull          | 19               | 54             |
| " . . .           | Dundee        | 16               | 54             |
| Sugar . . .       | London        | 25               | 59             |
| " . . .           | Bristol       | 17               | 59             |
| " . . .           | Greenock      | 17               | 60             |
| Twine . . .       | London        | 20               | 54             |
| " . . .           | Liverpool     | 20               | 60             |
| " . . .           | Greenock      | 18               | 56             |
| " . . .           | Dundee        | 18               | 56             |
| Woollen-mills . . | Stroud        | 15               | 56             |
| " . . .           | Huddersfield  | 20               | 56             |

In 1882 the ordinary wages in piece-work for army-clothing were as follows:—

|                | Pence |                | Pence |
|----------------|-------|----------------|-------|
| Tunic . . .    | 38    | Dozen caps . . | 30    |
| Trousers . . . | 14    | " towels . .   | 4     |
| Frock . . .    | 22    | " belts . .    | 12    |

A good worker earns 4s. daily.

The wages of a collier in 1884 averaged 49d. daily, being exactly the same as in 1870, but the output of coal rose in the interval from 230 to 318 tons per miner; thus the cost of extracting a ton of coal was 46d. in 1884, against 65d. in 1870.

#### FRANCE

Wages in the 13th and 14th centuries, reduced to the same weight of silver in English money of to-day, were as follows per month:—

|                    | £ s. d. |                   | £ s. d. |
|--------------------|---------|-------------------|---------|
| Archer . . .       | 0 15 0  | Field-marshal . . | 15 0 0  |
| Baker . . .        | 0 9 0   | Footman . . .     | 0 5 0   |
| Blacksmith . . .   | 0 8 0   | Gardener . . .    | 0 18 0  |
| Butler, king's . . | 5 10 0  | Knight . . .      | 4 10 0  |
| Carpenter . . .    | 1 5 0   | Milliner . . .    | 1 2 0   |
| Canon . . .        | 4 0 0   | Queen . . .       | 800 0 0 |

In the 15th century they were as follows:—

|                    | £ s. d. |                 | £ s. d. |
|--------------------|---------|-----------------|---------|
| Archer . . .       | 0 5 0   | Physician . . . | 15 0 0  |
| Butler, king's . . | 15 0 0  | Secretary . . . | 7 10 0  |
| Chamberlain . . .  | 20 0 0  | Surgeon . . .   | 7 10 0  |
| Chaplain . . .     | 15 0 0  | Huntsman . . .  | 30 0 0  |

# WAGES

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# WAGES

De Foville gives the following wages in Paris from 1805 to 1875:—

| Trade            | Pence per Day |      |      |      |      |
|------------------|---------------|------|------|------|------|
|                  | 1805          | 1810 | 1853 | 1866 | 1875 |
| Bricklayer . . . | 31            | 38   | 50   | 57   | 60   |
| Carpenter . . .  | 29            | 31   | 48   | 57   | 57   |
| Fitter . . .     | 36            | 38   | 40   | 44   | 50   |
| Glazier . . .    | 29            | ...  | 36   | 48   | 50   |
| Joiner . . .     | 33            | 30   | 38   | 43   | 48   |
| Locksmith . . .  | ...           | ...  | 38   | 48   | 48   |
| Labourer . . .   | 16            | 18   | 24   | 32   | 33   |
| Mason . . .      | 31            | 31   | 40   | 50   | 53   |
| Navy . . .       | 21            | 21   | 28   | 38   | 38   |
| Painter . . .    | 40            | ...  | 38   | 48   | 57   |
| Plumber . . .    | 40            | ...  | 38   | 53   | 57   |
| Slater . . .     | 48            | ...  | 48   | 57   | 57   |
| Smith . . .      | 48            | 48   | 48   | 62   | 67   |
| Stonemason . . . | 32            | 33   | 48   | 53   | 53   |

The *Revue d'Economie* in 1887 published the following retrospect of wages:—

| Year           | Pence Daily |           |
|----------------|-------------|-----------|
|                | Rural       | Operative |
| 1768 . . . . . | 6           | 9         |
| 1789 . . . . . | 8           | 14        |
| 1825 . . . . . | 12          | 17        |
| 1852 . . . . . | 14          | 20        |
| 1872 . . . . . | 19          | 29        |
| 1880 . . . . . | 22          | 33        |

Another French economist gives the following table:—

|                     | Average Daily Wages, Pence |      |      |      |      |      |
|---------------------|----------------------------|------|------|------|------|------|
|                     | 1700                       | 1750 | 1790 | 1810 | 1850 | 1880 |
| Printer . . .       | 18                         | 20   | 25   | 30   | 25   | 35   |
| Painter . . .       | 15                         | 18   | 20   | 35   | 22   | 33   |
| Carpenter . . .     | 15                         | 18   | 20   | 35   | 22   | 35   |
| Tailor . . .        | 10                         | 15   | 18   | 30   | 20   | 28   |
| Blacksmith . . .    | 15                         | 18   | 20   | 30   | 25   | 35   |
| Builder . . .       | 15                         | 18   | 20   | 35   | 22   | 35   |
| Bootmaker . . .     | 10                         | 15   | 18   | 30   | 21   | 28   |
| Plumber . . .       | 15                         | 18   | 20   | 35   | 22   | 33   |
| Baker . . .         | 10                         | 15   | 18   | 30   | 20   | 33   |
| Milliner . . .      | 6                          | 8    | 9    | 10   | 13   | 20   |
| Laundress . . .     | 5                          | 6    | 8    | 10   | 13   | 18   |
| Farm-labourer . . . | 8                          | 10   | 12   | 18   | 20   | 25   |
| Woman . . .         | 4                          | 5    | 6    | 9    | 10   | 15   |
| Boy . . .           | 2                          | 2    | 3    | 4    | 5    | 7    |

## Wages of Women in France, Pence Daily

|                    | 1844 | 1853 | 1860 | 1872 |
|--------------------|------|------|------|------|
| Dressmakers . . .  | 12   | 17   | 19   | 19   |
| Flowermakers . . . | 15   | 24   | 22   | 28   |
| Shirtmakers . . .  | 9    | 15   | 17   | 19   |
| Staymakers . . .   | 10   | 15   | 19   | 19   |
| Embroiderers . . . | 15   | 19   | 19   | 28   |
| Closers . . .      | 15   | 24   | 19   | 28   |
| Lacemakers . . .   | 15   | 22   | 24   | 28   |
| Laundresses . . .  | 19   | 24   | 24   | 28   |

## Wages of Miners Weekly

|                | s. d. |                | s. d. |
|----------------|-------|----------------|-------|
| 1860 . . . . . | 11 0  | 1875 . . . . . | 16 6  |
| 1865 . . . . . | 11 6  | 1880 . . . . . | 16 0  |
| 1870 . . . . . | 13 6  | 1886 . . . . . | 15 6  |

Wages at Paris and in the departmental towns of France averaged as follows (without food) in 1885:—

|                    | Pence Daily |             |                  | Pence Daily |             |
|--------------------|-------------|-------------|------------------|-------------|-------------|
|                    | Paris       | Departments |                  | Paris       | Departments |
| Baker . . .        | 67          | 35          | Hatter . . .     | 62          | 35          |
| Binder . . .       | 53          | 30          | Laundress . . .  | 38          | 18          |
| Blacksmith . . .   | 67          | 37          | Painter . . .    | 72          | 36          |
| Brewer . . .       | 48          | 33          | Plumber . . .    | 57          | 36          |
| Bricklayer . . .   | 77          | 35          | Printer . . .    | 62          | 37          |
| Cabinetmaker . . . | 74          | 35          | Saddler . . .    | 43          | 33          |
| Carpenter . . .    | 82          | 38          | Sawyer . . .     | 67          | 35          |
| Confectioner . . . | 48          | 28          | Shoemaker . . .  | 34          | 29          |
| Cooper . . .       | 48          | 33          | Stonemason . . . | 82          | 38          |
| Cutler . . .       | 57          | 31          | Tailor . . .     | 48          | 33          |
| Dressmaker . . .   | 19          | 17          | Tanner . . .     | 48          | 32          |
| Dyer . . .         | 43          | 31          | Tinsmith . . .   | 48          | 33          |
| Fireman . . .      | 57          | 34          | Turner . . .     | 48          | 34          |
| Founder . . .      | 67          | 37          | Wagoner . . .    | 48          | 35          |
| Glazier . . .      | 53          | 31          | Watchmaker . . . | 57          | 40          |
| Hairdresser . . .  | 29          | 27          | Weaver . . .     | 36          | 25          |

Other occupations showed the following yearly wages:—

|                       | £ per Annum |             |
|-----------------------|-------------|-------------|
|                       | Paris       | Departments |
| Clerks . . . . .      | 48          | 37          |
| Lady-clerks . . . . . | 32          | 25          |
| Shop-girls . . . . .  | 20          | 20          |
| Footmen . . . . .     | 24          | 18          |
| Housemaids . . . . .  | 20          | 12          |

## GERMANY

Yves Guyot gives the daily wages at Mulhouse in the spinning trade from 1835 to 1880 thus:—

|                   | Pence Daily |      |      |      |      |
|-------------------|-------------|------|------|------|------|
|                   | 1835        | 1845 | 1855 | 1865 | 1880 |
| Overseers . . .   | 28          | 34   | 42   | 44   | 60   |
| Enginemens . . .  | 18          | 22   | 30   | 27   | 34   |
| Oilers . . .      | 15          | 18   | 16   | 24   | 30   |
| Scutchers . . .   | 9           | 10   | 10   | 13   | 17   |
| Cardmenders . . . | 13          | 14   | 27   | 22   | 26   |
| Throstlers . . .  | 15          | 15   | 16   | 17   | 23   |
| Piecers . . .     | 6           | 7    | 12   | 14   | 22   |
| Doffers . . .     | ...         | ...  | 9    | 10   | 16   |

The wages at Guebwiller silk-factory were as follows:—

|                   | Pence Daily |      |
|-------------------|-------------|------|
|                   | 1848        | 1880 |
| Weavers . . . . . | 26          | 30   |
| Warpers . . . . . | 19          | 23   |
| Fluters . . . . . | 7           | 18   |
| Winders . . . . . | 11          | 18   |
| Folders . . . . . | 11          | 23   |

## BELGIUM

Agricultural wages in Belgium at various dates were:—

| Year           | Pence Daily |         |           |         |
|----------------|-------------|---------|-----------|---------|
|                | Men         |         | Women     |         |
|                | With Food   | Without | With Food | Without |
| 1830 . . . . . | ...         | 10      | ...       | 6       |
| 1840 . . . . . | ...         | 11      | ...       | 7       |
| 1850 . . . . . | 6           | 11      | 4         | 7       |
| 1874 . . . . . | 11          | 19      | 6         | 12      |
| 1880 . . . . . | 12          | 23      | 7         | 12      |

## ITALY

Bodio's table of wages for certain trades, reduced to English money, gives the following:—

| Trade               | Shillings per Week |      |      |      |
|---------------------|--------------------|------|------|------|
|                     | 1817               | 1859 | 1866 | 1874 |
| Iron mines . . .    | 6                  | 6    | 6    | 8    |
| Marble mines . . .  | 10                 | 11   | 11   | 19   |
| Chalk mines . . .   | 6                  | 6    | 9    | 10   |
| Cotton-mill . . .   | 7                  | 7    | 8    | 10   |
| Flax-mill . . .     | 8                  | 10   | 10   | 12   |
| Wool-mill . . .     | 6                  | 7    | 7    | 8    |
| Silk-mill . . .     | 6                  | 8    | 8    | 10   |
| Dyeing . . .        | 9                  | 10   | 11   | 12   |
| Tanning . . .       | 6                  | 7    | 8    | 10   |
| Stone-cutting . . . | 9                  | 10   | 12   | 13   |
| Foundry . . .       | 8                  | 8    | 8    | 10   |
| Masons . . .        | 7                  | 8    | 10   | 14   |
| Mechanics . . .     | 7                  | 9    | 11   | 17   |
| Carpenters . . .    | 10                 | 13   | 16   | 19   |
| Wheelwrights . . .  | 8                  | 8    | 9    | 11   |
| Glass-blowers . . . | 18                 | 18   | 22   | 22   |
| Papermakers . . .   | 5                  | 5    | 6    | 6    |
| Compositors . . .   | 7                  | 7    | 8    | 11   |
| Tailors . . .       | 6                  | 8    | 10   | 12   |
| Brewers . . .       | 7                  | 8    | 9    | 11   |

The aggregate weekly earnings of 20 operatives in the above occupations compared as follows:—

| Year           | Shillings | Average |
|----------------|-----------|---------|
| 1847 . . . . . | 156       | 7.8     |
| 1859 . . . . . | 174       | 8.7     |
| 1866 . . . . . | 199       | 10.0    |
| 1874 . . . . . | 245       | 12.3    |

Thus in 15 years, from 1859 to 1874, wages rose 41 per cent., but it would appear from the subjoined table that there has been hardly any perceptible rise since 1874.

Wages for a Working Day of 10½ Hours, in English Pence

| Year       | Spinners | Weavers | Carpenters | Masons |
|------------|----------|---------|------------|--------|
| 1862 . . . | 10.9     | 12.3    | 18.2       | 15.3   |
| 1863 . . . | 11.4     | 12.7    | 18.2       | 15.3   |
| 1864 . . . | 11.4     | 13.6    | 18.2       | 15.3   |
| 1865 . . . | 11.8     | 14.5    | 18.2       | 15.3   |
| 1866 . . . | 12.3     | 15.4    | 18.2       | 15.3   |
| 1867 . . . | 12.7     | 15.4    | 18.2       | 15.3   |
| 1868 . . . | 12.7     | 15.9    | 18.2       | 15.3   |
| 1869 . . . | 13.2     | 16.4    | 18.2       | 15.3   |
| 1870 . . . | 13.6     | 16.8    | 22.7       | 18.2   |
| 1871 . . . | 14.5     | 17.3    | 22.7       | 18.2   |
| 1872 . . . | 16.4     | 17.7    | 22.7       | 18.2   |
| 1873 . . . | 18.2     | 19.1    | 22.7       | 20.5   |
| 1874 . . . | 20.4     | 21.8    | 22.7       | 20.5   |
| 1875 . . . | 20.4     | 21.8    | 22.7       | 20.5   |
| 1876 . . . | 20.4     | 21.8    | 22.7       | 20.5   |
| 1877 . . . | 20.4     | 21.8    | 22.7       | 20.5   |
| 1878 . . . | 20.4     | 21.8    | 22.7       | 20.5   |
| 1879 . . . | 20.4     | 21.8    | 22.7       | 20.5   |
| 1880 . . . | 20.4     | 22.7    | 22.7       | 22.7   |
| 1881 . . . | 20.9     | 22.7    | 22.7       | 22.7   |
| 1882 . . . | 20.9     | 22.7    | 24.2       | 24.2   |
| 1883 . . . | 20.9     | 22.7    | 24.2       | 24.2   |
| 1884 . . . | 20.9     | 22.7    | 24.2       | 24.2   |

The ratio of increase is shown as follows:—

| Year       | Spinner | Weaver | Carpenter | Mason |
|------------|---------|--------|-----------|-------|
| 1864 . . . | 100     | 100    | 100       | 100   |
| 1874 . . . | 180     | 160    | 125       | 134   |
| 1884 . . . | 184     | 167    | 133       | 158   |

Professor Bodio's tables, comparing prices of wheat and maize with the average earnings of twenty-seven

trades, and reducing these earnings to pounds of grain, may be summed up thus:—

| Year       | Day of Ten Hours |             |             | Days to Earn One Ton of Grain |
|------------|------------------|-------------|-------------|-------------------------------|
|            | Wheat, Lbs.      | Maize, Lbs. | Total, Lbs. |                               |
| 1862 . . . | 6.2              | 6.2         | 12.4        | 181                           |
| 1863 . . . | 7.5              | 7.5         | 15.0        | 148                           |
| 1864 . . . | 7.7              | 7.7         | 15.4        | 146                           |
| 1865 . . . | 8.0              | 8.0         | 16.0        | 140                           |
| 1866 . . . | 7.2              | 7.2         | 14.4        | 154                           |
| 1867 . . . | 6.2              | 6.2         | 12.4        | 181                           |
| 1868 . . . | 6.4              | 6.4         | 12.8        | 176                           |
| 1869 . . . | 8.6              | 8.6         | 17.2        | 130                           |
| 1870 . . . | 8.2              | 8.2         | 16.4        | 136                           |
| 1871 . . . | 7.0              | 7.0         | 14.0        | 158                           |
| 1872 . . . | 6.7              | 6.7         | 13.4        | 166                           |
| 1873 . . . | 6.8              | 6.8         | 13.6        | 163                           |
| 1874 . . . | 6.4              | 6.4         | 12.8        | 176                           |
| 1875 . . . | 9.6              | 9.6         | 19.2        | 116                           |
| 1876 . . . | 9.6              | 9.6         | 19.2        | 116                           |
| 1877 . . . | 8.2              | 8.2         | 16.4        | 136                           |
| 1878 . . . | 8.5              | 8.5         | 17.0        | 132                           |
| 1879 . . . | 8.8              | 8.8         | 17.6        | 127                           |
| 1880 . . . | 8.5              | 8.5         | 17.0        | 132                           |
| 1881 . . . | 10.5             | 10.5        | 21.0        | 106                           |
| 1882 . . . | 10.5             | 10.5        | 21.0        | 106                           |
| 1883 . . . | 12.1             | 12.1        | 24.2        | 93                            |
| 1884 . . . | 13.5             | 13.5        | 27.0        | 84                            |
| 1885 . . . | 13.7             | 13.7        | 27.4        | 82                            |

## UNITED STATES

Commissioner Carroll Wright, chief of the Washington Bureau of Statistics, has published a retrospect of wages, which may be condensed thus:—

| Trade              | Pence Daily |         |         |         |         |         |
|--------------------|-------------|---------|---------|---------|---------|---------|
|                    | 1770-1800   | 1801-20 | 1821-40 | 1841-60 | 1861-80 | 1881-83 |
| Blacksmith . . .   | 35          | 42      | 63      | 79      | 114     | 96      |
| Bookbinder . . .   | ...         | ...     | 46      | 72      | 96      | 75      |
| Brewer . . .       | ...         | ...     | ...     | 101     | 107     | 122     |
| Butcher . . .      | 17          | 31      | 46      | ...     | 101     | 68      |
| Carpenter . . .    | 30          | 55      | 74      | 85      | 121     | 120     |
| Carriages . . .    | ...         | ...     | 67      | 85      | 120     | 114     |
| Clocks . . .       | ...         | 56      | 65      | 80      | 115     | ...     |
| Clothing . . .     | ...         | 50      | 54      | 70      | 96      | 100     |
| Cordage . . .      | ...         | ...     | 58      | 46      | 76      | ...     |
| Cottons . . .      | ...         | ...     | 33      | 49      | 70      | 64      |
| Glass . . .        | ...         | ...     | 68      | 135     | 90      | 100     |
| Harness . . .      | ...         | 44      | 60      | 77      | ...     | ...     |
| Hats . . .         | ...         | ...     | ...     | 115     | 98      | 84      |
| Jewellery . . .    | ...         | ...     | 49      | 75      | 77      | 160     |
| Labourers . . .    | 24          | 43      | 42      | 46      | 74      | 66      |
| Machinery . . .    | ...         | ...     | 68      | 95      | 124     | 113     |
| Masons . . .       | 42          | 73      | 65      | 72      | 140     | 107     |
| Metals . . .       | ...         | 53      | 69      | 70      | 108     | 100     |
| Millwrights . . .  | 55          | 57      | 65      | 76      | 132     | 127     |
| Nailers . . .      | 24          | 50      | 56      | 90      | 120     | 92      |
| Painters . . .     | ...         | 62      | 64      | 83      | 116     | 98      |
| Paper . . .        | ...         | 54      | 35      | 50      | 85      | 85      |
| Printers . . .     | ...         | 57      | 66      | 73      | 109     | 107     |
| Shipbuilders . . . | 45          | 63      | 68      | 125     | 125     | 162     |
| Shoemakers . . .   | 37          | ...     | 48      | 70      | 88      | 94      |
| Stonecutters . . . | ...         | ...     | 65      | 71      | 117     | 100     |
| Tanners . . .      | ...         | 50      | 65      | 70      | 104     | 93      |
| Teachers . . .     | 70          | 95      | ...     | ...     | 115     | ...     |
| Teamsters . . .    | ...         | ...     | 58      | 68      | 72      | 88      |
| Turners . . .      | ...         | 46      | 65      | 70      | 100     | 114     |
| Woollens . . .     | ...         | ...     | 53      | 44      | 66      | 62      |

Commissioner Carroll Wright compares the average wages in Massachusetts and Great Britain, from 1860 to 1883, in various trades as follows :—

| Trade                   | Shillings Weekly |               | Trade      | Shillings Weekly |               |
|-------------------------|------------------|---------------|------------|------------------|---------------|
|                         | Massachusetts    | Great Britain |            | Massachusetts    | Great Britain |
| Agricultural implements | 43               | 37            | Hats       | 46               | 25            |
| Boots                   | 48               | 21            | Hosiery    | 28               | 20            |
| Bricks                  | 36               | 17            | Linen      | 27               | 13            |
| Building                | 62               | 32            | Liquor     | 53               | 80            |
| Carpets                 | 25               | 17            | Machines   | 49               | 33            |
| Carriages               | 57               | 35            | Metals     | 47               | 37            |
| Clothing                | 42               | 30            | Printing   | 48               | 28            |
| Cottons                 | 27               | 24            | Printworks | 36               | 23            |
| Food                    | 41               | 16            | Stone      | 66               | 42            |
| Furniture               | 46               | 34            | Woolens    | 29               | 23            |
| Glass                   | 51               | 36            | Worsteds   | 30               | 18            |

He compares the wages of men only, as follows :—

| Trade                   | Shillings Weekly |               | Trade      | Shillings Weekly |               |
|-------------------------|------------------|---------------|------------|------------------|---------------|
|                         | Massachusetts    | Great Britain |            | Massachusetts    | Great Britain |
| Agricultural implements | 44               | 37            | Hats       | 59               | 34            |
| Boots                   | 57               | 30            | Hosiery    | 38               | 27            |
| Bricks                  | 36               | 23            | Linen      | 36               | 28            |
| Building                | 62               | 33            | Liquor     | 54               | 80            |
| Carpets                 | 33               | 25            | Machines   | 50               | 33            |
| Carriages               | 58               | 35            | Metals     | 51               | 44            |
| Clothing                | 72               | 37            | Printing   | 64               | 38            |
| Cottons                 | 40               | 31            | Printworks | 42               | 33            |
| Food                    | 46               | 23            | Stone      | 60               | 42            |
| Furniture               | 46               | 34            | Woolens    | 32               | 31            |
| Glass                   | 62               | 40            | Worsteds   | 36               | 25            |

The wages of women and children in 1860-83 are compared thus :—

*Shillings Wages Weekly*

|            | Women         |               | Children      |               |
|------------|---------------|---------------|---------------|---------------|
|            | Massachusetts | Great Britain | Massachusetts | Great Britain |
| Boots      | 36            | 15            | 19            | 11            |
| Carpets    | 23            | 15            | 17            | 12            |
| Carriages  | ...           | ...           | 23            | 10            |
| Clothing   | 31            | 36            | 16            | 19            |
| Cottons    | 25            | 19            | 18            | 12            |
| Food       | 24            | 10            | 23            | 6             |
| Furniture  | 25            | ...           | 23            | ...           |
| Hats       | 31            | 14            | 19            | 10            |
| Hosiery    | 25            | 16            | 23            | 9             |
| Metals     | 22            | 12            | 19            | 10            |
| Printing   | 26            | 12            | 19            | 10            |
| Printworks | 22            | 14            | 19            | 12            |
| Woolens    | 27            | 13            | 20            | 9             |
| Linens     | 21            | 11            | 16            | 6             |
| Worsteds   | 25            | 14            | 16            | 11            |

The average was for women 15½ shillings a week in Great Britain and 26 in the United States, and for children 10½ and 19 shillings respectively.

The following is a general average scale of wages at various dates :—

*Wages Shillings Weekly*

| Trade        | Massachusetts |      |      | Great Britain |      |      |
|--------------|---------------|------|------|---------------|------|------|
|              | 1872          | 1878 | 1883 | 1872          | 1878 | 1883 |
| Boots        | 61            | 50   | 48   | 23            | 19   | 18   |
| Building     | 64            | 52   | 62   | 27            | 23   | 30   |
| Carriage     | 70            | 58   | 57   | 27            | 30   | 20   |
| Clothing     | 51            | 40   | 42   | 24            | 15   | 26   |
| Cottons      | 33            | 32   | 27   | 22            | 20   | 19   |
| Food         | 40            | 46   | 41   | 19            | 32   | 11   |
| Glass        | 47            | 44   | 51   | 29            | 25   | 29   |
| Linen        | 32            | 22   | 27   | 13            | 15   | 12   |
| Machinery    | 56            | 42   | 48   | 28            | 20   | 29   |
| Metals       | 64            | 48   | 47   | 28            | 27   | 31   |
| Printing     | 53            | 56   | 47   | 28            | 27   | 23   |
| Printworks   | 54            | 40   | 36   | 25            | 22   | 20   |
| Shipbuilding | 66            | 49   | 84   | 28            | 25   | 33   |
| Woolens      | 30            | 28   | 33   | 19            | 23   | 20   |

Atkinson gives the following wages for Massachusetts :—

|          | Shillings per Week |      |      |      |      |
|----------|--------------------|------|------|------|------|
|          | 1840               | 1850 | 1860 | 1870 | 1880 |
| Carder   | 18                 | 21   | 21   | 28   | 31   |
| Dresser  | 29                 | 41   | 46   | 64   | 55   |
| Dyer     | 26                 | 26   | 26   | 38   | 37   |
| Labourer | 12                 | 18   | 21   | 26   | 25   |
| Mechanic | 25                 | 31   | 38   | 38   | 40   |
| Spinner  | 21                 | 28   | 31   | 42   | 40   |
| Weaver   | 18                 | 21   | 18   | 27   | 31   |

The following table by Commissioner Wadlin, for Massachusetts in 1885, shows the percentage that wages stand for in cost of production in various articles :—

|                      | Per Cent. |           | Per Cent. |
|----------------------|-----------|-----------|-----------|
| Agricult. implements | 38        | Hosiery   | 32        |
| Arms                 | 30        | Ink       | 25        |
| Boots                | 25        | Ivoryware | 22        |
| Bricks               | 57        | Leather   | 14        |
| Brooms               | 33        | Linen     | 33        |
| Building             | 34        | Liquor    | 13        |
| Buttons              | 27        | Lumber    | 25        |
| Carpets              | 21        | Machines  | 47        |
| Carriages            | 46        | Metals    | 36        |
| Cement               | 32        | Paints    | 17        |
| Chemicals            | 9         | Paper     | 18        |
| Clocks               | 77        | Printing  | 39        |
| Clothing             | 23        | Rubber    | 25        |
| Cordage              | 14        | Salt      | 52        |
| Cottons              | 30        | Silks     | 30        |
| Drugs                | 23        | Stone     | 56        |
| Dye-stuffs           | 21        | Tobacco   | 35        |
| Earthenware          | 66        | Toys      | 52        |
| Electroplating       | 28        | Trunks    | 22        |
| Furniture            | 37        | Woolens   | 21        |
| Glass                | 62        | Worsteds  | 21        |

Commissioner Wadlin's report gives in a classified form the wages of 248,000 operatives, which in English money show as follows :—

| Weekly Shillings | Number  |        |         | Ratio |        |       |
|------------------|---------|--------|---------|-------|--------|-------|
|                  | Male    | Female | Total   | Male  | Female | Total |
| Under 21         | 15,700  | 25,400 | 41,100  | 9.0   | 34.6   | 16.5  |
| 21-29            | 20,300  | 28,200 | 48,500  | 11.6  | 38.3   | 19.5  |
| 29-37            | 27,300  | 12,300 | 39,600  | 15.6  | 16.8   | 16.0  |
| 37-50            | 43,600  | 5,500  | 49,100  | 25.0  | 7.5    | 19.8  |
| Over 50          | 67,900  | 2,000  | 69,900  | 38.8  | 2.8    | 28.2  |
| Total            | 174,800 | 73,400 | 248,200 | 100.0 | 100.0  | 100.0 |

The following is a summary of the principal trades in 1875 and 1885 in Massachusetts; that is, the number of hands and the amount of wages (in gold) reduced to English money:—

|                      | Hands   |         | Wages Paid, £ |            | Average, £ per Hand |      |
|----------------------|---------|---------|---------------|------------|---------------------|------|
|                      | 1875    | 1885    | 1875          | 1885       | 1875                | 1885 |
| Boots . . . . .      | 48,000  | 64,900  | 3,700,000     | 5,600,000  | 77                  | 86   |
| Building . . . . .   | 24,000  | 27,900  | 1,900,000     | 2,700,000  | 80                  | 97   |
| Clothing . . . . .   | 13,700  | 18,300  | 1,000,000     | 1,200,000  | 73                  | 66   |
| Cottons . . . . .    | 60,200  | 60,100  | 3,500,000     | 3,500,000  | 58                  | 58   |
| Food . . . . .       | 4,700   | 11,500  | 500,000       | 1,000,000  | 106                 | 86   |
| Furniture . . . . .  | 6,700   | 8,200   | 650,000       | 750,000    | 97                  | 91   |
| Leather . . . . .    | 6,600   | 9,200   | 700,000       | 900,000    | 105                 | 98   |
| Machines . . . . .   | 9,600   | 14,600  | 1,300,000     | 1,500,000  | 135                 | 103  |
| Metals . . . . .     | 17,600  | 24,200  | 2,200,000     | 2,400,000  | 125                 | 99   |
| Paper . . . . .      | 6,500   | 8,600   | 500,000       | 650,000    | 77                  | 74   |
| Printing . . . . .   | 5,500   | 9,900   | 550,000       | 950,000    | 100                 | 96   |
| Printworks . . . . . | 3,200   | 8,600   | 40,000        | 600,000    | 125                 | 70   |
| Rubber . . . . .     | 1,100   | 6,500   | 80,000        | 450,000    | 73                  | 70   |
| Woollens . . . . .   | 19,000  | 19,000  | 1,200,000     | 1,200,000  | 63                  | 63   |
| Worsteds . . . . .   | 1,500   | 8,000   | 100,000       | 500,000    | 67                  | 62   |
| Various . . . . .    | 69,140  | 79,830  | 5,480,000     | 6,700,000  | 79                  | 84   |
| Total . . . . .      | 297,040 | 379,330 | 23,400,000    | 30,600,000 | 80                  | 81   |

The following table shows the average earnings per hour, and the number of hours of work, in the period 1860-83:—

| Trade                                  | Pence per Hour |               | Hours Weekly  |               |
|----------------------------------------|----------------|---------------|---------------|---------------|
|                                        | Massachusetts  | Great Britain | Massachusetts | Great Britain |
| Agricultural imple-<br>ments . . . . . | 8.5            | 8.2           | 60            | 54            |
| Boots . . . . .                        | 9.8            | 4.2           | 60            | 52            |
| Bricks . . . . .                       | 6.7            | ...           | 64            | ...           |
| Building . . . . .                     | 12.5           | 7.0           | 60            | 52            |
| Carriages . . . . .                    | 11.5           | 4.5           | 60            | 54            |
| Clothing . . . . .                     | 8.6            | 6.3           | 58            | 54            |
| Cottons . . . . .                      | 5.4            | 4.2           | 60            | 56            |
| Food . . . . .                         | 8.2            | 2.4           | 60            | 56            |
| Furniture . . . . .                    | 9.3            | 7.6           | 60            | 52            |
| Glass . . . . .                        | 10.2           | ...           | 60            | ...           |
| Hats . . . . .                         | 9.2            | 5.1           | 60            | 54            |
| Hosiery . . . . .                      | 5.4            | 4.3           | 60            | 54            |
| Linen . . . . .                        | 5.4            | 2.6           | 60            | 54            |
| Machinery . . . . .                    | 9.8            | 6.6           | 60            | 52            |
| Metals . . . . .                       | 9.5            | 6.9           | 60            | 54            |
| Printing . . . . .                     | 9.8            | 5.1           | 58            | 54            |
| Printworks . . . . .                   | 7.2            | 4.6           | 60            | 54            |
| Woollens . . . . .                     | 5.8            | 4.3           | 60            | 56            |
| Worsteds . . . . .                     | 6.1            | 3.2           | 60            | 56            |

The last four Census reports, down to 1880, give the following returns as to amount of wages paid (in gold) in all kinds of manufacturing industries:—

|                         | Million Dollars |      |      |      | Per Operative, in £ Sterling |      |      |      |
|-------------------------|-----------------|------|------|------|------------------------------|------|------|------|
|                         | 1850            | 1860 | 1870 | 1880 | 1850                         | 1860 | 1870 | 1880 |
| Maine . . . . .         | 7               | 8    | 14   | 14   | 51                           | 47   | 52   | 53   |
| New Hampshire . . . . . | 6               | 8    | 14   | 15   | 46                           | 50   | 60   | 65   |
| Vermont . . . . .       | 2               | 3    | 6    | 5    | 52                           | 66   | 61   | 58   |
| Rhode Island . . . . .  | 5               | 9    | 19   | 21   | 50                           | 57   | 66   | 67   |
| Connecticut . . . . .   | 12              | 19   | 39   | 44   | 51                           | 60   | 75   | 78   |
| Massachusetts . . . . . | 42              | 57   | 118  | 128  | 49                           | 55   | 76   | 72   |
| New England . . . . .   | 74              | 104  | 210  | 227  | 49                           | 55   | 72   | 70   |
| New York . . . . .      | 49              | 65   | 142  | 190  | 52                           | 59   | 72   | 79   |
| New Jersey . . . . .    | 9               | 16   | 33   | 46   | 49                           | 59   | 80   | 73   |
| Pennsylvania . . . . .  | 37              | 60   | 128  | 134  | 52                           | 56   | 74   | 70   |
| Delaware . . . . .      | 1               | 2    | 4    | 4    | 50                           | 60   | 70   | 62   |
| Maryland . . . . .      | 7               | 7    | 13   | 19   | 50                           | 52   | 58   | 54   |
| Middle . . . . .        | 103             | 150  | 320  | 402  | 51                           | 58   | 72   | 76   |

|                     | Million Dollars |      |      |      | Per Operative, in £ Sterling |      |      |      |
|---------------------|-----------------|------|------|------|------------------------------|------|------|------|
|                     | 1850            | 1860 | 1870 | 1880 | 1850                         | 1860 | 1870 | 1880 |
| Virginia . . . . .  | 5               | 9    | 9    | 11   | 35                           | 50   | 49   | 41   |
| Georgia . . . . .   | 2               | 3    | 5    | 5    | 44                           | 55   | 52   | 42   |
| Kentucky . . . . .  | 5               | 6    | 9    | 12   | 46                           | 57   | 53   | 60   |
| Tennessee . . . . . | 2               | 3    | 5    | 5    | 34                           | 50   | 47   | 47   |
| Louisiana . . . . . | 2               | 4    | 5    | 4    | 56                           | 78   | 36   | 60   |
| Various . . . . .   | 4               | 9    | 12   | 15   | 44                           | 52   | 48   | 50   |
| South . . . . .     | 20              | 34   | 45   | 52   | 50                           | 57   | 45   | 47   |
| Ohio . . . . .      | 13              | 22   | 49   | 62   | 51                           | 59   | 65   | 69   |
| Illinois . . . . .  | 3               | 8    | 31   | 57   | 50                           | 53   | 69   | 75   |
| Michigan . . . . .  | 3               | 7    | 21   | 29   | 65                           | 60   | 60   | 77   |
| Wisconsin . . . . . | 2               | 4    | 14   | 19   | 65                           | 55   | 56   | 67   |
| Missouri . . . . .  | 5               | 7    | 31   | 24   | 64                           | 70   | 88   | 70   |
| Indiana . . . . .   | 4               | 6    | 18   | 22   | 58                           | 60   | 57   | 70   |
| Iowa . . . . .      | ...             | 2    | 7    | 10   | ...                          | 65   | 55   | 66   |
| Minnesota . . . . . | ...             | ...  | 4    | 9    | ...                          | ...  | 65   | 70   |
| Various . . . . .   | 8               | 38   | 35   | 38   | 58                           | 60   | 63   | 70   |
| West . . . . .      | 38              | 94   | 210  | 270  | 58                           | 60   | 64   | 70   |
| The Union . . . . . | 235             | 382  | 785  | 951  | 51                           | 58   | 69   | 73   |

We learn from the preceding table that the average wages for operatives have been increasing every decade. Three operatives in 1880 earned more than four did in 1850: they also produced more (see p. 379).

The ratio which wages bore to the value of goods manufactured was:—

| States                | 1850 | 1860 | 1870 | 1880 | Average per Cent. |
|-----------------------|------|------|------|------|-------------------|
| New England . . . . . | 26   | 22   | 21   | 21   | 22                |
| Middle . . . . .      | 22   | 19   | 18   | 18   | 19                |
| South . . . . .       | 21   | 18   | 16   | 16   | 18                |
| West . . . . .        | 21   | 17   | 17   | 16   | 18                |
| Union . . . . .       | 24   | 19   | 18   | 18   | 20                |

During the gold fever at San Francisco, daily wages were as follows:—

|                       | s. | d. |                      | s. | d. |
|-----------------------|----|----|----------------------|----|----|
| Bricklayer . . . . .  | 41 | 8  | Tailor . . . . .     | 16 | 8  |
| Stonecutter . . . . . | 41 | 8  | Hatter . . . . .     | 29 | 2  |
| Plasterer . . . . .   | 37 | 6  | Watchmaker . . . . . | 33 | 4  |
| Glazier . . . . .     | 25 | 0  | Carpenter . . . . .  | 41 | 0  |

Mr. Young published in 1870 the following scale of wages current in various States of the Union :—

|                     | Wages Reduced to English Money,<br>Shillings Weekly |               |          |              |       |           |          |
|---------------------|-----------------------------------------------------|---------------|----------|--------------|-------|-----------|----------|
|                     | Maine                                               | Massachusetts | New York | Pennsylvania | Texas | Louisiana | Illinois |
| Blacksmith . . .    | 68                                                  | 72            | 68       | 60           | 70    | 81        | 68       |
| Bricklayer . . .    | 81                                                  | 94            | 88       | 75           | 81    | 98        | 87       |
| Cabinetmaker . . .  | 66                                                  | 68            | 68       | 50           | 68    | 68        | 65       |
| Carpenter . . .     | 60                                                  | 81            | 74       | 50           | 76    | 94        | 68       |
| Cooper . . .        | 63                                                  | 78            | 65       | 63           | 75    | 75        | 63       |
| Painter . . .       | 67                                                  | 70            | 75       | 63           | 75    | 82        | 68       |
| Plasterer . . .     | 81                                                  | 92            | 90       | 78           | 86    | 94        | 80       |
| Shoemaker . . .     | 61                                                  | 65            | 60       | 63           | 64    | 70        | 60       |
| Stonecutter . . .   | 84                                                  | 98            | 94       | 81           | 105   | 100       | 87       |
| Tailor . . .        | 66                                                  | 61            | 62       | 50           | 64    | 70        | 60       |
| Tanner . . .        | 66                                                  | 68            | 68       | 50           | 68    | 75        | 65       |
| Tinsmith . . .      | 63                                                  | 65            | 68       | 52           | 72    | 72        | 66       |
| Wheelwright . . .   | 68                                                  | 75            | 72       | 55           | 70    | 90        | 75       |
| Farm labourer . . . | 38                                                  | 40            | 42       | 41           | 32    | 42        | 40       |

|                     | Wages Reduced to English Money,<br>Shillings Weekly |        |          |         |                 |
|---------------------|-----------------------------------------------------|--------|----------|---------|-----------------|
|                     | New England                                         | Middle | Southern | Western | General Average |
| Blacksmith . . .    | 70                                                  | 60     | 67       | 72      | 68              |
| Bricklayer . . .    | 87                                                  | 83     | 76       | 91      | 85              |
| Cabinetmaker . . .  | 72                                                  | 61     | 65       | 69      | 67              |
| Carpenter . . .     | 70                                                  | 56     | 74       | 75      | 68              |
| Cooper . . .        | 71                                                  | 63     | 64       | 67      | 66              |
| Painter . . .       | 72                                                  | 66     | 70       | 74      | 71              |
| Plasterer . . .     | 85                                                  | 79     | 79       | 89      | 83              |
| Shoemaker . . .     | 61                                                  | 55     | 60       | 64      | 60              |
| Stone-cutter . . .  | 88                                                  | 85     | 80       | 87      | 86              |
| Tailor . . .        | 65                                                  | 58     | 61       | 65      | 62              |
| Tanner . . .        | 68                                                  | 59     | 65       | 68      | 65              |
| Tinsmith . . .      | 69                                                  | 61     | 65       | 68      | 66              |
| Wheelwright . . .   | 72                                                  | 63     | 72       | 75      | 71              |
| Farm labourer . . . | 42                                                  | 37     | 29       | 41      | 37              |

*Note.*—The above wages were in paper money at 13 per cent. discount as compared with gold; thus 80s. were in reality only 70s.

### WARS

The wars of ninety years down to 1880 involved an expenditure of 3047 millions sterling, besides the loss of 4,470,000 lives, viz. :—

| Date          | Belligerents                     | Expenditure,<br>Million £ | Loss in<br>Men |
|---------------|----------------------------------|---------------------------|----------------|
| 1793-1815     | England and France . . .         | 1,250                     | 1,900,000      |
| 1828 . . .    | Russia and Turkey . . .          | 20                        | 120,000        |
| 1830-40 . . . | Spain and Portugal (civil) . . . | 50                        | 160,000        |
| 1830-47 . . . | France and Algeria . . .         | 38                        | 110,000        |
| 1848 . . .    | Europe (civil) . . .             | 10                        | 60,000         |
| 1854-56 . . . | England, France, Russia . . .    | 305                       | 485,000        |
| 1859 . . .    | France and Austria . . .         | 45                        | 63,000         |
| 1863-65 . . . | United States (civil) . . .      | 740                       | 656,000        |
| 1866 . . .    | Prussia and Austria . . .        | 20                        | 51,000         |
| 1866 . . .    | France and Mexico . . .          | 15                        | 65,000         |
| 1864-70 . . . | Brazil and Paraguay . . .        | 48                        | 330,000        |
| 1870-71 . . . | France and Germany . . .         | 316                       | 290,000        |
| 1876-77 . . . | Russia and Turkey . . .          | 190                       | 180,000        |
|               |                                  | 3,047                     | 4,470,000      |

### Summary

| Period    | Expenditure,<br>Million £ | Loss of Life | Per Annum |              |
|-----------|---------------------------|--------------|-----------|--------------|
|           |                           |              | Million £ | Loss of Life |
| 1790-1820 | 1,250                     | 1,900,000    | 42        | 63,000       |
| 1821-1850 | 118                       | 450,000      | 4         | 15,000       |
| 1851-1860 | 350                       | 548,000      | 35        | 55,000       |
| 1861-1880 | 1,329                     | 1,572,000    | 66        | 79,000       |
|           | 3,047                     | 4,470,000    |           |              |

*British Wars.*—In less than 300 years, Great Britain has expended 1359 millions sterling in war, viz. :—

| Date            | Locality                  | Expenditure,<br>Million £ | Commander        |
|-----------------|---------------------------|---------------------------|------------------|
| 1599 . . .      | Ireland . . .             | 4                         | Essex            |
| 1642-48 . . .   | England and Holland . . . | 57                        | Cromwell         |
| 1688-97 . . .   | Ireland and Holland . . . | 33                        | William III.     |
| 1702-63 . . .   | Germany, Spain, &c. . .   | 182                       | Marlborough, &c. |
| 1759 . . .      | Canada . . .              | 62                        | Wolfe            |
| 1775-80 . . .   | United States . . .       | 121                       | Cornwallis       |
| 1793-1815 . . . | France, &c. . .           | 831                       | Wellington       |
| 1854-56 . . .   | Crimea . . .              | 69                        | Raglan           |
|                 |                           | 1,359                     |                  |

In the Crimean War, 97,860 men took the field, of whom 2755 were killed in action; 18,280 were wounded, and of these 1847 died in hospital, and 17,580 died of disease; total deaths 22,182, or 22½ per cent. of the total strength.

*French Wars.*—In 218 years France spent 993 millions sterling in war, viz. :—

| Date          | Reign                | Locality          | Expenditure,<br>Million £ | Commander    |
|---------------|----------------------|-------------------|---------------------------|--------------|
| 1654-1713     | Louis XIV. . .       | Flanders, &c. . . | 154                       | Turenne, &c. |
| 1733-63       | Louis XV. . .        | " . . .           | 82                        | Saxe         |
| 1778-83       | Louis XVI. . .       | U. States . . .   | 22                        | Lafayette    |
| 1791-1815     | Napoleon . . .       | Europe, &c. . .   | 255                       | Bonaparte    |
| 1830-47       | Louis Philippe . . . | Algeria . . .     | 38                        | Bugeaud, &c. |
| 1854-56       | Napoleon III. . .    | Crimea . . .      | 93                        | Pellissier   |
| 1859 . . .    | " . . .              | Italy . . .       | 18                        | MacMahon     |
| 1866 . . .    | " . . .              | Mexico . . .      | 15                        | Bazaine      |
| 1870-71 . . . | " . . .              | Rhine . . .       | 316                       | Lebeuf       |
|               |                      |                   | 993                       |              |

In the Crimean war 309,400 men took the field, of whom 8490 were killed in action; 39,870 were wounded, and of these 11,750 died in hospital, and 75,375 died of disease; total deaths 95,615, or 31 per cent. of total strength. It is remarkable that 29 per cent. of the wounded died, and 30 per cent. of men admitted to hospital for disease, whereas the British lost only 10 per cent. of wounded and 12 per cent. of men admitted for disease. At the same time only 71 per cent. of the French army were admitted to hospital for disease, namely 225,000; whereas 147 per cent. of the British were so admitted, that is, the whole army nearly twice over during the campaign, such admission reaching 144,400, or 46,000 more than the total strength. The casualties of the

French compare with those of the other belligerents in the Crimea thus:—

|                  | English | French  | Turk    | Russian | Total     |
|------------------|---------|---------|---------|---------|-----------|
| Took field . .   | 98,100  | 309,400 | 165,000 | 888,000 | 1,460,500 |
| Killed in battle | 2,755   | 8,490   | 10,100  | 30,600  | 51,945    |
| Died of wounds   | 1,847   | 11,750  | 10,800  | 42,000  | 66,397    |
| Died of sickness | 17,580  | 75,375  | 24,500  | 374,000 | 491,455   |
| Total loss . .   | 22,182  | 95,615  | 45,400  | 446,600 | 609,797   |

#### Shots Fired

| By           | Millions | Killed            | Shots to Kill |
|--------------|----------|-------------------|---------------|
| English . .  | 15       | 21,000 Russians . | 700           |
| French . .   | 29       | 51,000 „ . .      | 590           |
| Russians . . | 45       | 48,000 Allies . . | 910           |
| Total . .    | 89       | 120,000 men . .   | 740           |

In the Franco-Italian war 128,000 French took the field, of whom 2536 were killed in action; 17,054 were wounded, and of these 2962 died in hospital, besides 2040 who died of disease; total deaths 7538, or 6 per cent.

In the Mexican war of 1862-66 there were 35,000 French landed in Mexico, of whom 1180 were killed in action; 2559 were wounded, and of these 549 died; deaths from disease were 4925, making a total of 6654, or 19 per cent. of total strength.

In the Franco-German war of 1870-71, 710,000 French took the field, and of these no fewer than 138,870 were killed in action or died in hospital, including 2977 officers. The death-roll of the French was, of men killed in action or died in hospital, as follows:—

|                          |         |
|--------------------------|---------|
| In France . . . . .      | 119,929 |
| In Germany . . . . .     | 17,240  |
| In Switzerland . . . . . | 1,701   |

Total . . . . . 138,870

This includes 45,000 deaths from disease, but it is believed that many not recorded died of wounds, having gone to their homes. Deaths were at least 20 per cent.

*German Wars.*—The campaign of Sadowa, between Prussia and Austria, in 1866, showed as follows:—

|                  | Prussians | Austrians | Total   |
|------------------|-----------|-----------|---------|
| Took field . . . | 309,000   | 330,000   | 639,000 |
| Killed . . . .   | 2,650     | 11,100    | 13,750  |
| Wounded . . .    | 14,820    | 29,310    | 44,130  |
| Missing . . . .  | 3,304     | 43,750    | 47,054  |
| Hors-de-combat . | 20,774    | 84,160    | 104,934 |
| Returned home .  | 285,226   | 245,840   | 531,066 |

The Prussians had one officer killed or wounded for 21 men, the Austrians one for 18 men.

In the Franco-German war of 1870-71 the casualties were as shown in the following table:—

|                    | French  | Germans   | Total     |
|--------------------|---------|-----------|-----------|
| Took field . . .   | 420,000 | 780,000   | 1,200,000 |
| Reinforced . . .   | 290,000 | 223,000   | 513,000   |
| Total . . . .      | 710,000 | 1,003,000 | 1,713,000 |
| Killed . . . .     | 41,000  | 19,782    | 60,782    |
| Died of wounds .   | 36,000  | 10,710    | 46,710    |
| Died of sickness . | 45,000  | 14,259    | 59,259    |
| Disabled . . . .   | 116,000 | 89,000    | 205,000   |
| Prisoners . . . .  | 446,000 | ...       | 446,000   |
| Hors-de-combat .   | 684,000 | 133,751   | 817,751   |

#### Killed and Wounded

|                  | French  | Germans | Total   |
|------------------|---------|---------|---------|
| Woerth . . . .   | 32,000  | 11,000  | 43,000  |
| Mars-le-Tour . . | 26,000  | 16,200  | 42,200  |
| Gravelotte . . . | 28,500  | 20,100  | 48,600  |
| Paris . . . . .  | 30,000  | 13,300  | 43,300  |
| Orleans, &c. . . | 76,500  | 57,400  | 133,900 |
| Total . . . .    | 193,000 | 118,000 | 311,000 |

The number of Germans killed includes 4010 missing, who are supposed to have been slain in action. The hospital records of the Germans showed that 127,870 wounded of their army were admitted, but only 107,710 died, say 84 per cent. Deaths from disease included 6965 of typhoid fever. The minimum force in the field was 781,000 in August 1870, the maximum 937,000 in February 1871. The death-rate during the whole campaign in the different arms was:—

|                    | Per 1000 |                    | Per 1000 |
|--------------------|----------|--------------------|----------|
| Engineers . . . .  | 17.6     | Staff . . . . .    | 105.0    |
| Cavalry . . . . .  | 27.1     | Captains . . . .   | 87.0     |
| Artillery . . . .  | 27.2     | All officers . . . | 76.0     |
| Infantry . . . . . | 52.8     | Officers and men . | 45.9     |

The Germans fired off 30 million musket cartridges and 363,000 rounds of artillery, with which they killed or mortally wounded 77,000 French, being 400 shots to kill, as compared with 740 in the Crimean war (q.v.). See *Battles*.

*Russian Wars.*—The campaigns of the last sixty years cost 335 millions sterling and 664,000 men, viz:—

| Date       | Reign         | Locality     | Expenditure, Million £ | Loss in Men |
|------------|---------------|--------------|------------------------|-------------|
| 1828 . .   | Nicholas . .  | Balkans . .  | 15                     | 86,000      |
| 1854-56 .  | Nicholas . .  | Crimea . .   | 142                    | 447,000     |
| 1876-77 .  | Alexander II. | Turkey . .   | 133                    | 110,000     |
| 1878-80 .  | Alexander II. | Khiva, &c. . | 45                     | 21,000      |
| 52 years . | ...           | ...          | 335                    | 664,000     |

*American Wars.*—According to Stedman, an officer under Lord Cornwallis, the strength of the British and American armies in the War of Independence was:—

| Year           | British | Americans |
|----------------|---------|-----------|
| 1776 . . . . . | 27,700  | 3,300     |
| 1777 . . . . . | 30,000  | 8,000     |
| 1781 . . . . . | 7,000   | 32,600    |

The British army consisted largely of Hessian and other soldiers bought in Germany by George III., and for whom the British Government paid the following sums to the German princes:—

|                  | Men    | Sum, £    | £ per Man | Perished in the War |
|------------------|--------|-----------|-----------|---------------------|
| Hesse . . . . .  | 16,992 | 2,600,000 | 153       | 6,500               |
| Brunswick . . .  | 5,723  | 780,000   | 137       | 3,015               |
| Anspach, &c. . . | 6,451  | 1,747,000 | 275       | 2,328               |
| Total . . . .    | 29,166 | 5,127,000 | 175       | 11,843              |

During the five years that the war lasted 288,200 Americans fought for their country, the States being represented by the following numbers:—

|                    | Men    |                    | Men    |
|--------------------|--------|--------------------|--------|
| Massachusetts . .  | 83,000 | New Jersey . . .   | 17,000 |
| Connecticut . . .  | 40,000 | New Hampshire . .  | 15,000 |
| Pennsylvania . . . | 33,000 | Rhode Island . . . | 10,000 |
| Virginia . . . . . | 32,000 | North Carolina . . | 7,300  |
| New York . . . . . | 21,000 | South Carolina . . | 6,400  |
| Maryland . . . . . | 18,000 | Georgia, &c. . . . | 5,500  |

The American army, after the surrender of Lord Cornwallis, was found to number thus:—

|                                |        |
|--------------------------------|--------|
| 49 regiments of foot . . . . . | 28,224 |
| 4 " horse . . . . .            | 1,536  |
| 4 " artillery . . . . .        | 2,340  |
| 1 " pioneers . . . . .         | 480    |

Total . . . . . 32,580

The total expenses of the war were 135 million dollars, say 28 millions sterling. In the second war with England (1812-15), the American army at one time counted 32,000 men under the colours. In the war with Mexico (1845), the Americans had 90,100 men, of whom 7780 died, including 6060 of disease, and the rest killed in action or who died of wounds received.

An official statement of the war for the Union in 1863-65 was as follows:—

#### Northern Army

|                          | Officers | White Men | Coloured | Total     | Ratio |
|--------------------------|----------|-----------|----------|-----------|-------|
| Took field . . . . .     | 84,000   | 2,073,000 | 179,000  | 2,336,000 | 100   |
| Killed . . . . .         | 3,930    | 38,790    | 1,520    | 44,240    | 1.9   |
| Died of wounds . . . . . | 2,070    | 30,890    | 1,046    | 34,006    | 1.5   |
| " sickness . . . . .     | 1,720    | 121,110   | 26,200   | 149,030   | 6.4   |
| Missing . . . . .        | 1,600    | 60,910    | 4,614    | 67,124    | 2.9   |
| Returned home . . . . .  | 74,680   | 1,821,300 | 145,620  | 2,041,600 | 87.3  |

Kolb gives the following summary:—

|                     | Killed | Wounded | Prisoners |
|---------------------|--------|---------|-----------|
| Northerns . . . . . | 43,573 | 132,265 | 87,481    |
| Southerns . . . . . | 26,720 | 101,843 | 78,731    |
| Total . . . . .     | 70,293 | 234,108 | 166,212   |

According to another account the Northern army lost:—

|                    | Killed | Died of Sickness | Total   |
|--------------------|--------|------------------|---------|
| Officers . . . . . | 5,221  | 2,321            | 7,542   |
| Men . . . . .      | 90,868 | 182,329          | 273,197 |
| Total . . . . .    | 96,089 | 184,650          | 280,739 |

The Ordnance department served out 7892 cannon, 4,022,000 rifles, 2,360,000 equipments for infantry and cavalry, 12,000 tons powder, 42,000 tons lead, and 1022 million rounds of cartridge.

#### WATER

The weight of alluvial deposits to 1000 gallons of water is as follows:—

|              | <i>Lbs.</i>    |             | <i>Lbs.</i> |            | <i>Lbs.</i> |
|--------------|----------------|-------------|-------------|------------|-------------|
| Loch Katrine | $\frac{1}{2}$  | Danube      | 2           | Wear       | 16          |
| Windermere   | $\frac{1}{2}$  | Garonne     | 2           | Ganges     | 22          |
| Severn       | 1              | Rhine       | 2           | Cheltenham | 134         |
| Avon         | 1              | Mersey      | 3           | Harrogate  | 157         |
| Tunbridge    | $1\frac{1}{2}$ | Thames      | 4           | Oxus       | 250         |
| Spree        | $1\frac{1}{2}$ | Mississippi | 6           | Seidlitz   | 321         |
| Geneva       | 2              | Spa         | 14          | Atlantic   | 448         |

A ton of water contains 224 gallons or 36 cubic feet, but sea-water is 2 per cent. heavier. An inch of rainfall gives 14,500,000 gallons of water to the square mile, or 22,500 gallons to the acre. Snow requires 8 cubic feet to produce one cubic foot of water. Current requires a minimum fall of one inch in 10 miles. The water-power of Niagara is 10,000,000 cubic feet per minute, equal to 3,000,000 horse-power. In 1880 the United States had 51,000 water-wheels with an aggregate of 1,500,000 horse-power.

Water supply has always been a matter of the highest importance. Rome, in the time of the Caesars, had nine aqueducts, measuring 249 miles in the aggregate: they poured into the city 330 million gallons daily, or 160 gallons per inhabitant. The great aqueduct of Peru, built by the Incas, was 360 miles long. Among modern works the most famous are:—

| Name                        | Miles | Million Gallons Daily | Cost of Work, £ |
|-----------------------------|-------|-----------------------|-----------------|
| Croton (New York) . . . . . | 41    | 88                    | 1,800,000       |
| Madrid . . . . .            | 47    | 40                    | 2,300,000       |
| Marseilles . . . . .        | 51    | 60                    | 450,000         |
| Glasgow . . . . .           | 34    | 50                    | 1,550,000       |
| Washington . . . . .        | 16    | 90                    | ...             |

The supply of various cities is shown as follows:—

|                         | Gallons Daily | Gallons per Inhabitant |
|-------------------------|---------------|------------------------|
| Ancient Rome . . . . .  | 330,000,000   | 160                    |
| Modern Rome . . . . .   | 200,000,000   | 670                    |
| London . . . . .        | 145,000,000   | 38                     |
| Paris . . . . .         | 88,000,000    | 39                     |
| New York . . . . .      | 88,000,000    | 70                     |
| Chicago . . . . .       | 60,000,000    | 120                    |
| Sydney . . . . .        | 50,000,000    | 120                    |
| Glasgow . . . . .       | 26,000,000    | 48                     |
| St. Louis . . . . .     | 25,000,000    | 70                     |
| Marseilles . . . . .    | 18,000,000    | 50                     |
| Buffalo . . . . .       | 17,000,000    | 120                    |
| Manchester . . . . .    | 11,000,000    | 20                     |
| Liverpool . . . . .     | 11,000,000    | 20                     |
| Boston . . . . .        | 10,000,000    | 27                     |
| San Francisco . . . . . | 10,000,000    | 42                     |
| Newark . . . . .        | 10,000,000    | 80                     |
| Edinburgh . . . . .     | 10,000,000    | 33                     |
| Dublin . . . . .        | 7,000,000     | 22                     |
| Melbourne . . . . .     | 7,000,000     | 25                     |
| Hamburg . . . . .       | 5,000,000     | 12                     |

Artesian wells are of great antiquity; they were known at Thebes 2000 years before the Christian era. In modern times that of Grenelle, near Paris, is the most famous, having taken eight years in boring, 1833-41; it gives 700,000 gallons daily, the water rising 32 feet above the surface, with a temperature of 81½° Fahr.

| Well                       | Depth, Feet | Diameter, Inches | Gallons Water per Minute | Cost of Well, £ |
|----------------------------|-------------|------------------|--------------------------|-----------------|
| Grenelle . . . . .         | 1,798       | 3.74             | 484                      | 14,550          |
| Passy . . . . .            | 1,923       | 27.60            | 1,980                    | 40,000          |
| Kissingen . . . . .        | 1,880       | 4.00             | 600                      | 7,000           |
| St. Louis, U.S. . . . .    | 2,200       | ...              | ...                      | 2,000           |
| Chicago . . . . .          | 700         | ...              | 820                      | ...             |
| Calais . . . . .           | 1,138       | ...              | ...                      | 3,560           |
| Donchery . . . . .         | 1,215       | ...              | ...                      | 3,045           |
| Trafalgar Square . . . . . | 393         | ...              | 500                      | ...             |
| Lille . . . . .            | 592         | ...              | ...                      | 320             |
| Algeria . . . . .          | 177         | ...              | 1,130                    | ...             |
| Elbeuf . . . . .           | 492         | 2.05             | 66                       | ...             |
| St. Denis . . . . .        | 262         | 2.28             | 28                       | ...             |

There are 78 of these wells in England, varying from 100 to 1000 feet. Several have been sunk in China more than 1000 feet, at a cost of only seven shillings per foot.

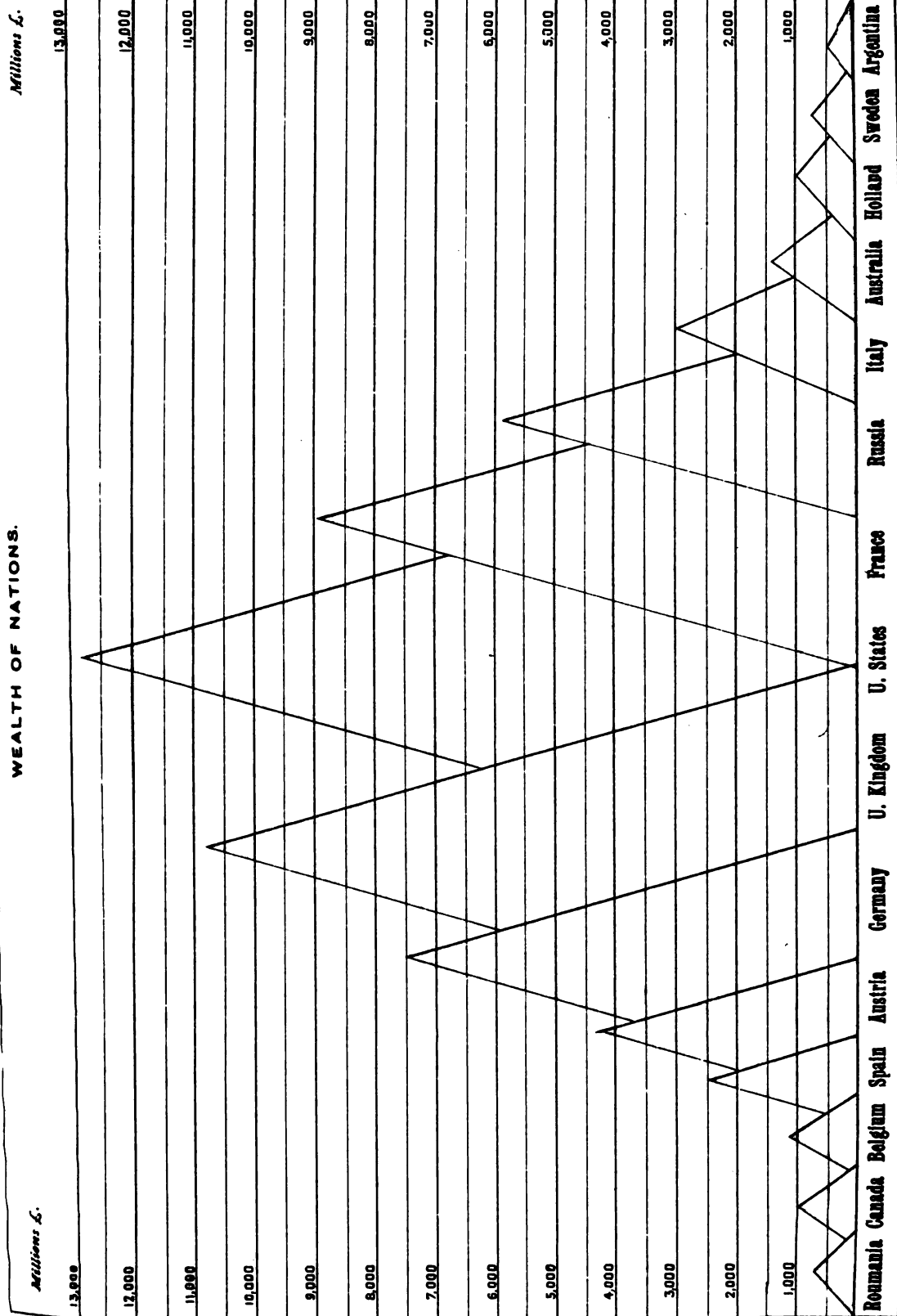
The water companies of London in 1880 showed: capital, £12,463,000; receipts, £1,460,000; expenses, £740,000; net profit, £720,000.

The water-supply of Paris in 1884 was as follows, daily:—

|                           |            |
|---------------------------|------------|
| Aqueduct . . . . .        | 55,000,000 |
| Seine and wells . . . . . | 33,000,000 |
| Total . . . . .           | 88,000,000 |



# WEALTH OF NATIONS.



Bullerlyne, Hanson & Co Edinburgh & London.



## WEALTH

Various estimates have been made from time to time, by economists and others, as to the wealth of the principal countries and the ratio per inhabitant. Thus in a paper read at Bath in 1888, before the British Association, by the author of this Dictionary, the wealth of the United States was estimated at £212 per inhabitant, the census of 1890 afterwards showing that the real average was £216 per inhabitant, a difference of less than 2 per cent. The wealth of nations in 1888 was approximately thus:—

|                | Millions £ Sterling |          |           |           |             |         |          |        | £ per Inhab. |
|----------------|---------------------|----------|-----------|-----------|-------------|---------|----------|--------|--------------|
|                | Farms               | Railways | Buildings | Furniture | Merchandise | Bullion | Sundries | Total  |              |
| United Kingdom | 2,287               | 865      | 2,420     | 1,210     | 690         | 120     | 3,208    | 10,800 | 300          |
| France         | 3,230               | 570      | 1,700     | 850       | 310         | 330     | 1,910    | 8,900  | 240          |
| Germany        | 2,500               | 495      | 1,560     | 780       | 360         | 170     | 1,635    | 7,500  | 160          |
| Russia         | 2,400               | 314      | 900       | 450       | 120         | 50      | 1,566    | 5,800  | 60           |
| Austria        | 1,730               | 307      | 640       | 320       | 100         | 30      | 1,073    | 4,200  | 105          |
| Italy          | 1,400               | 138      | 400       | 200       | 90          | 30      | 642      | 2,900  | 95           |
| Spain          | 1,200               | 94       | 340       | 170       | 60          | 40      | 596      | 2,500  | 150          |
| Portugal       | 160                 | 19       | 70        | 35        | 20          | 10      | 86       | 400    | 90           |
| Sweden         | 200                 | 28       | 100       | 50        | 30          | 4       | 138      | 550    | 140          |
| Norway         | 80                  | 7        | 30        | 15        | 16          | 2       | 50       | 200    | 100          |
| Denmark        | 250                 | 10       | 60        | 30        | 26          | 2       | 92       | 470    | 230          |
| Holland        | 380                 | 35       | 160       | 80        | 200         | 20      | 105      | 980    | 240          |
| Belgium        | 445                 | 71       | 160       | 80        | 110         | 20      | 124      | 1,010  | 170          |
| Switzerland    | 150                 | 37       | 80        | 40        | 60          | 6       | 87       | 460    | 150          |
| Greece         | 133                 | 6        | 30        | 15        | 7           | 3       | 46       | 240    | 90           |
| Roumania       | 240                 | 29       | 50        | 25        | 25          | 6       | 135      | 510    | 95           |
| Servia         | 105                 | 6        | 20        | 10        | 4           | 3       | 32       | 180    | 85           |
| Europe         | 16,890              | 3,031    | 8,720     | 4,360     | 2,228       | 846     | 11,525   | 47,600 | 180          |
| United States  | 3,600               | 1,950    | 3,200     | 1,600     | 320         | 235     | 1,915    | 12,820 | 210          |
| Canada         | 360                 | 150      | 120       | 60        | 40          | 4       | 196      | 980    | 200          |
| Australia      | 630                 | 94       | 240       | 120       | 70          | 24      | 192      | 1,370  | 370          |
| Argentina      | 190                 | 45       | 100       | 50        | 42          | 1       | 92       | 530    | 140          |
| Total          | 21,670              | 5,270    | 12,380    | 6,190     | 2,700       | 1,110   | 13,920   | 63,300 | ...          |

## UNITED KINGDOM

The following table shows the estimates made at various dates:—

| Date | Millions £ | Comprising        | Authority      |
|------|------------|-------------------|----------------|
| 1660 | 250        | England and Wales | Petty          |
| 1703 | 490        | " "               | Davenant       |
| 1774 | 1,100      | " "               | Young          |
| 1800 | 1,740      | Great Britain     | Beeke, Eden    |
| 1812 | 2,190      | United Kingdom    | Colquhoun      |
| 1822 | 2,600      | " "               | Lord Liverpool |
| 1833 | 3,750      | " "               | Pablo Pebrer   |
| 1840 | 4,100      | " "               | Porter         |
| 1865 | 6,113      | " "               | Giffen         |
| 1875 | 8,548      | " "               | "              |
| 1885 | 10,037     | " "               | "              |

Regarding Petty's valuation, we only know that land constituted 57 per cent. of the total, the selling price being then under £5 an acre. At the time of Davenant it had risen to £9, and of Young to £18. Towards the close of the 18th century Beeke, Pitt, and Eden made valuations of Great Britain, all previous ones being of England without Scotland. Dr. Beeke valued the real estate at 920 millions, viz:—

|                         | £           |
|-------------------------|-------------|
| Land in England         | 600,000,000 |
| Land in Scotland        | 120,000,000 |
| Houses in Great Britain | 200,000,000 |
| Real estate             | 920,000,000 |

The most elaborate work of this kind was Colquhoun's in 1812, the first valuation of the United Kingdom: he made the total 2745 millions in the currency of the period, equal in gold to 2190 millions sterling. His

table of values evidently formed the basis on which Lord Liverpool and Pablo Pebrer afterwards constructed theirs. Pebrer's estimate of the value of the United Kingdom in 1833 was as follows:—

|                       | Million £ Sterling |          |         | United Kingdom |
|-----------------------|--------------------|----------|---------|----------------|
|                       | England            | Scotland | Ireland |                |
| Lands                 | 1,000              | 200      | 400     | 1,600          |
| Cattle                | 150                | 26       | 66      | 242            |
| Grain                 | 40                 | 7        | 13      | 60             |
| Houses                | 400                | 40       | 93      | 533            |
| Furniture             | 173                | 20       | 53      | 246            |
| Public buildings      | 42                 | 4        | 11      | 57             |
| Mines and canals      | 151                | 10       | 5       | 166            |
| Merchandise           | 133                | 21       | 32      | 186            |
| Jewellery and clothes | 66                 | 7        | 13      | 86             |
| Sundries              | 316                | 38       | 64      | 418            |
| Total                 | 2,471              | 373      | 750     | 3,594          |

He furthermore estimated the earnings and capital of the United Kingdom and Colonies thus:—

|              | Earnings, £ | Capital, Million £ | Population | £ per Inhab. |          |
|--------------|-------------|--------------------|------------|--------------|----------|
|              |             |                    |            | Capital      | Earnings |
| U. Kingdom   | 514,800,000 | 3,594              | 24,300,000 | 149          | 21.0     |
| Canada       | 17,600,000  | 62                 | 910,000    | 68           | 19.4     |
| West Indies  | 22,500,000  | 89                 | 730,000    | 121          | 31.0     |
| Mauritius    | 1,900,000   | 13                 | 100,000    | 130          | 12.0     |
| South Africa | 1,100,000   | 6                  | 55,000     | 109          | 20.0     |
| Australia    | 500,000     | 3                  | 40,000     | 75           | 12.5     |
| Total        | 557,700,000 | 3,767              | 26,135,000 | 144          | 21.5     |

Porter's estimate in 1840 in a manner confirmed all those previously made, showing a progressive increase of wealth, and relied, moreover, on the legacy and succession returns. Dr. Giffen's tables for 1865-75-85 are *sui generis*, laying down a new method of valuation, namely, capitalising the various sources of income in the income-tax returns. His table for 1885 may be condensed thus:—

|                                  | Income, £   | Capital Value, Mill. £ | Years' Purchase |
|----------------------------------|-------------|------------------------|-----------------|
| Lands . . . . .                  | 65,090,000  | 1,691                  | 28              |
| Houses . . . . .                 | 128,500,000 | 1,927                  | 15              |
| Farmers' profits . . . . .       | 65,223,000  | 522                    | 8               |
| Foreign loans . . . . .          | 21,096,000  | 527                    | 25              |
| British railways . . . . .       | 33,270,000  | 932                    | 28              |
| Foreign railways . . . . .       | 3,808,000   | 76                     | 20              |
| Trades and professions . . . . . | 38,096,000  | 541                    | 15              |
| Furniture, &c. . . . .           | ...         | 960                    | ...             |
| Various companies . . . . .      | 34,789,000  | 696                    | 20              |
| Mines and quarries . . . . .     | 8,536,000   | 34                     | 4               |
| Gasworks . . . . .               | 5,026,000   | 126                    | 25              |
| Waterworks . . . . .             | 3,260,000   | 65                     | 20              |
| Ironworks . . . . .              | 2,265,000   | 9                      | 4               |
| Canals . . . . .                 | 3,546,000   | 71                     | 20              |
| Investments abroad . . . . .     | 50,000,000  | 500                    | 10              |
| Public property . . . . .        | ...         | 500                    | ...             |
| Sundries . . . . .               | 91,517,000  | 860                    | ...             |
| Total . . . . .                  | 554,022,000 | 10,037                 | ...             |

If there be a weak point in Dr. Giffen's method, it is the capitalising of farmers' profits and income arising from trades and professions, together 1063 millions sterling; many people will question whether these items should be counted at all.

The following table shows approximately the principal items of national wealth at various dates:—

|                             | Million £ |       |       |        |
|-----------------------------|-----------|-------|-------|--------|
|                             | 1812      | 1840  | 1860  | 1888   |
| Lands . . . . .             | 1,380     | 1,680 | 1,748 | 1,873  |
| Cattle, &c. . . . .         | 240       | 280   | 350   | 414    |
| Houses . . . . .            | 255       | 740   | 1,100 | 2,424  |
| Railways . . . . .          | ...       | 21    | 348   | 865    |
| Shipping . . . . .          | 15        | 23    | 44    | 134    |
| Merchandise . . . . .       | 70        | 110   | 370   | 690    |
| Furniture . . . . .         | 130       | 370   | 550   | 1,212  |
| Bullion . . . . .           | 23        | 61    | 105   | 124    |
| Foreign loans, &c. . . . .  | 105       | 330   | 420   | 1,660  |
| Public properties . . . . . | 266       | 485   | 925   | 1,404  |
| Total . . . . .             | 2,190     | 4,100 | 5,960 | 10,800 |

Land is still one of the great features of wealth. For the sake of comparison, we may capitalise the rental at thirty years' purchase since the middle of the 18th century. As regards 1888, it is admitted that the rental valuation is 20 per cent. more than the landlords actually receive, and hence in the following table the value for 1888 is doubtless too high:—

| Year           | Value of Land, Million £ Sterling |          |         |       |
|----------------|-----------------------------------|----------|---------|-------|
|                | England                           | Scotland | Ireland | Total |
| 1750 . . . . . | 381                               | 24       | 93      | 498   |
| 1780 . . . . . | 507                               | 36       | 159     | 702   |
| 1814 . . . . . | 1,112                             | 145      | 213     | 1,470 |
| 1843 . . . . . | 1,264                             | 167      | 246     | 1,677 |
| 1850 . . . . . | 1,286                             | 167      | 252     | 1,704 |
| 1860 . . . . . | 1,289                             | 189      | 270     | 1,748 |
| 1868 . . . . . | 1,433                             | 216      | 276     | 1,925 |
| 1877 . . . . . | 1,548                             | 231      | 298     | 2,077 |
| 1888 . . . . . | 1,365                             | 207      | 301     | 1,873 |

The value of land in the three kingdoms rose 40 per cent. during the wars in Canada and United States, but the wars against Bonaparte caused a still greater rise owing to the enormous prices paid for grain. The upward movement continued until 1877, from which date there has been a steady, continuous decline.

Houses in the early part of the present century were little over 10 per cent. of the wealth of the nation; at present they exceed 25 per cent. of the total. I have capitalised the rental at 18 years, while Dr. Giffen thinks 15 years sufficient.

The increase of house property in the United Kingdom in a single lifetime, say 67 years, has been over 2000 millions sterling, viz.:—

| Year | Number of Houses | Rental, £   | Value, Million £ | Annual Increase |                  |
|------|------------------|-------------|------------------|-----------------|------------------|
|      |                  |             |                  | Houses          | Value, Million £ |
| 1821 | 3,572,000        | 20,300,000  | 366              | ...             | ...              |
| 1841 | 4,775,000        | 41,500,000  | 747              | 60,000          | 19               |
| 1861 | 5,131,000        | 61,200,000  | 1,102            | 18,000          | 18               |
| 1887 | 7,100,000        | 134,700,000 | 2,424            | 77,000          | 56               |

It must not, however, be supposed that 2000 millions sterling have been expended on new houses since 1821: the value of sites has risen very remarkably, which is included in the above table. The actual house property of the United Kingdom may be distinguished approximately thus:—

|                             | Number    | Value, Million £ | £ per House |
|-----------------------------|-----------|------------------|-------------|
| Built before 1840 . . . . . | 4,400,000 | 1,570            | 357         |
| .. since 1840 . . . . .     | 2,700,000 | 854              | 316         |
| Total . . . . .             | 7,100,000 | 2,424            | 341         |

There is no country in the world in which the value of house property to population is so high as in England, nor any (except Russia) where it is lower than in Ireland. The houses and values in the three kingdoms stand thus:—

|                      | Houses    | Value, £      | £ per House |
|----------------------|-----------|---------------|-------------|
| England . . . . .    | 5,206,000 | 2,131,000,000 | 408         |
| Scotland . . . . .   | 980,000   | 230,000,000   | 235         |
| Ireland . . . . .    | 914,000   | 63,000,000    | 69          |
| U. Kingdom . . . . . | 7,100,000 | 2,424,000,000 | 341         |

The growth of house property in each of the three kingdoms has been already set forth in detail under the title *Houses*.

Railways constitute an entirely new element of wealth that has sprung up in the last fifty years: they represent at present a value far in excess of the National Debt.

| Year           | Miles  | Cost, £     | Cost per Mile |
|----------------|--------|-------------|---------------|
| 1840 . . . . . | 650    | 21,000,000  | 32,000        |
| 1860 . . . . . | 10,430 | 348,100,000 | 33,400        |
| 1888 . . . . . | 19,810 | 864,700,000 | 43,700        |

The increase of railway capital in twenty years, down to 1860, was £16,400,000 per annum, and £18,400,000 in the years from 1860 to 1888. Shipping has grown about nine-fold in value since Colquhoun's estimate in 1812, and at present represents a sum equal to the collective values of all the other merchant navies of the world; for this item, be it understood, does not include war-vessels, the latter being counted with dockyards, arsenals, and other public property.

The shipping of our merchant navy, including machinery and fittings, represents the following amount :—

|                 | Tons      | Value, £    | £ per Ton |
|-----------------|-----------|-------------|-----------|
| Sailing . . . . | 3,115,000 | 24,920,000  | 8         |
| Steam . . . .   | 4,350,000 | 108,750,000 | 25        |
| Total . . . .   | 7,465,000 | 133,670,000 | ...       |

Merchandise in the above summary is put down at a sum equal to 12 months' imports and exports at the several dates.

Furniture is, at auctioneers' estimates, taken at 50 per cent. of the value of house property. Bullion and foreign loans have been estimated at various dates more or less at the figures stated. Foreign investments in 1888 were approximately as follows :—

|                                     |               |
|-------------------------------------|---------------|
| Colonial loans and railways . . . . | £ 430,000,000 |
| Australian mortgages . . . .        | 330,000,000   |
| Foreign loans and railways . . . .  | 900,000,000   |
| Total . . . .                       | 1,660,000,000 |

Public properties in the United Kingdom were approximately thus :—

|                                           |               |
|-------------------------------------------|---------------|
| 1800 miles of roads . . . .               | £ 90,000,000  |
| 6000 miles of streets . . . .             | 60,000,000    |
| Canals, docks, and royal navy . . . .     | 115,000,000   |
| Drains, waterworks, telegraphs . . . .    | 178,000,000   |
| Public buildings . . . .                  | 400,000,000   |
| Parks, crown forests, arsenals, &c. . . . | 561,000,000   |
| Total . . . .                             | 1,404,000,000 |

The total wealth of the three kingdoms in 1888 was, excluding public properties, thus :—

|                       | Millions £ Sterling |          |         |       |
|-----------------------|---------------------|----------|---------|-------|
|                       | England             | Scotland | Ireland | Total |
| Lands . . . .         | 1,365               | 207      | 301     | 1,873 |
| Houses . . . .        | 2,131               | 230      | 63      | 2,424 |
| Cattle, &c. . . .     | 267                 | 53       | 94      | 414   |
| Railways . . . .      | 714                 | 114      | 37      | 865   |
| Furniture . . . .     | 1,066               | 115      | 31      | 1,212 |
| Other items * . . . . | 2,271               | 229      | 112     | 2,612 |
| Total . . . .         | 7,814               | 948      | 638     | 9,400 |

The distribution of wealth in the United Kingdom may be approximately arrived at if we multiply the number of estates that paid legacy-duty by fifty, which corresponds more or less to the number of inhabitants. The official returns showing the amount of property changing hands under probate or legacy in the years 1885-89 give the averages thus per annum :—

| Estates                   | Number | Amount, £   | Average, £ |
|---------------------------|--------|-------------|------------|
| Over £500,000 . . . .     | 11     | 9,400,000   | 855,000    |
| £100,000-£500,000 . . . . | 147    | 27,800,000  | 190,000    |
| £10,000-£100,000 . . . .  | 2,279  | 60,400,000  | 26,500     |
| £1,000-£10,000 . . . .    | 11,153 | 35,500,000  | 3,200      |
| Under £1,000 . . . .      | 30,660 | 10,100,000  | 330        |
| Total . . . .             | 44,250 | 143,200,000 | 3,250      |

The above is exclusive of estates paying succession-duty, which amounted in the same years to an average of £44,800,000, equal to 31 per cent. of the former. In order, therefore, to estimate the total value of property

\* As the amount under this heading that would correspond to each country cannot be ascertained, the sum is distributed *pro rata* according to the income-tax assessments of the three kingdoms.

changing hands, we may be permitted to add 31 per cent. to the number of each class as given above, and likewise to the amount. The account will then stand thus :—

| Estates                   | Amount, £   | Average, £ |
|---------------------------|-------------|------------|
| Over £500,000 . . . .     | 12,000,000  | 855,000    |
| £100,000-£500,000 . . . . | 36,700,000  | 190,000    |
| £10,000-£100,000 . . . .  | 78,500,000  | 26,500     |
| £1,000-£10,000 . . . .    | 46,800,000  | 3,200      |
| Under £1,000 . . . .      | 14,000,000  | 340        |
| Total . . . .             | 188,000,000 | 3,250      |

If we follow Porter's method, and multiply the above number of estates by fifty, as the number of living persons is about fifty times the annual number of deaths, we find the wealth of the kingdom is held as in the subjoined table. Moreover, as each estate proved may be taken to stand for a household averaging 5½ persons, we must distribute the amount in households, and not per individual :—

| Class                | Households | Average, £ | Aggregate, Millions £ |
|----------------------|------------|------------|-----------------------|
| Millionaires . . . . | 700        | 855,000    | 599                   |
| Very rich . . . .    | 9,650      | 190,000    | 1,834                 |
| Rich . . . .         | 148,250    | 26,500     | 3,928                 |
| Middle . . . .       | 730,500    | 3,200      | 2,336                 |
| Struggling . . . .   | 2,008,000  | 340        | 680                   |
| Poor . . . .         | 3,916,900  | ...        | ...                   |
| Total . . . .        | 6,814,000  | ...        | 9,377                 |

The above total is almost equal to the amount given in the conspectus as the wealth of the kingdom, if we deduct 1400 millions for public works, &c. It is, however, apparent that a portion (probably 10 per cent.) of the wealth on which probate duty is paid consists of fiduciary documents which cannot be considered in a nation's wealth, such as bills of exchange and stocks of the National Debt. This last, 700 millions sterling, is held in the United Kingdom, and consequently figures among testamentary estates, while adding nothing to the nation's wealth.

#### FRANCE

Numerous estimates have been made: those of La-voisier, 1789, and Chaptal, in 1815, were as follows :—

|                           | Millions £ |       |
|---------------------------|------------|-------|
|                           | 1789       | 1815  |
| Rural property . . . .    | 840        | 1,040 |
| Urban property . . . .    | 280        | 320   |
| Personal property . . . . | 400        | 440   |
| Total . . . .             | 1,520      | 1,800 |

Those of Fournier de Flaix and Yves Guyot, from 1826 to date, are as follows :—

| Flaix     |       |          |       | Guyot     |       |          |       |
|-----------|-------|----------|-------|-----------|-------|----------|-------|
| Million £ |       |          |       | Million £ |       |          |       |
| Year      | Real  | Personal | Total | Year      | Real  | Personal | Total |
| 1826      | 1,560 | 1,020    | 2,580 | 1826      | 1,720 | 1,120    | 2,840 |
| 1833      | 1,674 | 1,152    | 2,826 | 1833      | 1,840 | 1,280    | 3,120 |
| 1841      | 1,881 | 1,359    | 3,240 | 1841      | 2,080 | 1,560    | 3,600 |
| 1849      | 2,115 | 1,530    | 3,645 | 1855      | 2,280 | 1,560    | 3,840 |
| 1857      | 2,322 | 1,971    | 4,293 | 1860      | 2,480 | 1,880    | 4,360 |
| 1865      | 2,934 | 2,646    | 5,580 | 1865      | 2,640 | 2,200    | 4,840 |
| 1873      | 3,510 | 3,312    | 6,822 | 1875      | 3,560 | 3,240    | 6,800 |
| 1882      | 4,835 | 4,275    | 9,110 | 1885      | 4,480 | 4,080    | 8,560 |

The following is a summary of the most notable estimates:—

| Year           | Million £ | Author         |
|----------------|-----------|----------------|
| 1789 . . . . . | 1,520     | Lavoisier      |
| 1815 . . . . . | 1,800     | Chaptal        |
| 1853 . . . . . | 5,000     | Girardin       |
| 1871 . . . . . | 7,000     | Wolowski       |
| 1872 . . . . . | 7,600     | Ayen           |
| 1879 . . . . . | 8,000     | Foville        |
| 1879 . . . . . | 7,520     | Leroy Beaulieu |
| 1879 . . . . . | 9,600     | Amelin         |
| 1880 . . . . . | 9,200     | Vacher         |
| 1881 . . . . . | 8,640     | Mouey          |
| 1882 . . . . . | 9,110     | Flaix          |
| 1885 . . . . . | 8,560     | Guyot          |

The following table shows approximately the components of the wealth of France at various dates:—

|                        | Value in Million £ |       |       |       |       |
|------------------------|--------------------|-------|-------|-------|-------|
|                        | 1789               | 1826  | 1840  | 1873  | 1885  |
| Land . . . . .         | 740                | 1,293 | 1,473 | 3,000 | 2,688 |
| Cattle, &c. . . . .    | 105                | 202   | 270   | 588   | 541   |
| Houses . . . . .       | 280                | 510   | 720   | 1,150 | 1,704 |
| Furniture . . . . .    | 140                | 255   | 360   | 675   | 852   |
| Railways . . . . .     | ...                | ...   | 10    | 270   | 532   |
| Shipping . . . . .     | 4                  | 7     | 7     | 12    | 15    |
| Bullion . . . . .      | 88                 | 110   | 115   | 180   | 300   |
| Merchandise . . . . .  | 11                 | 19    | 33    | 120   | 155   |
| Public works . . . . . | 40                 | 170   | 300   | 450   | 630   |
| Sundries . . . . .     | 112                | 274   | 312   | 377   | 1,143 |
| Total . . . . .        | 1,520              | 2,840 | 3,600 | 6,822 | 8,560 |

De Flaix and Vacher make the total 500 or 600 millions more than the above estimate for 1885, but perhaps they have not sufficiently allowed for the depreciation of land since 1880. The above total is that given by Yves Guyot for 1885. The increase of wealth since 1873 appears to have averaged 116 millions sterling per annum.

#### BELGIUM

Massalski, in his *Richesse de Belgique* (1880), sums up the national wealth at 29½ milliards of francs, or 1180 millions sterling, which is 17 per cent. over my estimate. It is to be observed that properties subject to legacy and succession duties from 1880 to 1885 averaged only 18 millions sterling, which at the current death-rate of 20 per thousand would give a total wealth of 900 millions sterling, exclusive of royal palaces, public works, &c.: these latter would hardly exceed 110 millions sterling.

#### GERMANY

It is remarkable that whereas the earnings of the German people, as set forth under the head of *Income*, are only 1 per cent. less than those of France, the wealth of Germany appears to be one-sixth less. This is, however, in great measure explained by the great difference in the value of land, Germany averaging £21, France £33 per cultivated acre. The imperial assessment for taxation is in the following ratio, and if we suppose wealth to be distributed in like manner, it will be as in the subjoined table:—

|                        | Ratio | Millions £ |
|------------------------|-------|------------|
| Prussia . . . . .      | 60.3  | 4,520      |
| Bavaria . . . . .      | 11.7  | 880        |
| Saxony . . . . .       | 6.6   | 500        |
| Wurtemberg . . . . .   | 4.3   | 320        |
| Baden . . . . .        | 3.4   | 250        |
| Alsace . . . . .       | 3.4   | 250        |
| Hesse . . . . .        | 2.1   | 150        |
| Other States . . . . . | 8.2   | 630        |
| Total . . . . .        | 100.0 | 7,500      |

Soetbeer shows that the earnings of the Prussian people advanced 25 per cent. from 1872 to 1885, and if we suppose that wealth increased in like degree, this makes the accumulation of thirteen years amount to 1136 millions, or 88 millions sterling per annum—say 40s. per inhabitant, against 72s. in the United Kingdom.

#### AUSTRIA

In 1880 Beer estimated the total wealth of the monarchy at 40,000 million florins, or about 3800 millions sterling, being only 10 per cent. under my estimate. We have no means to arrive at the increase of wealth, but Roschmann in 1883 estimated the national earnings at 610 millions sterling, against 550 millions in 1874, an increase of 11 per cent. If wealth increased in the same ratio the accumulation must have been 380 millions sterling, or 42 millions per annum, say 23s. per inhabitant, against 40s. in Germany.

#### ITALY

Newmann Spallart valued the total wealth of the country thus:—

|                                  | Million £ Sterling |
|----------------------------------|--------------------|
| Lands . . . . .                  | 1,160              |
| Houses . . . . .                 | 360                |
| Furniture, railways, &c. . . . . | 404                |
| Total . . . . .                  | 1,924              |

This was too low a valuation, an Italian writer in 1868 having arrived at a total of 1934 millions.

Pantaleoni, following Porter's method, based on legacy returns, shows that (exclusive of public property) the wealth of the people exceeds 2100 millions; he multiplies the amount of property subjected to legacy or succession by forty. The amount of such property in 1884 was £53,500,000, and hence the national wealth was 2140 millions sterling. This is exclusive of roads, public buildings, royal navy, arsenals, harbours &c., worth at least 300 millions, bringing up the total to 2440 millions sterling. This is 16 per cent. less than my estimate. Possibly some of the property subjected to legacy-duty was undervalued, in order to enable the heirs to evade a part of the duties. According to the *Archivio*, the value of lands and houses in 1880 was 1562 millions sterling; in my table they stand for 1576 millions, a difference of less than 1 per cent.

#### SPAIN

The figures of the Junta de Medios in 1832 compare with mine for 1888 as follows:—

|                    | Million £ Sterling |       |          |
|--------------------|--------------------|-------|----------|
|                    | 1832               | 1888  | Increase |
| Lands . . . . .    | 686                | 984   | 298      |
| Houses . . . . .   | 237                | 340   | 103      |
| Railways . . . . . | ...                | 94    | 94       |
| Sundries . . . . . | 186                | 1,098 | 912      |
| Total . . . . .    | 1,109              | 2,516 | 1,407    |

It is manifest that the item of sundries in 1832, which included everything in the kingdom except land and houses, was very much understated. Personal property alone would have been at least 25 per cent. of total. A proper valuation in 1832 would perhaps have shown a total of 1400 millions. In that case the accumulation of the 56 years down to 1888 would average 20 millions sterling per annum, or 27s. per inhabitant, as compared with 40s. in Germany, and 72s. in United Kingdom.

## DENMARK

In 1885 Falbe estimated the total wealth at 372 millions sterling, or 20 per cent. less than my total for 1888. His figures were:—

|                             | Million £ |
|-----------------------------|-----------|
| Houses and lands . . . . .  | 257       |
| Personal property . . . . . | 115       |
| Total . . . . .             | 372       |

He estimated that real estate had risen from 65 millions sterling in 1848, being an increase of 192 millions sterling in 37 years, say £5,200,000 per annum. This (irrespective of chattels or personal property) was equivalent to an accumulation of 60s. yearly per inhabitant. It was the direct result of breaking up the estates of the nobles, and facilitating their purchase by the peasantry.

## HOLLAND

The value of testamentary and succession property which changed hands in the years 1879–83, latest that the *Résumé* publishes, averaged as follows:—

|                                 | £          |
|---------------------------------|------------|
| Houses and lands . . . . .      | 9,100,000  |
| Dutch National Debt . . . . .   | 1,200,000  |
| Other personal assets . . . . . | 13,000,000 |
| Total . . . . .                 | 23,300,000 |

Excluding the National Debt for reasons already given, we find a sum of £22,100,000, which, multiplied by 44 (as the living were in those years 44 times the number of deaths), gives approximately the wealth of Holland, say 972 millions sterling; the figure in the conspectus is 980 millions.

## UNITED STATES

The first Census of wealth was taken in 1790, which showed as follows:—

|                     | \$          | £           |
|---------------------|-------------|-------------|
| Lands . . . . .     | 479,000,000 | 99,800,000  |
| Houses, &c. . . . . | 141,000,000 | 29,400,000  |
| Total . . . . .     | 620,000,000 | 129,200,000 |

The following table shows the results in English gold at each Census, and an estimate for 1888 as already given:—

\* The New York *Journal of Commerce* in 1887 estimated the wealth of the Union at 61,000 millions of dollars, or 12,700 millions sterling, showing, moreover, that the amount of insured property had risen as follows:—

| Year           | £             |
|----------------|---------------|
| 1870 . . . . . | 735,000,000   |
| 1880 . . . . . | 1,495,000,000 |
| 1885 . . . . . | 2,184,000,000 |

The several Census returns from 1850 to 1880 show the wealth of each State in values reduced to English gold (allowing 14 per cent. discount for paper values in 1870) as follows:—

|                         | Million £ Sterling |      |      |       | Increase of 30 Years | £ Sterling per Inhabitant |      |      |      |
|-------------------------|--------------------|------|------|-------|----------------------|---------------------------|------|------|------|
|                         | 1850               | 1860 | 1870 | 1880  |                      | 1850                      | 1860 | 1870 | 1880 |
| Maine . . . . .         | 26                 | 39   | 63   | 104   | 78                   | 44                        | 60   | 102  | 160  |
| New Hampshire . . . . . | 22                 | 32   | 46   | 68    | 46                   | 70                        | 96   | 144  | 196  |
| Vermont . . . . .       | 19                 | 25   | 42   | 60    | 41                   | 60                        | 77   | 126  | 180  |
| Rhode Island . . . . .  | 17                 | 28   | 53   | 87    | 70                   | 112                       | 160  | 240  | 320  |
| Connecticut . . . . .   | 32                 | 92   | 140  | 177   | 145                  | 85                        | 201  | 256  | 283  |
| Massachusetts . . . . . | 119                | 169  | 384  | 581   | 462                  | 120                       | 135  | 257  | 320  |
| New England . . . . .   | 235                | 385  | 728  | 1,077 | 842                  | 86                        | 122  | 208  | 270  |

| Year           | Wealth, Million £ | £ Sterling per Inhabitant | Yearly Increase |                |
|----------------|-------------------|---------------------------|-----------------|----------------|
|                |                   |                           | Of Wealth, £    | Per Inhabitant |
| 1790 . . . . . | 129               | 33                        | ...             | £ s. d.        |
| 1800 . . . . . | 222               | 42                        | 9,300,000       | 2 1 0          |
| 1810 . . . . . | 312               | 43                        | 9,000,000       | 1 9 0          |
| 1820 . . . . . | 392               | 41                        | 8,000,000       | 0 19 0         |
| 1830 . . . . . | 552               | 43                        | 16,000,000      | 1 9 0          |
| 1840 . . . . . | 782               | 46                        | 23,000,000      | 1 11 0         |
| 1850 . . . . . | 1,484             | 64                        | 70,200,000      | 3 10 0         |
| 1860 . . . . . | 3,361             | 107                       | 187,700,000     | 6 16 0         |
| 1870 . . . . . | 5,413             | 140                       | 205,200,000     | 5 17 0         |
| 1880 . . . . . | 9,077             | 180                       | 366,400,000     | 8 4 0          |
| 1888 . . . . . | 12,824            | 210                       | 468,400,000     | 8 10 0         |

The following table shows approximately the chief components of American wealth since 1850:—

|                     | Millions of Dollars, Gold |        |        |        |        |
|---------------------|---------------------------|--------|--------|--------|--------|
|                     | 1850                      | 1860   | 1870   | 1880   | 1888   |
| Land . . . . .      | 3,310                     | 6,910  | 8,320  | 10,197 | 12,300 |
| Cattle . . . . .    | 550                       | 1,080  | 1,415  | 1,630  | 2,405  |
| Railways . . . . .  | 290                       | 1,140  | 2,047  | 4,897  | 9,340  |
| Factories . . . . . | 520                       | 1,010  | 1,902  | 2,790  | 3,500  |
| Houses . . . . .    | 1,000                     | 2,600  | 5,460  | 10,800 | 14,000 |
| Furniture . . . . . | 500                       | 1,300  | 2,730  | 5,400  | 7,000  |
| Sundries . . . . .  | 966                       | 2,120  | 4,108  | 7,928  | 13,055 |
| Total . . . . .     | 7,136                     | 16,160 | 25,982 | 43,642 | 61,600 |

Comparing the Census returns of 1880 with those of 1850, it appears that the accumulations of thirty years amounted in the State of New York alone to 1360 millions sterling, and that the six States of New York, Pennsylvania, Illinois, Ohio, Massachusetts, and California stood for 60 per cent. of the total accumulations of the Union. If we suppose that each inhabitant contributed equally to the public wealth, and take the mean number of each nationality for the 30 years in question, we find the accumulations of 30 years ending 1880 were made up thus:—

| State                   | Increase of Wealth, Million £ Sterling, by |       |         |        |       |
|-------------------------|--------------------------------------------|-------|---------|--------|-------|
|                         | Americans                                  | Irish | Germans | Others | Total |
| New York . . . . .      | 1,027                                      | 156   | 87      | 90     | 1,360 |
| Pennsylvania . . . . .  | 831                                        | 63    | 41      | 37     | 972   |
| Illinois . . . . .      | 494                                        | 27    | 47      | 43     | 611   |
| Ohio . . . . .          | 506                                        | 17    | 38      | 20     | 581   |
| Massachusetts . . . . . | 355                                        | 66    | 4       | 37     | 462   |
| California . . . . .    | 195                                        | 23    | 14      | 61     | 293   |
| Other States . . . . .  | 2,822                                      | 119   | 143     | 228    | 3,312 |
| Total . . . . .         | 6,230                                      | 471   | 374     | 516    | 7,591 |

|                          | Million £ Sterling |       |       |       | Increase of 30 Years | £ Sterling per Inhabitant |      |      |      |
|--------------------------|--------------------|-------|-------|-------|----------------------|---------------------------|------|------|------|
|                          | 1850               | 1860  | 1870  | 1880  |                      | 1850                      | 1860 | 1870 | 1880 |
| New York . . . . .       | 224                | 384   | 1,170 | 1,585 | 1,361                | 73                        | 99   | 261  | 322  |
| New Jersey . . . . .     | 42                 | 98    | 169   | 298   | 256                  | 87                        | 147  | 186  | 260  |
| Pennsylvania . . . . .   | 150                | 295   | 686   | 1,122 | 972                  | 65                        | 101  | 196  | 262  |
| Delaware . . . . .       | 4                  | 9     | 17    | 29    | 25                   | 44                        | 80   | 136  | 200  |
| Maryland . . . . .       | 46                 | 79    | 116   | 181   | 135                  | 80                        | 115  | 150  | 195  |
| Middle States . . . . .  | 466                | 865   | 2,158 | 3,215 | 2,749                | 70                        | 105  | 220  | 257  |
| Virginia . . . . .       | 89                 | 166   | 108   | 208   | 119                  | 63                        | 105  | 61   | 98   |
| North Carolina . . . . . | 47                 | 75    | 47    | 92    | 45                   | 55                        | 75   | 44   | 66   |
| South Carolina . . . . . | 60                 | 114   | 38    | 61    | 1                    | 90                        | 163  | 54   | 61   |
| Georgia . . . . .        | 70                 | 134   | 48    | 115   | 45                   | 77                        | 126  | 32   | 77   |
| Florida . . . . .        | 5                  | 15    | 8     | 20    | 15                   | 56                        | 105  | 43   | 74   |
| Alabama . . . . .        | 48                 | 103   | 36    | 79    | 31                   | 63                        | 107  | 40   | 64   |
| Mississippi . . . . .    | 48                 | 127   | 38    | 67    | 19                   | 79                        | 159  | 44   | 60   |
| Louisiana . . . . .      | 49                 | 125   | 58    | 88    | 39                   | 95                        | 180  | 78   | 93   |
| Texas . . . . .          | 11                 | 76    | 29    | 151   | 140                  | 52                        | 126  | 35   | 94   |
| Arkansas . . . . .       | 8                  | 46    | 28    | 51    | 43                   | 38                        | 104  | 58   | 64   |
| Kentucky . . . . .       | 63                 | 138   | 109   | 183   | 120                  | 64                        | 120  | 84   | 111  |
| Tennessee . . . . .      | 42                 | 103   | 90    | 138   | 76                   | 42                        | 92   | 72   | 90   |
| The South . . . . .      | 540                | 1,222 | 637   | 1,253 | 713                  | 66                        | 119  | 57   | 82   |
| Ohio . . . . .           | 105                | 249   | 402   | 686   | 581                  | 53                        | 107  | 150  | 215  |
| Illinois . . . . .       | 32                 | 181   | 382   | 643   | 611                  | 38                        | 105  | 151  | 210  |
| Missouri . . . . .       | 28                 | 104   | 231   | 318   | 290                  | 42                        | 88   | 138  | 147  |
| Indiana . . . . .        | 42                 | 110   | 229   | 312   | 270                  | 42                        | 82   | 138  | 156  |
| Iowa . . . . .           | 5                  | 51    | 130   | 204   | 289                  | 26                        | 77   | 108  | 180  |
| Michigan . . . . .       | 12                 | 53    | 130   | 285   | 273                  | 30                        | 70   | 108  | 177  |
| Wisconsin . . . . .      | 9                  | 57    | 126   | 202   | 193                  | 30                        | 71   | 120  | 150  |
| Minnesota . . . . .      | ...                | 11    | 41    | 133   | 133                  | ...                       | 66   | 91   | 170  |
| Kansas . . . . .         | ...                | 6     | 34    | 120   | 120                  | ...                       | 55   | 93   | 120  |
| Nebraska . . . . .       | ...                | 2     | 13    | 60    | 60                   | ...                       | 70   | 104  | 132  |
| Colorado . . . . .       | ...                | ...   | 4     | 31    | 31                   | ...                       | ...  | 100  | 160  |
| California . . . . .     | 5                  | 43    | 115   | 300   | 295                  | 55                        | 113  | 206  | 350  |
| Oregon . . . . .         | 1                  | 6     | 9     | 26    | 25                   | 75                        | 120  | 100  | 150  |
| Nevada . . . . .         | ...                | ...   | 6     | 14    | 14                   | ...                       | ...  | 145  | 230  |
| Territories . . . . .    | 6                  | 21    | 38    | 108   | 102                  | ...                       | ...  | ...  | ...  |
| The West . . . . .       | 245                | 894   | 1,890 | 3,532 | 3,287                | 43                        | 92   | 136  | 187  |
| The Union . . . . .      | 1,486              | 3,366 | 5,413 | 9,077 | 7,591                | 64                        | 107  | 140  | 180  |

The accumulations per inhabitant in thirty years average £205 sterling, or nearly £7 per annum, viz. :-

| States                | Increase Million £ | Annual Average, £ | Mean Population | Annual Accumulation per Head |
|-----------------------|--------------------|-------------------|-----------------|------------------------------|
| New England . . . . . | 842                | 28,070,000        | 3,400,000       | £ s. d.<br>8 4 0             |
| Middle . . . . .      | 2,749              | 91,630,000        | 9,500,000       | 9 13 0                       |
| South . . . . .       | 713                | 23,800,000        | 11,700,000      | 2 1 0                        |
| West . . . . .        | 3,287              | 109,600,000       | 12,200,000      | 9 0 0                        |
| Union . . . . .       | 7,591              | 253,100,000       | 36,800,000      | 6 17 0                       |

This is a prodigious growth of wealth in thirty years, and without parallel in the history of the human race. Nevertheless the accumulation per head is less than in Australia.

#### AUSTRALIA

According to Mr. Coghlan the wealth of Australia was approximately as follows :-

|                | Millions | Population | Per Head |
|----------------|----------|------------|----------|
|                | £        |            | £        |
| 1838 . . . . . | 26       | 200,000    | 130      |
| 1863 . . . . . | 181      | 1,264,000  | 144      |
| 1888 . . . . . | 1,136    | 3,680,000  | 307      |

This includes the five Colonies of the mainland, and

also Tasmania and New Zealand. It is, however, incomplete, because it excludes public works, crown-lands, and other public properties.

The total wealth, as shown in the conspectus, appears to reach the sum of 1373 millions sterling, and to have grown in eighteen years as follows :-

|                       | Million £ Sterling |       |
|-----------------------|--------------------|-------|
|                       | 1870               | 1888  |
| Lands . . . . .       | 89                 | 533   |
| Cattle . . . . .      | 47                 | 67    |
| Railways . . . . .    | 27                 | 94    |
| Houses . . . . .      | 60                 | 239   |
| Furniture . . . . .   | 30                 | 120   |
| Merchandise . . . . . | 29                 | 65    |
| Sundries . . . . .    | 38                 | 255   |
| Total . . . . .       | 320                | 1,373 |

At a meeting of one of the Australian banks in London in 1888, it was stated that the wealth of the seven Colonies was as follows :-

|                          | Million £ |
|--------------------------|-----------|
| Private wealth . . . . . | 1,015     |
| Public works . . . . .   | 175       |
| Banks . . . . .          | 148       |
| Total . . . . .          | 1,338     |

This was, however, irrespective of crown-lands, the value of which could not be easily stated.



Mr. Coghlan's distribution of the wealth of the several Colonies differs from my estimates as follows (1888):—

|                         | Millions Sterling |         |
|-------------------------|-------------------|---------|
|                         | Coghlan           | Mulhall |
| New South Wales . . .   | 410               | 483     |
| Victoria . . . . .      | 386               | 370     |
| Queensland . . . . .    | 106               | 132     |
| South Australia . . . . | 57                | 131     |
| Tasmania . . . . .      | 26                | 36      |
| New Zealand . . . . .   | 145               | 208     |
| Western Australia . . . | 6                 | 13      |
| Total . . . . .         | 1,136             | 1,373   |

Mr. Coghlan's figures, as already stated, exclude railways, crown-lands, &c. The principal components of wealth in 1888 may be estimated to have stood thus in million £ sterling:—

|                | Land | Cattle | Railways | Houses | Furniture | Merchandise | Sundries | Total | £ per Head |
|----------------|------|--------|----------|--------|-----------|-------------|----------|-------|------------|
| N. S. Wales    | 181  | 25     | 27       | 92     | 46        | 23          | 89       | 483   | 440        |
| Victoria . .   | 107  | 12     | 28       | 91     | 46        | 18          | 68       | 370   | 337        |
| Queensland .   | 58   | 12     | 13       | 12     | 6         | 6           | 25       | 132   | 330        |
| S. Australia . | 64   | 5      | 10       | 13     | 7         | 7           | 25       | 131   | 413        |
| Tasmania . .   | 16   | 1      | 2        | 5      | 3         | 2           | 7        | 36    | 240        |
| New Zealand    | 100  | 11     | 13       | 25     | 12        | 8           | 39       | 208   | 345        |
| W. Australia   | 7    | 1      | 1        | 1      | ...       | 1           | 2        | 13    | 310        |
| Total . . .    | 533  | 67     | 94       | 239    | 120       | 65          | 255      | 1,373 | 377        |

The increase of wealth in Australia would therefore seem to have been as follows:—

| Date       | Wealth, Million £ | Annual Increase, £ | Mean Population | Annual Accumulation per Inhabitant |
|------------|-------------------|--------------------|-----------------|------------------------------------|
| 1836 . . . | 26                | ...                | ...             | £ s. d.                            |
| 1863 . . . | 181               | 6,200,000          | 700,000         | 8 16 0                             |
| 1870 . . . | 320               | 19,900,000         | 1,600,000       | 12 9 0                             |
| 1888 . . . | 1,373             | 58,500,000         | 2,800,000       | 20 18 0                            |

The average annual accumulation per inhabitant has been more than double that in the United States, where it has never exceeded £8 10s.

Respecting the Colony of New South Wales, Mr. Coghlan states that if public works, railways &c., were included, the total would reach 521 millions sterling, that is, 8 per cent. over my estimate. And as regards Victoria, one of the Melbourne papers (apparently quoting the official statistics of Mr. Hayter) says:—"In the statistics of the Colony for 1886, an estimate is made of the wealth of the population on the basis of the property left by deceased persons, it being supposed that the average amount left by each person dying is equivalent to the average amount possessed by each person living. On this basis the national wealth amounted to nearly 144 millions sterling, or £185 per head in the five years 1872 to 1876; to nearly 187 millions sterling, or £223 per head in the five years 1877 to 1881; and to nearly 286 millions sterling, or £305 per head in the five years 1882 to 1886."

The above is exclusive of railways, public works &c., which would doubtless bring up the total to my figure of 370 millions sterling in 1888. With respect to New Zealand, the official returns for 1886, exclusive of public

works, and crown-lands, amounted to 152 millions sterling, which was apparently equivalent to 200 millions, including the items omitted. It is right to observe that the public debt, which was 175 millions sterling in December 1889, is held almost wholly in England, and ought therefore to be deducted from the wealth. This would leave a balance of 1200 millions sterling, or £330 per inhabitant, against £247 in the United Kingdom, £210 in the United States, £230 in Denmark, £224 in France.

## CANADA

The following table shows approximately the total wealth in 1861 and 1888:—

|                       | Million £ Sterling |      |          |
|-----------------------|--------------------|------|----------|
|                       | 1861               | 1888 | Increase |
| Lands . . . . .       | 102                | 282  | 180      |
| Cattle, &c. . . . .   | 38                 | 80   | 42       |
| Railways . . . . .    | 23                 | 151  | 128      |
| Houses . . . . .      | 80                 | 127  | 47       |
| Furniture . . . . .   | 40                 | 64   | 24       |
| Merchandise . . . . . | 21                 | 41   | 20       |
| Sundries . . . . .    | 88                 | 235  | 147      |
| Total . . . . .       | 392                | 980  | 588      |

This shows an annual accumulation of 22 millions sterling, with a mean population of 4,000,000 souls, say £5 10s. per head, against £8 10s. in the United States, and £17 10s. during the same period in Australia.

## CAPE COLONY

In 1883 the value of lands and houses was assessed as follows:—

|                           | £          |
|---------------------------|------------|
| Cape Town . . . . .       | 4,979,000  |
| Port Elizabeth . . . . .  | 1,950,000  |
| Kimberley . . . . .       | 1,711,000  |
| Rural districts . . . . . | 29,160,000 |
| Total . . . . .           | 37,800,000 |

## WEIGHTS AND MEASURES

The following is a general table of weights and measures:—

| Name                  | Locality      | Equivalent         |
|-----------------------|---------------|--------------------|
| Acre . . . . .        | England       | 4,840 square yards |
| Almud . . . . .       | Turkey        | 7=8 gallons        |
| " . . . . .           | Portugal      | 4=15 "             |
| Amphora . . . . .     | Rome          | 7 "                |
| Ar . . . . .          | France        | 100=247 acres      |
| Ardeb . . . . .       | Egypt         | 300 lbs.           |
| Arpent . . . . .      | France        | 12=10 acres        |
| Arroba . . . . .      | Spain         | 25 lbs.            |
| Aum . . . . .         | Germany       | 31 gallons         |
| Bag, cocoa . . . . .  | England       | 112 lbs.           |
| " coffee . . . . .    | Brazil        | 160 "              |
| " rice . . . . .      | India         | 168 "              |
| " sugar . . . . .     | "             | 168 "              |
| Bale . . . . .        | United States | 485 "              |
| " . . . . .           | Brazil        | 156 "              |
| " . . . . .           | Egypt         | 600 "              |
| " . . . . .           | India         | 376 "              |
| Barrel, ale . . . . . | England       | 36 gallons         |
| " apples . . . . .    | United States | 150 lbs.           |
| " flour . . . . .     | "             | 200 "              |
| " fish . . . . .      | Norway        | 1,000 in number    |
| Berkovetz . . . . .   | Russia        | 400 lbs.           |
| Bonnier . . . . .     | France        | 3 acres            |

| Name                 | Locality      | Equivalent       | Name          | Locality      | Equivalent        |
|----------------------|---------------|------------------|---------------|---------------|-------------------|
| Bushel, barley       | England       | 54 lbs.          | Mark          | France        | gold = 695        |
| " beans              | "             | 63 "             | Maund         | India         | 80 lbs.           |
| " hempseed           | "             | 44 "             | Motre         | France        | 100 = 328 feet    |
| " maize              | "             | 59 "             | Mancus.       | England       | 2 ounces          |
| " malt               | "             | 38 "             | Metzen        | Germany       | 24 = 1 ton        |
| " oats               | "             | 40 "             | Mile          | England       | 1,760 yards       |
| " peas               | "             | 64 "             | "             | Ireland       | 2,240 "           |
| " rye                | "             | 59 "             | "             | Germany       | 8,140 "           |
| " salt               | "             | 56 "             | "             | Turkey        | 1,870 "           |
| " wheat              | "             | 61 "             | "             | Sweden        | 11,770 "          |
| Bunder               | Holland       | 2 = 1 acre       | "             | Geographical  | 2,025 "           |
| Butt                 | England       | 108 gallons      | Millimetre    | France        | 25 = 1 inch       |
| Cable                | "             | 120 fathoms      | Minute        | "             | 60 = 1 hour       |
| Cantar               | Egypt         | 100 lbs.         | Morgen        | Germany       | 5 = 3 acres       |
| Cask, rice           | United States | 672 "            | Mudden        | Holland       | 14 = 1 ton        |
| " tallow             | England       | 1,008 "          | Muid          | France        | 50 bushels        |
| " wine               | "             | 108 gallons      | Oke           | Greece        | 4 = 11 lbs.       |
| Catty                | China         | 3 = 4 lbs.       | Ounce         | England       | 16 = 1 lb.        |
| Centner              | Germany       | 110 lbs.         | "             | Avoirdupois   | 12 = 1 lb.        |
| " metric             | "             | 220 "            | Pack, wool    | England       | 240 lbs.          |
| Chain                | England       | 66 feet          | Palm          | "             | 4 inches          |
| Chaldron, coal       | "             | 3 = 8 tons       | Parasang      | Persia        | 3½ miles          |
| Chest, tea           | China         | 82 lbs.          | Peck          | England       | 14 lbs.           |
| Chetvert             | Russia        | 310 "            | Pennyweight   | "             | 20 = 1 ounce      |
| Chittack             | India         | 2 ounces         | Perch         | "             | 5½ yards          |
| Cord, wood           | Germany       | 2½ tons          | Picul         | China         | 133 lbs.          |
| Cuartillo            | Spain         | 9 = 1 gallon     | Piece, calico | England       | 24 yards          |
| Cubit                | Asia          | 18 inches        | Pint          | "             | 8 = 1 gallon      |
| Dessiatine           | Russia        | 3 = 8 acres      | Pipe          | "             | 126 gallons       |
| Drachm               | England       | 16 = 1 ounce     | Poinçon       | France        | 25 gallons        |
| Eimer                | Austria       | 12 gallons       | Pocket, hops  | England       | 168 lbs.          |
| Ell                  | England       | 36 inches        | Pole          | "             | 16½ feet          |
| Fanega               | Spain         | 4 bushels        | Pond          | Denmark       | 100 = 110 lbs.    |
| Fanegado             | "             | 10 = 16 acres    | Pood          | Russia        | 36 lbs.           |
| Fathom               | England       | 6 feet           | Pott          | Norway        | 100 = 21 gallons  |
| Feddan               | Egypt         | 20 = 21 acres    | Pound         | England       | 16 ounces         |
| Ferrado              | Portugal      | 8 = 1 acre       | "             | Rome          | 12 "              |
| Firkin               | England       | 68 lbs.          | Punchoon      | England       | 120 gallons       |
| Flask, quicksilver   | "             | 76 "             | Quarter       | "             | 8 bushels         |
| Furlong              | "             | 220 yards        | Queue, wine   | France        | 54 gallons        |
| Gallon               | "             | 4 quarts         | Quintal       | Spain         | 110 lbs.          |
| Gill                 | "             | 4 = 1 pint       | " metrical    | Austria       | 220 "             |
| Grain                | "             | 480 = 1 ounce    | Rittergut     | Germany       | 600 acres         |
| Gramme               | "             | 453 = 1 lb.      | Rood          | England       | 4 = 1 acre        |
| Hank                 | "             | 840 yards        | Sack, coal    | "             | 224 lbs.          |
| Hectare              | France        | 100 = 247 acres  | " flour       | "             | 280 "             |
| Hectolitre           | "             | 22 gallons       | Sagene        | Russia        | 7 tons wood       |
| "                    | "             | 150 lbs.         | Second        | "             | 60 = 1 minute     |
| Hide                 | England       | 100 acres        | Salma         | Spain         | 4½ acres          |
| Hogshead             | "             | 63 gallons       | Scheffel      | Germany       | 100 = 145 bushels |
| Hundred, great, eggs | "             | 10 dozen         | Schekel       | Asia          | 2 = 1 ounce       |
| Inch                 | "             | 12 = 1 foot      | Septier       | France        | 4 = 17 bushels    |
| Jar, oil             | Italy         | 25 gallons       | Sextarius     | Rome          | 6 = 1 gallon      |
| Joch                 | Hungary       | 100 = 143 acres  | Skalpund      | Sweden        | 106 = 100 lbs.    |
| Jushart              | Switzerland   | 5 = 4 acres      | Span          | England       | 9 inches          |
| Kanna                | Sweden        | 100 = 58 gallons | Strema        | Greece        | 4 = 1 acre        |
| "                    | Germany       | 100 = 44 "       | Stadium       | "             | 120 yards         |
| Kilderkin            | England       | 18 "             | Stère, wood   | France        | 35 cubic feet     |
| Kilogram             | France        | 1,000 = 1 ton    | Stone, fish   | England       | 14 lbs.           |
| Kilometre            | "             | 100 = 62 miles   | " meat        | "             | 8 "               |
| Klafter, wood        | Austria       | 2 tons           | Stoup         | "             | 2 = 1 gallon      |
| Knot                 | England       | 2,000 yards      | Talent, gold  | Asia          | 4 lbs.            |
| Last                 | Norway        | 3½ tons          | Tavola        | Italy         | 40 = 1 acre       |
| "                    | Germany       | 2 "              | Tierce, pork  | England       | 320 lbs.          |
| " salt               | England       | 18 barrels       | Toise         | France        | 6½ feet           |
| League               | Holland       | 6,380 yards      | Ton           | England       | 2,240 lbs.        |
| "                    | Spain         | 6,160 "          | "             | United States | 2,000 "           |
| "                    | Portugal      | 6,760 "          | Tub           | England       | 84 lbs.           |
| "                    | France        | 4,860 "          | Truss, straw  | "             | 36 "              |
| "                    | Marine        | 6,075 "          | " hay         | "             | 56 "              |
| Liño                 | Paraguay      | 50 = 1 acre      | Tun, wine     | "             | 252 gallons       |
| Litre                | France        | 100 = 22 gallons | Tunna         | Sweden        | 4 bushels         |
| Load, bricks         | England       | 500 "            | Tunnland      | "             | 4 = 5 acres       |
| " corn               | "             | 40 bushels       | Vara          | Spain         | 34.1 inches       |
| " hay                | "             | 1 ton            | Vedro         | Russia        | 10 = 27 gallons   |
| " straw              | "             | ½ ton            | Verst         | "             | 100 = 60 miles    |
| " wood               | "             | 50 cubic feet    | Yard          | England       | 36 inches         |
| Mark                 | France        | 8 oz. silver     |               |               |                   |

## Grain

|             | Cubic Feet | Bushel | Quarter | Hecto-litre | Scheffel | Metzen | Chetvert |
|-------------|------------|--------|---------|-------------|----------|--------|----------|
| Cubic metre | 35.3       | 27.60  | 3.45    | 10.00       | 19.30    | 16.50  | 5.00     |
| Bushel      | 1.3        | 1.00   | 0.12    | 0.36        | 0.70     | 0.60   | 0.18     |
| Quarter     | 10.4       | 8.00   | 1.00    | 2.90        | 5.60     | 4.80   | 1.44     |
| Ton         | 52.0       | 40.00  | 5.00    | 14.50       | 28.00    | 24.00  | 7.20     |
| Hectolitre  | 3.5        | 2.76   | 0.35    | 1.00        | 1.93     | 1.65   | 0.50     |
| Scheffel    | 1.9        | 1.45   | 0.18    | 0.53        | 1.00     | 0.86   | 0.26     |
| Metzen      | 2.2        | 1.66   | 0.21    | 0.60        | 1.16     | 1.00   | 0.30     |
| Chetvert    | 7.0        | 5.55   | 0.70    | 2.00        | 3.90     | 3.30   | 1.00     |

## Length

|           | Knot | Mile | Kilometre | Verst |
|-----------|------|------|-----------|-------|
| Mile      | 0.88 | 1.00 | 1.61      | 1.50  |
| Knot      | 1.00 | 1.14 | 1.83      | 1.71  |
| Kilometre | 0.55 | 0.62 | 1.00      | 0.93  |
| Verst     | 0.58 | 0.66 | 1.07      | 1.00  |

## Liquids

|            | Lbs.  | Cubic Feet | Litre | Hecto-litre | Emmer | Barrel | Hogs-head |
|------------|-------|------------|-------|-------------|-------|--------|-----------|
| Gallon     | 10.0  | 0.14       | 4.5   | 0.045       | 0.080 | 0.027  | 0.016     |
| Litre      | 2.2   | 0.03       | 1.0   | 0.010       | 0.018 | 0.006  | 0.004     |
| Hectolitre | 220.0 | 3.10       | 100.0 | 1.000       | 1.760 | 0.600  | 0.350     |
| Emmer      | 124.0 | 1.75       | 56.0  | 0.560       | 1.000 | 0.340  | 0.200     |
| Barrel     | 360.0 | 5.00       | 160.0 | 1.600       | 2.880 | 1.000  | 0.576     |
| Hogshead   | 630.0 | 8.80       | 284.0 | 2.835       | 5.000 | 1.710  | 1.000     |

## Sundries

|              | Lbs.  | Cwt.  | French Ton | American Ton | Kilogram | Pood  | Picul |
|--------------|-------|-------|------------|--------------|----------|-------|-------|
| English ton  | 2,240 | 20.00 | 1.018      | 1.120        | 1,018    | 62.20 | 16.80 |
| Cwt.         | 112   | 1.00  | 0.051      | 0.056        | 51       | 3.11  | 0.84  |
| Quintal      | 110   | 0.98  | 0.050      | 0.055        | 50       | 3.05  | 0.82  |
| French ton   | 2,204 | 19.64 | 1.000      | 1.100        | 1,000    | 61.00 | 16.50 |
| American ton | 2,000 | 17.86 | 0.910      | 1.000        | 910      | 56.40 | 15.00 |
| Kilogram     | 2.20  | 0.02  | 0.001      | 0.001        | 1.0      | 0.06  | 0.016 |
| Pood         | 36    | 0.32  | 0.017      | 0.018        | 16.3     | 1.00  | 0.27  |
| Picul        | 133   | 1.20  | 0.061      | 0.067        | 60.0     | 3.67  | 1.00  |

## Superficial

|            | Sq. Yards | Acre | Morgen | Hectare | Desiatine | Square Kilometre | Square Mile |
|------------|-----------|------|--------|---------|-----------|------------------|-------------|
| Acre       | 4,840     | 1.00 | 1.56   | 0.405   | 0.367     | 0.0040           | 0.0016      |
| Morgen     | 3,122     | 0.65 | 1.00   | 0.260   | 0.235     | 0.0026           | 0.0010      |
| Job        | 6,914     | 1.43 | 2.23   | 0.576   | 0.520     | 0.0057           | 0.0022      |
| Hectare    | 12,000    | 2.47 | 3.84   | 1.000   | 0.910     | 0.0100           | 0.0039      |
| Desiatine  | 13,100    | 2.70 | 4.20   | 1.093   | 1.000     | 0.0091           | 0.0035      |
| Sq. kilom. | 1,190,000 | 250  | 390    | 100     | 91        | 1.0000           | 0.3900      |
| Sq. mile   | 3,097,600 | 640  | 1,000  | 260     | 235       | 2.60             | 1.0         |

## Old English Measures

| Name         | Date | Wine Gallon, Cub. In. | Beer Gallon, Cub. In. | Corn Gallon, Cub. In. | Bushel, Cub. In. |
|--------------|------|-----------------------|-----------------------|-----------------------|------------------|
| Magna Charta | 1225 | 217                   | 266                   | 266                   | 2,130            |
| Edward III.  | 1353 | 219                   | 268                   | 268                   | 2,148            |
| Henry VII.   | 1496 | 224                   | 280                   | 280                   | 2,240            |
| Henry VIII.  | 1531 | 231                   | 282                   | 282                   | 2,256            |

## WHEAT

It cannot be grown farther than 60° N. lat. The greatest elevation at which it is found is as follows:—

|                  | <i>Feet</i> |                   | <i>Feet</i> |
|------------------|-------------|-------------------|-------------|
| Alps . . . .     | 3,600       | Sierra Nevada . . | 8,200       |
| Brazil . . . .   | 5,000       | Abyssinia . . . . | 10,000      |
| Caucasus . . . . | 8,000       | Andes . . . .     | 11,000      |

The yield in various countries for 100 lbs. of seed is:—

|               | <i>Lbs.</i> |                     | <i>Lbs.</i> |
|---------------|-------------|---------------------|-------------|
| Russia . . .  | 500         | France . . .        | 750         |
| Sweden . . .  | 500         | Poland . . .        | 800         |
| Denmark . . . | 600         | Great Britain . . . | 900         |
| Prussia . . . | 600         | Holland . . .       | 900         |
| Spain . . .   | 600         | United States . . . | 900         |
| Austria . . . | 700         | Italy . . .         | 1,000       |

The cultivation in the United Kingdom was:—

| Period  | Annual Average |                 |             |         |
|---------|----------------|-----------------|-------------|---------|
|         | Acres          | Million Bushels | Consumption | Deficit |
| 1849-54 | 4,270,000      | 118             | 152         | 34      |
| 1855-66 | 3,740,000      | 107             | 161         | 54      |
| 1867-72 | 3,560,000      | 98              | 176         | 78      |
| 1873-78 | 3,310,000      | 80              | 184         | 104     |
| 1881-89 | 2,750,000      | 80              | 224         | 144     |

The average value of wheat crop per acre in United States was as follows in British money:—

| Period  | Shillings | Period  | Shillings |
|---------|-----------|---------|-----------|
| 1871-74 | 58        | 1880-83 | 49        |
| 1875-79 | 52        | 1884-87 | 34        |

See full statistics at page 8, *Agriculture*.

## WINDMILLS

Holland has 10,100 windmills, representing a value of 20 millions sterling, with an aggregate force of 52,200 horse-power. Cost of drainage, 10d. per acre, with a lift of 3 feet; 20d. at 6 feet, and so on. The average area drained by each mill in Holland is 310 acres, each lifting 150,000 tons or 33 million gallons water daily.

## WINE

## Vineyards, Area, and Production \*

| Country     | Acres (1889) | Millions of Gallons per Annum |         |                 | Gallons per Acre | Vintage Value, Million £ |
|-------------|--------------|-------------------------------|---------|-----------------|------------------|--------------------------|
|             |              | 1876-80                       | 1880-88 | Latest Estimate |                  |                          |
| France      | 4,550,000    | 810                           | 670     | 520             | 112              | 44                       |
| Italy       | 7,640,000    | 486                           | 665     | 580             | 78               | 48                       |
| Spain       | 4,200,000    | 450                           | 630     | 550             | 130              | 46                       |
| Austria     | 1,580,000    | 198                           | 225     | 180             | 115              | 15                       |
| Portugal    | 510,000      | 88                            | 125     | 90              | 175              | 9                        |
| Germany     | 335,000      | 45                            | 75      | 70              | 210              | 6                        |
| Russia      | 300,000      | 40                            | 75      | 40              | 130              | 4                        |
| Turkey      | 200,000      | 20                            | 59      | 20              | 100              | 2                        |
| Greece      | 310,000      | 30                            | 32      | 34              | 110              | 3                        |
| Servia      | 300,000      | 13                            | 46      | 45              | 150              | 3                        |
| Roumania    | 200,000      | 22                            | 35      | 30              | 150              | 2                        |
| Switzerland | 70,000       | 13                            | 15      | 15              | 210              | 1                        |
| Europe      | 20,195,000   | 2,215                         | 2,652   | 2,174           | 108              | 183                      |
| U. States   | 130,000      | 18                            | 19      | 18              | 140              | 2                        |
| Chili       | 200,000      | 20                            | 20      | 20              | 100              | 2                        |
| Argentina   | 66,000       | 6                             | 6       | 6               | 100              | 1                        |
| Cape Colony | 18,000       | 4                             | 4       | 4               | 220              | ...                      |
| Australia   | 15,000       | 2                             | 2       | 2               | 140              | ...                      |
| Algeria     | 132,000      | 15                            | 18      | 40              | 300              | 3                        |
| Total       | 20,756,000   | 2,280                         | 2,731   | 2,264           | 109              | 191                      |

\* For consumption of wine see *Alcohol*, p. 58.

The figures for 1876-85 are by Newmann Spallart, those of 1880-88 from the *Moniteur Vinicole* (apparently too high), and the latest estimates are from numerous sources. An acre of vineyard has ordinarily 2400 vine plants.

#### Retrospect of Production

|                           | Millions of Gallons |         |         |
|---------------------------|---------------------|---------|---------|
|                           | 1810-20             | 1840-50 | 1880-88 |
| France . . . . .          | 455                 | 820     | 670     |
| Italy . . . . .           | 310                 | 360     | 665     |
| Spain . . . . .           | 170                 | 250     | 630     |
| Austria . . . . .         | 590                 | 500     | 225     |
| Portugal . . . . .        | 75                  | 100     | 125     |
| Germany . . . . .         | 30                  | 40      | 75      |
| Other countries . . . . . | 120                 | 230     | 321     |
| Total . . . . .           | 1,750               | 2,300   | 2,711   |

The vine flourishes between 35 and 50 degrees of N. lat., and 28 and 46 S.

The largest vine in the world is said to be one growing at Oys, Portugal, which has been in bearing since 1802. Its maximum yield was in 1864, in which year it produced a sufficient quantity of grapes to make 165 gallons of wine. In Portugal it is customary to plant 2500 vines to the acre, and the yield is often 240 gallons per acre, or a gallon from 10 vines. In South Africa a bushel of grapes gives a gallon of wine.

#### UNITED KINGDOM

The consumption has been as follows:—

| Year           | Gallons    | Duty, Shillings per Gallon | Gallons per Inhabitant |
|----------------|------------|----------------------------|------------------------|
| 1801 . . . . . | 6,877,000  | 10                         | 0.45                   |
| 1811 . . . . . | 5,630,000  | 14                         | 0.32                   |
| 1821 . . . . . | 4,702,000  | 14                         | 0.23                   |
| 1831 . . . . . | 6,220,000  | 6                          | 0.26                   |
| 1841 . . . . . | 6,185,000  | 6                          | 0.22                   |
| 1851 . . . . . | 6,282,000  | 6                          | 0.23                   |
| 1861 . . . . . | 10,693,000 | 1                          | 0.36                   |
| 1871 . . . . . | 16,145,000 | 1                          | 0.53                   |
| 1881 . . . . . | 15,559,000 | 1                          | 0.44                   |
| 1888 . . . . . | 13,500,000 | 1                          | 0.36                   |

#### GERMANY

The area and vintage in 1884 were as follows:—

|                        | Acres   | Gallons    | Value, £   |
|------------------------|---------|------------|------------|
| Alsace . . . . .       | 80,000  | 21,000,000 | 4,200,000  |
| Bavaria . . . . .      | 60,000  | 9,000,000  | 1,800,000  |
| Wurtemberg . . . . .   | 60,000  | 9,000,000  | 1,800,000  |
| Baden . . . . .        | 55,000  | 8,000,000  | 1,600,000  |
| Prussia . . . . .      | 50,000  | 8,000,000  | 1,600,000  |
| Other States . . . . . | 30,000  | 9,000,000  | 1,800,000  |
| Total . . . . .        | 335,000 | 64,000,000 | 12,800,000 |

#### ITALY

The vintage in the years 1883-85 averaged as follows:—

|                                | Gallons     | Value, £   |
|--------------------------------|-------------|------------|
| Island of Sardinia . . . . .   | 9,000,000   | 700,000    |
| Piedmont and Liguria . . . . . | 57,000,000  | 4,600,000  |
| Lombardy and Venetia . . . . . | 46,000,000  | 3,700,000  |
| Tuscany . . . . .              | 44,000,000  | 3,600,000  |
| States of the Church . . . . . | 81,000,000  | 6,500,000  |
| Naples . . . . .               | 138,000,000 | 11,000,000 |
| Sicily . . . . .               | 106,000,000 | 8,500,000  |
| Total . . . . .                | 481,000,000 | 38,600,000 |

The area under vines increased rapidly in late year, from 4,800,000 acres in 1880 to 7,640,000 in 1888.

#### FRANCE

A table of French vintages since 1810 is given at page 19 (*Agriculture*).

The following statistics of Champagne are published at Rheims:—

| Year           | Millions of Bottles |        |
|----------------|---------------------|--------|
|                | Stock               | Export |
| 1850 . . . . . | 20                  | 5      |
| 1860 . . . . . | 36                  | 8      |
| 1870 . . . . . | 39                  | 14     |
| 1880 . . . . . | 68                  | 17     |
| 1886 . . . . . | 83                  | 15     |

The stock in 1886 was considered equal to four years' consumption, which comprises 3,000,000 bottles yearly in France, and 17,000,000 in other countries.

#### UNITED STATES

Official returns of the vintages since 1840 show thus:—

| Year           | Gallons   | Year           | Gallons    |
|----------------|-----------|----------------|------------|
| 1840 . . . . . | 120,000   | 1870 . . . . . | 3,060,000  |
| 1850 . . . . . | 220,000   | 1880 . . . . . | 23,300,000 |
| 1860 . . . . . | 1,860,000 | 1885 . . . . . | 17,400,000 |

The Census of 1880 showed the vineyards thus:—

|                        | Acres   | Gallons Wine | Value, £ Stg. |
|------------------------|---------|--------------|---------------|
| California . . . . .   | 32,000  | 13,600,000   | 850,000       |
| New York . . . . .     | 13,000  | 600,000      | 80,000        |
| Ohio . . . . .         | 10,000  | 1,600,000    | 330,000       |
| Other States . . . . . | 127,000 | 7,700,000    | 1,540,000     |
| Total . . . . .        | 182,000 | 23,500,000   | 2,800,000     |

#### GREECE

The area and vintage of grapes and currants were as follows:—

| Year           | Acres   | Gallons    |
|----------------|---------|------------|
| 1860 . . . . . | 162,000 | 15,000,000 |
| 1875 . . . . . | 260,000 | 25,000,000 |
| 1879 . . . . . | 310,000 | 30,000,000 |
| 1887 . . . . . | ...     | 50,000,000 |

#### ALGERIA

Area and vintage have increased rapidly of late years, viz:—

| Year           | Acres   | Gallons    |
|----------------|---------|------------|
| 1880 . . . . . | 55,000  | 9,000,000  |
| 1885 . . . . . | 132,000 | 22,000,000 |
| 1888 . . . . . | 238,000 | 40,000,000 |

In 1889 Algeria exported 34 million gallons to France.

#### WINE-EXPORTING COUNTRIES

The exportation was approximately (mill. galls.):—

| Year           | France | Italy | Spain | Portugal | Greece | Total |
|----------------|--------|-------|-------|----------|--------|-------|
| 1830 . . . . . | 18     | 2     | 10    | 3        | ...    | 33    |
| 1840 . . . . . | 24     | 3     | 15    | 4        | ...    | 46    |
| 1850 . . . . . | 38     | 4     | 20    | 4        | ...    | 66    |
| 1860 . . . . . | 48     | 5     | 24    | 5        | 1      | 83    |
| 1870 . . . . . | 70     | 5     | 33    | 6        | 2      | 110   |
| 1880 . . . . . | 55     | 48    | 134   | 7        | 3      | 247   |
| 1887 . . . . . | 53     | 52    | 167   | 10       | 4      | 286   |

Rudesheimer is worth £20 a gallon. Prince Woronoff sells his Tokay, 220 years old, at £9 a bottle. Champagne vintage averages 20 million bottles, of which France exports 17 millions. The Xeres vineyards, 15,000 acres, produce 4 million gallons yearly of sherry. Wine ac- es strength after 200 years.

**WOOL**

The production has been (unwashed) approximately as follows :—

|                          | Millions of Lbs. |            |              |              |              |
|--------------------------|------------------|------------|--------------|--------------|--------------|
|                          | 1820             | 1840       | 1860         | 1880         | 1887         |
| United Kingdom . . . . . | 100              | 121        | 155          | 176          | 160          |
| France . . . . .         | 116              | 144        | 150          | 117          | 126          |
| Germany . . . . .        | 64               | 85         | 125          | 120          | 115          |
| Russia . . . . .         | 102              | 126        | 134          | 203          | 240          |
| Austria . . . . .        | 60               | 72         | 81           | 80           | 70           |
| Italy . . . . .          | 18               | 23         | 23           | 30           | 32           |
| Spain . . . . .          | 40               | 42         | 58           | 70           | 70           |
| Portugal . . . . .       | 4                | 5          | 8            | 10           | 10           |
| Scandinavia . . . . .    | 15               | 20         | 23           | 26           | 26           |
| Various . . . . .        | 7                | 8          | 8            | 17           | 16           |
| Europe . . . . .         | 526              | 646        | 795          | 849          | 855          |
| United States . . . . .  | 20               | 65         | 75           | 233          | 320          |
| River Plate . . . . .    | 4                | 15         | 56           | 280          | 360          |
| Cape Colony . . . . .    | 2                | 10         | 28           | 52           | 82           |
| Australia . . . . .      | 2                | 14         | 70           | 390          | 420          |
| Various . . . . .        | 6                | 36         | 84           | 184          | 181          |
| <b>Total</b> . . . . .   | <b>560</b>       | <b>786</b> | <b>1,108</b> | <b>1,988</b> | <b>2,218</b> |

Europe in 1820 produced 94 per cent. of the wool of the world, whereas now it does not produce 40 per cent.

The principal features of the woollen industry in 1887-88 were approximately as follows :—

|                        | Million Lbs. Wool |              | Million Lbs. Yarn Spun | Woollen Manufactures, £ |                    |
|------------------------|-------------------|--------------|------------------------|-------------------------|--------------------|
|                        | Pro-duced         | Con-sumed    |                        | Produced                | Consumed           |
| U. Kingdom . . . . .   | 160               | 436          | 225                    | 43,900,000              | 29,700,000         |
| France . . . . .       | 126               | 420          | 162                    | 30,800,000              | 19,000,000         |
| Germany . . . . .      | 105               | 340          | 133                    | 25,100,000              | 15,700,000         |
| Russia . . . . .       | 240               | 154          | 100                    | 17,700,000              | 18,000,000         |
| Austria . . . . .      | 70                | 100          | 65                     | 11,400,000              | 11,100,000         |
| Italy . . . . .        | 32                | 49           | 31                     | 4,700,000               | 7,000,000          |
| Spain . . . . .        | 70                | 56           | 35                     | 6,000,000               | 7,400,000          |
| Portugal . . . . .     | 10                | 14           | 10                     | 1,600,000               | 1,900,000          |
| Scandinavia . . . . .  | 25                | 25           | 14                     | 2,500,000               | 5,500,000          |
| Belgium . . . . .      | 2                 | 101          | 35                     | 6,000,000               | 3,000,000          |
| Various . . . . .      | 20                | 20           | 12                     | 2,000,000               | 4,000,000          |
| Europe . . . . .       | 860               | 1,715        | 822                    | 151,700,000             | 122,300,000        |
| U. States . . . . .    | 320               | 434          | 213                    | 34,400,000              | 42,400,000         |
| Canada . . . . .       | 15                | 14           | 8                      | 1,500,000               | 4,000,000          |
| River Plate . . . . .  | 360               | 10           | ...                    | 500,000                 | 2,000,000          |
| Australia . . . . .    | 420               | 15           | ...                    | 1,500,000               | 4,000,000          |
| S. Africa . . . . .    | 82                | 5            | ...                    | 100,000                 | 400,000            |
| India . . . . .        | 55                | 20           | 12                     | 2,000,000               | 3,700,000          |
| Various . . . . .      | 106               | 5            | ...                    | 100,000                 | 13,000,000         |
| <b>Total</b> . . . . . | <b>2,218</b>      | <b>2,218</b> | <b>1,055</b>           | <b>191,800,000</b>      | <b>191,800,000</b> |

The aggregate production of wool for sixty-seven years was approximately as follows :—

*Tons Unwashed*

| Period                    | Europe            | U. States        | River Plate      | Cape           | Australia        | Various          | Total             |
|---------------------------|-------------------|------------------|------------------|----------------|------------------|------------------|-------------------|
| 1821-30 . . . . .         | 2,420,000         | 100,000          | 60,000           | 20,000         | 20,000           | 60,000           | 2,680,000         |
| 1831-40 . . . . .         | 2,650,000         | 150,000          | 100,000          | 30,000         | 60,000           | 80,000           | 3,070,000         |
| 1841-50 . . . . .         | 2,970,000         | 300,000          | 120,000          | 60,000         | 120,000          | 230,000          | 3,800,000         |
| 1851-60 . . . . .         | 3,275,000         | 320,000          | 190,000          | 100,000        | 250,000          | 320,000          | 4,455,000         |
| 1861-70 . . . . .         | 3,480,000         | 520,000          | 510,000          | 130,000        | 670,000          | 530,000          | 5,780,000         |
| 1871-80 . . . . .         | 3,490,000         | 880,000          | 1,020,000        | 185,000        | 1,330,000        | 990,000          | 7,895,000         |
| 1881-87 . . . . .         | 2,440,000         | 850,000          | 980,000          | 125,000        | 1,240,000        | 635,000          | 6,270,000         |
| <b>67 years</b> . . . . . | <b>20,725,000</b> | <b>3,120,000</b> | <b>2,980,000</b> | <b>650,000</b> | <b>3,630,000</b> | <b>2,845,000</b> | <b>33,950,000</b> |

*Equivalent in Washed, Tons*

| Period                    | Europe            | U. States        | River Plate    | Cape           | Australia        | Various          | Total             |
|---------------------------|-------------------|------------------|----------------|----------------|------------------|------------------|-------------------|
| 1821-30 . . . . .         | 1,820,000         | 60,000           | 20,000         | 10,000         | 10,000           | 40,000           | 1,960,000         |
| 1831-40 . . . . .         | 1,990,000         | 90,000           | 30,000         | 20,000         | 30,000           | 50,000           | 2,210,000         |
| 1841-50 . . . . .         | 2,230,000         | 180,000          | 40,000         | 40,000         | 60,000           | 140,000          | 2,690,000         |
| 1851-60 . . . . .         | 2,460,000         | 190,000          | 60,000         | 70,000         | 140,000          | 190,000          | 3,110,000         |
| 1861-70 . . . . .         | 2,610,000         | 310,000          | 170,000        | 90,000         | 330,000          | 320,000          | 3,830,000         |
| 1871-80 . . . . .         | 2,620,000         | 530,000          | 340,000        | 130,000        | 730,000          | 590,000          | 4,940,000         |
| 1881-87 . . . . .         | 1,830,000         | 510,000          | 330,000        | 90,000         | 680,000          | 380,000          | 3,820,000         |
| <b>67 years</b> . . . . . | <b>15,560,000</b> | <b>1,870,000</b> | <b>990,000</b> | <b>450,000</b> | <b>1,980,000</b> | <b>1,710,000</b> | <b>22,560,000</b> |

*Value, Millions £*

| Period                    | Europe       | U. States  | River Plate | Cape      | Australia  | Various    | Total        |
|---------------------------|--------------|------------|-------------|-----------|------------|------------|--------------|
| 1821-30 . . . . .         | 280          | 10         | 4           | 2         | 4          | 6          | 306          |
| 1831-40 . . . . .         | 307          | 15         | 6           | 3         | 10         | 8          | 349          |
| 1841-50 . . . . .         | 313          | 26         | 7           | 7         | 23         | 20         | 396          |
| 1851-60 . . . . .         | 348          | 28         | 10          | 12        | 45         | 30         | 473          |
| 1861-70 . . . . .         | 334          | 42         | 26          | 17        | 102        | 43         | 564          |
| 1871-80 . . . . .         | 297          | 64         | 46          | 25        | 184        | 47         | 663          |
| 1881-87 . . . . .         | 175          | 55         | 39          | 13        | 124        | 28         | 434          |
| <b>67 years</b> . . . . . | <b>2,054</b> | <b>240</b> | <b>138</b>  | <b>79</b> | <b>492</b> | <b>182</b> | <b>3,185</b> |

The movement of wool was approximately as follows :—

| Period             | Net Import, Tons |           |           |         |           |         |           | Total      |
|--------------------|------------------|-----------|-----------|---------|-----------|---------|-----------|------------|
|                    | U. Kingdom       | France    | Germany   | Austria | Belgium   | Various | U. States |            |
| 1821-30 . . . . .  | 100,000          | 50,000    | 20,000    | ...     | 20,000    | 10,000  | ...       | 200,000    |
| 1831-40 . . . . .  | 170,000          | 60,000    | 30,000    | ...     | 30,000    | 20,000  | 20,000    | 330,000    |
| 1841-50 . . . . .  | 240,000          | 200,000   | 50,000    | ...     | 60,000    | 30,000  | 40,000    | 620,000    |
| 1851-60 . . . . .  | 380,000          | 300,000   | 70,000    | ...     | 90,000    | 40,000  | 100,000   | 980,000    |
| 1861-70 . . . . .  | 580,000          | 650,000   | 150,000   | ...     | 300,000   | 80,000  | 170,000   | 1,930,000  |
| 1871-80 . . . . .  | 820,000          | 1,010,000 | 420,000   | 60,000  | 490,000   | 130,000 | 370,000   | 3,300,000  |
| 1881-87 . . . . .  | 680,000          | 880,000   | 600,000   | 90,000  | 310,000   | 120,000 | 360,000   | 3,040,000  |
| 67 years . . . . . | 2,970,000        | 3,150,000 | 1,340,000 | 150,000 | 1,300,000 | 430,000 | 1,060,000 | 10,400,000 |

| Period             | Net Export, Tons |         |             |         |           |           |           | Total      |
|--------------------|------------------|---------|-------------|---------|-----------|-----------|-----------|------------|
|                    | Russia           | Spain   | River Plate | Cape    | Australia | Various   | U. States |            |
| 1821-30 . . . . .  | 30,000           | 10,000  | 60,000      | 20,000  | 20,000    | 60,000    | ...       | 200,000    |
| 1831-40 . . . . .  | 50,000           | 10,000  | 100,000     | 30,000  | 60,000    | 80,000    | ...       | 330,000    |
| 1841-50 . . . . .  | 70,000           | 20,000  | 120,000     | 60,000  | 120,000   | 230,000   | ...       | 620,000    |
| 1851-60 . . . . .  | 100,000          | 20,000  | 190,000     | 100,000 | 250,000   | 320,000   | ...       | 980,000    |
| 1861-70 . . . . .  | 130,000          | 30,000  | 510,000     | 130,000 | 610,000   | 530,000   | ...       | 1,940,000  |
| 1871-80 . . . . .  | 70,000           | 40,000  | 1,020,000   | 185,000 | 1,330,000 | 645,000   | ...       | 3,290,000  |
| 1881-87 . . . . .  | 110,000          | 40,000  | 980,000     | 125,000 | 1,240,000 | 545,000   | ...       | 3,040,000  |
| 67 years . . . . . | 560,000          | 170,000 | 2,980,000   | 650,000 | 3,630,000 | 2,410,000 | ...       | 10,400,000 |

The proportions of wool consumed in the country of its production, and of imported wool, were as follows :—

|                        | 1821-30 | 1831-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-87 |
|------------------------|---------|---------|---------|---------|---------|---------|---------|
| Not imported . . . . . | 92.7    | 89.7    | 84.0    | 78.4    | 67.0    | 57.5    | 52.5    |
| Imported . . . . .     | 7.3     | 10.3    | 16.0    | 21.6    | 33.0    | 42.5    | 47.5    |
| Total . . . . .        | 100.0   | 100.0   | 100.0   | 100.0   | 100.0   | 100.0   | 100.0   |

The consumption in the several countries was approximately as follows :—

*Tons Aggregate Wool Unwashed*

|                       | 1821-30   | 1831-40   | 1841-50   | 1851-60   | 1861-70   | 1871-80   | 1881-87   | Total      |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| U. Kingdom . . . . .  | 570,000   | 680,000   | 820,000   | 1,040,000 | 1,290,000 | 1,570,000 | 1,200,000 | 7,170,000  |
| France . . . . .      | 590,000   | 670,000   | 850,000   | 960,000   | 1,280,000 | 1,760,000 | 1,250,000 | 7,360,000  |
| Germany . . . . .     | 330,000   | 380,000   | 470,000   | 580,000   | 690,000   | 950,000   | 950,000   | 4,330,000  |
| Russia . . . . .      | 420,000   | 430,000   | 470,000   | 490,000   | 520,000   | 720,000   | 480,000   | 3,530,000  |
| Austria . . . . .     | 270,000   | 290,000   | 310,000   | 320,000   | 320,000   | 380,000   | 310,000   | 2,200,000  |
| Italy . . . . .       | 90,000    | 100,000   | 120,000   | 130,000   | 160,000   | 190,000   | 160,000   | 950,000    |
| Spain . . . . .       | 150,000   | 160,000   | 160,000   | 200,000   | 220,000   | 250,000   | 170,000   | 1,310,000  |
| Portugal . . . . .    | 20,000    | 25,000    | 30,000    | 40,000    | 50,000    | 55,000    | 45,000    | 265,000    |
| Scandinavia . . . . . | 60,000    | 70,000    | 80,000    | 90,000    | 100,000   | 110,000   | 70,000    | 580,000    |
| Belgium . . . . .     | 35,000    | 45,000    | 75,000    | 100,000   | 310,000   | 500,000   | 320,000   | 1,985,000  |
| Various . . . . .     | 45,000    | 50,000    | 75,000    | 85,000    | 150,000   | 160,000   | 105,000   | 670,000    |
| Europe . . . . .      | 2,580,000 | 2,900,000 | 3,460,000 | 4,035,000 | 5,090,000 | 6,645,000 | 5,060,000 | 29,770,000 |
| U. States . . . . .   | 100,000   | 170,000   | 340,000   | 420,000   | 690,000   | 1,250,000 | 1,210,000 | 4,180,000  |
| Total . . . . .       | 2,680,000 | 3,070,000 | 3,800,000 | 4,455,000 | 5,780,000 | 7,895,000 | 6,270,000 | 33,950,000 |

*Equivalent in Yarn Spun, Tons*

|                       | 1821-30   | 1831-40   | 1841-50   | 1851-60   | 1861-70   | 1871-80   | 1881-87   | Total      |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| U. Kingdom . . . . .  | 380,000   | 440,000   | 520,000   | 650,000   | 790,000   | 930,000   | 700,000   | 4,410,000  |
| France . . . . .      | 370,000   | 430,000   | 490,000   | 530,000   | 620,000   | 670,000   | 510,000   | 3,620,000  |
| Germany . . . . .     | 210,000   | 240,000   | 300,000   | 360,000   | 410,000   | 480,000   | 410,000   | 2,410,000  |
| Russia . . . . .      | 280,000   | 290,000   | 310,000   | 330,000   | 350,000   | 480,000   | 320,000   | 2,360,000  |
| Austria . . . . .     | 180,000   | 200,000   | 210,000   | 220,000   | 220,000   | 250,000   | 210,000   | 1,490,000  |
| Italy . . . . .       | 60,000    | 65,000    | 75,000    | 80,000    | 95,000    | 115,000   | 95,000    | 585,000    |
| Spain . . . . .       | 100,000   | 110,000   | 110,000   | 130,000   | 150,000   | 170,000   | 110,000   | 880,000    |
| Portugal . . . . .    | 10,000    | 15,000    | 20,000    | 25,000    | 30,000    | 35,000    | 30,000    | 165,000    |
| Scandinavia . . . . . | 40,000    | 45,000    | 50,000    | 60,000    | 65,000    | 70,000    | 45,000    | 375,000    |
| Belgium . . . . .     | 10,000    | 15,000    | 25,000    | 30,000    | 100,000   | 170,000   | 110,000   | 460,000    |
| Various . . . . .     | 20,000    | 25,000    | 40,000    | 45,000    | 75,000    | 80,000    | 60,000    | 345,000    |
| Europe . . . . .      | 1,660,000 | 1,875,000 | 2,150,000 | 2,460,000 | 2,905,000 | 3,450,000 | 2,600,000 | 17,100,000 |
| U. States . . . . .   | 60,000    | 100,000   | 190,000   | 210,000   | 350,000   | 610,000   | 590,000   | 2,110,000  |
| Total . . . . .       | 1,720,000 | 1,975,000 | 2,340,000 | 2,670,000 | 3,255,000 | 4,060,000 | 3,190,000 | 19,210,000 |

The value of wool consumed was approximately as follows:—

|                   | Millions £ Sterling |         |         |         |         |         |         | Total |
|-------------------|---------------------|---------|---------|---------|---------|---------|---------|-------|
|                   | 1821-30             | 1831-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-87 |       |
| U. Kingdom . .    | 70                  | 81      | 91      | 119     | 140     | 156     | 97      | 754   |
| France . . . .    | 68                  | 79      | 86      | 96      | 111     | 113     | 72      | 625   |
| Germany . . . .   | 40                  | 44      | 53      | 65      | 73      | 81      | 57      | 413   |
| Russia . . . . .  | 46                  | 47      | 49      | 54      | 56      | 72      | 41      | 365   |
| Austria . . . .   | 30                  | 33      | 33      | 35      | 34      | 36      | 25      | 226   |
| Italy . . . . .   | 11                  | 12      | 13      | 15      | 17      | 20      | 12      | 100   |
| Spain . . . . .   | 16                  | 18      | 17      | 22      | 24      | 26      | 14      | 137   |
| Portugal . . . .  | 2                   | 3       | 4       | 5       | 6       | 6       | 4       | 30    |
| Scandinavia . .   | 7                   | 7       | 8       | 10      | 10      | 10      | 6       | 58    |
| Belgium . . . .   | 2                   | 3       | 5       | 6       | 18      | 29      | 15      | 78    |
| Various . . . .   | 4                   | 5       | 7       | 8       | 13      | 13      | 8       | 58    |
| Europe . . . .    | 296                 | 332     | 366     | 435     | 502     | 562     | 351     | 2,844 |
| U. States . . . . | 10                  | 17      | 30      | 38      | 62      | 101     | 83      | 341   |
| Total . . . . .   | 306                 | 349     | 396     | 473     | 564     | 663     | 434     | 3,185 |

The value of woollen manufactures produced was approximately thus:—

|                   | Millions £ Sterling |         |         |         |         |         |         | Total |
|-------------------|---------------------|---------|---------|---------|---------|---------|---------|-------|
|                   | 1821-30             | 1831-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-87 |       |
| U. Kingdom . .    | 191                 | 208     | 249     | 311     | 412     | 476     | 320     | 2,167 |
| France . . . . .  | 185                 | 205     | 233     | 252     | 325     | 328     | 230     | 1,758 |
| Germany . . . .   | 105                 | 114     | 142     | 171     | 215     | 235     | 185     | 1,107 |
| Russia . . . . .  | 126                 | 124     | 132     | 141     | 166     | 211     | 130     | 1,030 |
| Austria . . . .   | 81                  | 85      | 90      | 93      | 107     | 110     | 84      | 650   |
| Italy . . . . .   | 27                  | 27      | 32      | 34      | 46      | 49      | 34      | 249   |
| Spain . . . . .   | 45                  | 47      | 47      | 56      | 71      | 75      | 44      | 385   |
| Portugal . . . .  | 5                   | 7       | 8       | 11      | 14      | 15      | 12      | 72    |
| Scandinavia . .   | 18                  | 19      | 22      | 25      | 31      | 30      | 18      | 163   |
| Belgium . . . .   | 5                   | 7       | 11      | 13      | 47      | 75      | 44      | 202   |
| Various . . . .   | 9                   | 11      | 17      | 19      | 37      | 35      | 24      | 152   |
| Europe . . . .    | 797                 | 854     | 983     | 1,126   | 1,471   | 1,639   | 1,125   | 7,995 |
| U. States . . . . | 27                  | 45      | 81      | 117     | 190     | 282     | 241     | 983   |
| Total . . . . .   | 824                 | 899     | 1,064   | 1,243   | 1,661   | 1,921   | 1,366   | 8,978 |

The consumption of woollen goods in various countries was approximately as follows:—

|                   | Millions £ Sterling |         |         |         |         |         |         | Total |
|-------------------|---------------------|---------|---------|---------|---------|---------|---------|-------|
|                   | 1821-30             | 1831-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-87 |       |
| U. Kingdom . .    | 140                 | 158     | 179     | 207     | 242     | 281     | 190     | 1,397 |
| France . . . . .  | 170                 | 184     | 193     | 187     | 235     | 191     | 117     | 1,277 |
| Germany . . . .   | 100                 | 104     | 117     | 131     | 155     | 167     | 110     | 884   |
| Russia . . . . .  | 126                 | 124     | 135     | 145     | 172     | 220     | 135     | 1,057 |
| Austria . . . .   | 81                  | 85      | 90      | 93      | 109     | 105     | 78      | 641   |
| Italy . . . . .   | 27                  | 30      | 37      | 44      | 67      | 71      | 49      | 325   |
| Spain . . . . .   | 45                  | 47      | 52      | 62      | 79      | 83      | 52      | 420   |
| Portugal . . . .  | 7                   | 9       | 11      | 14      | 17      | 18      | 14      | 90    |
| Scandinavia . .   | 18                  | 20      | 25      | 30      | 39      | 52      | 38      | 222   |
| Belgium . . . .   | 10                  | 12      | 15      | 20      | 32      | 46      | 21      | 156   |
| Various . . . .   | 9                   | 12      | 16      | 20      | 30      | 35      | 25      | 147   |
| Europe . . . .    | 733                 | 785     | 870     | 953     | 1,177   | 1,269   | 829     | 6,616 |
| U. States . . . . | 35                  | 57      | 103     | 173     | 242     | 369     | 297     | 1,276 |
| Colonies, &c. .   | 56                  | 57      | 91      | 117     | 242     | 283     | 240     | 1,086 |
| Total . . . . .   | 824                 | 899     | 1,064   | 1,243   | 1,661   | 1,921   | 1,366   | 8,978 |

The annual average consumption per inhabitant was:—

|                       | Shillings per Inhabitant, Yearly |         |         |         |         |         |         |
|-----------------------|----------------------------------|---------|---------|---------|---------|---------|---------|
|                       | 1821-30                          | 1831-40 | 1841-50 | 1851-60 | 1861-70 | 1871-80 | 1881-87 |
| United Kingdom . .    | 12                               | 13      | 14      | 15      | 16      | 18      | 15      |
| France . . . . .      | 12                               | 11      | 11      | 10      | 13      | 11      | 9       |
| Germany . . . . .     | 7                                | 7       | 7       | 7       | 8       | 8       | 7       |
| Russia . . . . .      | 5                                | 5       | 5       | 5       | 5       | 5       | 4       |
| Austria . . . . .     | 7                                | 7       | 7       | 6       | 7       | 6       | 6       |
| Italy . . . . .       | 4                                | 4       | 4       | 4       | 5       | 5       | 5       |
| Spain . . . . .       | 7                                | 7       | 8       | 8       | 9       | 10      | 9       |
| Scandinavia . . . .   | 8                                | 7       | 8       | 9       | 11      | 12      | 13      |
| Belgium . . . . .     | 6                                | 6       | 7       | 8       | 12      | 18      | 11      |
| Europe . . . . .      | 8                                | 8       | 8       | 8       | 9       | 9       | 8       |
| United States . . . . | 7                                | 7       | 10      | 13      | 14      | 17      | 15      |

#### UNITED KINGDOM

The woollen industry dates its importance from the reign of Edward III., who introduced foreign workmen.

Gregory King in 1690, estimated the value of woollen manufactures at eight millions sterling, of which one-fourth were exported; he valued the wool at two millions sterling.

The woollen industry approximately was thus:—

| Year           | Millions of Lbs. |          |            |           |          |               | Value of Output, £ |
|----------------|------------------|----------|------------|-----------|----------|---------------|--------------------|
|                | British Wool     | Imported | Total Wool | Wool Spun | Exported | Wool Consumed |                    |
| 1780 . . . . . | 80               | 3        | 83         | 58        | ...      | 58            | 16,600,000         |
| 1800 . . . . . | 90               | 10       | 100        | 68        | ...      | 75            | 18,000,000         |
| 1820 . . . . . | 100              | 10       | 110        | 75        | ...      | 80            | 18,700,000         |
| 1830 . . . . . | 115              | 32       | 147        | 96        | 2        | 94            | 19,400,000         |
| 1840 . . . . . | 120              | 48       | 168        | 108       | 4        | 104           | 22,100,000         |
| 1850 . . . . . | 141              | 60       | 201        | 129       | 14       | 115           | 27,700,000         |
| 1860 . . . . . | 144              | 104      | 248        | 153       | 28       | 125           | 34,600,000         |
| 1870 . . . . . | 155              | 171      | 326        | 194       | 35       | 159           | 47,800,000         |
| 1880 . . . . . | 159              | 226      | 385        | 224       | 26       | 199           | 47,500,000         |
| 1888 . . . . . | 136              | 300      | 436        | 245       | 40       | 205           | 43,900,000         |

The output was composed as follows:—

| Year | Manufactures, £ |            |            | Ex-ported Yarn, £ | Total Output, £ |
|------|-----------------|------------|------------|-------------------|-----------------|
|      | Home Use        | Export     | Total      |                   |                 |
| 1780 | 14,000,000      | 2,600,000  | 16,600,000 | ...               | 16,600,000      |
| 1800 | 11,100,000      | 6,900,000  | 18,000,000 | ...               | 18,000,000      |
| 1820 | 13,100,000      | 5,600,000  | 18,700,000 | ...               | 18,700,000      |
| 1830 | 14,500,000      | 4,700,000  | 19,200,000 | 200,000           | 19,400,000      |
| 1840 | 16,300,000      | 5,300,000  | 21,600,000 | 500,000           | 22,100,000      |
| 1850 | 17,600,000      | 8,600,000  | 26,200,000 | 1,500,000         | 27,700,000      |
| 1860 | 18,600,000      | 12,200,000 | 30,800,000 | 3,800,000         | 34,600,000      |
| 1870 | 21,100,000      | 21,700,000 | 42,800,000 | 5,000,000         | 47,800,000      |
| 1880 | 26,900,000      | 17,300,000 | 44,200,000 | 3,300,000         | 47,500,000      |
| 1888 | 19,800,000      | 20,000,000 | 39,800,000 | 4,100,000         | 43,900,000      |

The business of sixty-seven years may be stated thus:—

| Period           | Tons      |           | Value, Millions £ |                |            |
|------------------|-----------|-----------|-------------------|----------------|------------|
|                  | Wool      | Yarn Spun | Wool              | Manu- factures | Net Result |
| 1821-30 . . . .  | 570,000   | 380,000   | 70                | 191            | 121        |
| 1831-40 . . . .  | 680,000   | 440,000   | 81                | 208            | 127        |
| 1841-50 . . . .  | 820,000   | 520,000   | 91                | 244            | 153        |
| 1851-60 . . . .  | 1,040,000 | 650,000   | 119               | 311            | 192        |
| 1861-70 . . . .  | 1,290,000 | 790,000   | 140               | 412            | 272        |
| 1871-80 . . . .  | 1,570,000 | 930,000   | 156               | 476            | 320        |
| 1881-87 . . . .  | 1,200,000 | 700,000   | 97                | 320            | 223        |
| 67 years . . . . | 7,170,000 | 4,410,000 | 754               | 2,162          | 1,408      |

The quantity of wool consumed was approximately as follows :—

| Period         | Tons Aggregate |           |           |
|----------------|----------------|-----------|-----------|
|                | British        | Foreign   | Total     |
| 1821-40 . . .  | 980,000        | 270,000   | 1,250,000 |
| 1841-60 . . .  | 1,180,000      | 680,000   | 1,860,000 |
| 1861-70 . . .  | 670,000        | 620,000   | 1,290,000 |
| 1871-80 . . .  | 690,000        | 880,000   | 1,570,000 |
| 1881-87 . . .  | 390,000        | 810,000   | 1,200,000 |
| 67 years . . . | 3,910,000      | 3,260,000 | 7,170,000 |

In 1774 Campbell estimated woollen manufactures at 12 millions sterling, in 1815 Stevenson at 18 millions, and in 1837 M'Culloch at 22½ millions.

Notwithstanding the magnitude of this industry, Great Britain imports large quantities of foreign goods. The following table shows the value of the total consumption of woollen merchandise :—

| Period        | Annual Consumption |             |            |
|---------------|--------------------|-------------|------------|
|               | British, £         | Imported, £ | Total, £   |
| 1851-60 . . . | 18,100,000         | 1,100,000   | 19,200,000 |
| 1861-70 . . . | 21,300,000         | 2,050,000   | 23,350,000 |
| 1871-80 . . . | 21,600,000         | 5,020,000   | 26,620,000 |
| 1881-88 . . . | 22,600,000         | 7,100,000   | 29,700,000 |

The following table shows the surplus of exports since 1850 :—

| Period         | Millions £ Woollen Merchandise |         |                 |
|----------------|--------------------------------|---------|-----------------|
|                | Imports                        | Exports | Surplus Exports |
| 1851-60 . . .  | 11                             | 131     | 120             |
| 1861-70 . . .  | 21                             | 237     | 116             |
| 1871-80 . . .  | 50                             | 260     | 210             |
| 1881-88 . . .  | 57                             | 185     | 128             |
| 38 years . . . | 139                            | 813     | 574             |

Since 1881 one-tenth of the imported woollen goods has been re-shipped to the Colonies or elsewhere.

This is meantime balanced by the importation of rags averaging £600,000 yearly value, not included in the above imports.

The imports and exports of woollen yarn were :—

| Period         | Millions of Lbs. Aggregate |          |                 |
|----------------|----------------------------|----------|-----------------|
|                | Imported                   | Exported | Surplus Exports |
| 1851-60 . . .  | ...                        | 203      | 203             |
| 1861-70 . . .  | 63                         | 333      | 270             |
| 1871-80 . . .  | 122                        | 334      | 212             |
| 1881-88 . . .  | 118                        | 306      | 188             |
| 38 years . . . | 303                        | 1,176    | 873             |

The statistics of woollen-factories are as follows :—

| Year       | Factories | Operatives | Spindles  | Looms   |
|------------|-----------|------------|-----------|---------|
| 1838 . . . | 1,313     | 71,300     | ...       | 5,000   |
| 1850 . . . | 1,998     | 154,000    | 2,500,000 | 42,000  |
| 1870 . . . | 2,579     | 239,000    | 4,950,000 | 113,000 |
| 1878 . . . | 2,410     | 271,000    | 6,310,000 | 146,000 |
| 1885 . . . | 2,751     | 282,000    | 6,140,000 | 140,000 |

The operatives were as follows :—

|             | 1870    | 1878    | 1888    |
|-------------|---------|---------|---------|
| Men . . .   | 96,000  | 101,000 | 113,000 |
| Women . . . | 119,000 | 139,000 | 145,000 |
| Boys . . .  | 12,000  | 15,000  | 12,000  |
| Girls . . . | 12,000  | 16,000  | 12,000  |
| Total . . . | 239,000 | 271,000 | 282,000 |

#### FRANCE

The first machinery for spinning wool was erected at Rheims in 1809, and that city now contains 330 factories. France has at present 2424 woollen factories, of which 740 are worked by steam; spindles 3,100,000, power-looms 41,000. The industry since 1820 shows thus approximately :—

| Year       | Millions of Lbs. |            |            |           | Value of Output, £ |
|------------|------------------|------------|------------|-----------|--------------------|
|            | French Wool      | Int-ported | Total Wool | Yarn Spun |                    |
| 1820 . . . | 116              | 11         | 127        | 80        | 19,800,000         |
| 1830 . . . | 130              | 15         | 145        | 96        | 20,000,000         |
| 1840 . . . | 144              | 30         | 174        | 108       | 22,000,000         |
| 1860 . . . | 150              | 121        | 271        | 136       | 31,200,000         |
| 1870 . . . | 133              | 194        | 327        | 147       | 35,800,000         |
| 1880 . . . | 117              | 255        | 372        | 155       | 33,300,000         |
| 1887 . . . | 126              | 294        | 420        | 172       | 30,800,000         |

The value of goods exported, and of those kept for home consumption, were approximately as follows :—

| Year       | Home Use, £ | Exported, £ | Total, £   |
|------------|-------------|-------------|------------|
| 1820 . . . | 18,100,000  | 1,700,000   | 19,800,000 |
| 1830 . . . | 18,800,000  | 1,200,000   | 20,000,000 |
| 1840 . . . | 19,000,000  | 3,000,000   | 22,000,000 |
| 1860 . . . | 23,700,000  | 7,500,000   | 31,200,000 |
| 1870 . . . | 25,200,000  | 10,600,000  | 35,800,000 |
| 1880 . . . | 16,500,000  | 16,800,000  | 33,300,000 |
| 1887 . . . | 15,200,000  | 15,600,000  | 30,800,000 |

The business of sixty-seven years may be stated thus :—

| Period   | Tons      |           | Value, Millions £ |               |             |
|----------|-----------|-----------|-------------------|---------------|-------------|
|          | Wool      | Spun Yarn | Wool              | Manu-factures | Net Results |
| 1821-30  | 590,000   | 370,000   | 68                | 185           | 117         |
| 1831-40  | 670,000   | 430,000   | 79                | 205           | 126         |
| 1841-50  | 850,000   | 490,000   | 86                | 233           | 147         |
| 1851-60  | 960,000   | 530,000   | 96                | 252           | 156         |
| 1861-70  | 1,280,000 | 620,000   | 111               | 325           | 214         |
| 1871-80  | 1,760,000 | 670,000   | 113               | 328           | 215         |
| 1881-87  | 1,250,000 | 510,000   | 72                | 230           | 158         |
| 67 years | 7,360,000 | 3,620,000 | 625               | 1,758         | 1,133       |

France, like Great Britain, consumes a considerable quantity of imported woollen goods. The total consumption since 1860 was :—

| Period         | Millions £ Sterling |          |       | Annual Average, £ |
|----------------|---------------------|----------|-------|-------------------|
|                | French              | Imported | Total |                   |
| 1861-70 . . .  | 245                 | 15       | 260   | 26,600,000        |
| 1871-80 . . .  | 209                 | 28       | 237   | 23,700,000        |
| 1881-87 . . .  | 111                 | 22       | 133   | 19,000,000        |
| 27 years . . . | 565                 | 65       | 630   | 23,300,000        |



## GERMANY

Woollen manufactures were of minor importance at the beginning of the century. Oddy valued the product of all Prussian woollen-mills in 1800 at £1,700,000 sterling.

The woollen industry of Germany since 1820 is summed up approximately as follows:—

| Period       | Tons      |           | Value, Millions £ |                   |     |
|--------------|-----------|-----------|-------------------|-------------------|-----|
|              | Wool      | Yarn Spun | Wool              | Manu-<br>factures | Net |
| 1821-30 . .  | 330,000   | 210,000   | 40                | 105               | 65  |
| 1831-40 . .  | 380,000   | 240,000   | 44                | 114               | 70  |
| 1841-50 . .  | 470,000   | 300,000   | 53                | 142               | 89  |
| 1851-60 . .  | 580,000   | 360,000   | 65                | 171               | 106 |
| 1861-70 . .  | 690,000   | 410,000   | 73                | 215               | 142 |
| 1871-80 . .  | 950,000   | 480,000   | 81                | 235               | 154 |
| 1881-87 . .  | 950,000   | 410,000   | 57                | 185               | 128 |
| 67 years . . | 4,350,000 | 2,410,000 | 413               | 1,167             | 754 |

A statement published in 1878 showed that the woollen-mills of Germany counted 2,000,000 spindles, the annual output being estimated at 26 millions sterling. Germany consumes imported woollen goods to the value of £500,000 per annum. The output of German woollen-factories from 1871 to 1887 is accounted for thus, approximately:—

| Period       | Millions £ |          |                 | Average<br>Home Use,<br>£ |
|--------------|------------|----------|-----------------|---------------------------|
|              | Home Use   | Exported | Total<br>Output |                           |
| 1871-80 . .  | 167        | 68       | 235             | 16,700,000                |
| 1881-87 . .  | 110        | 75       | 185             | 15,700,000                |
| 17 years . . | 277        | 143      | 420             | 16,300,000                |

## RUSSIA

The business of sixty-seven years may be summed up thus:—

| Period       | Tons<br>Wool<br>Consumed | Tons<br>Yarn<br>Spun | Value, Millions £ |                   |     |
|--------------|--------------------------|----------------------|-------------------|-------------------|-----|
|              |                          |                      | Wool              | Manu-<br>factures | Net |
| 1821-30 . .  | 420,000                  | 280,000              | 46                | 126               | 80  |
| 1831-40 . .  | 430,000                  | 290,000              | 47                | 124               | 77  |
| 1841-50 . .  | 470,000                  | 310,000              | 49                | 132               | 83  |
| 1851-60 . .  | 490,000                  | 330,000              | 54                | 141               | 87  |
| 1861-70 . .  | 520,000                  | 350,000              | 56                | 166               | 110 |
| 1871-80 . .  | 720,000                  | 480,000              | 72                | 211               | 139 |
| 1881-87 . .  | 480,000                  | 320,000              | 41                | 130               | 89  |
| 67 years . . | 3,530,000                | 2,360,000            | 365               | 1,030             | 665 |

Russia had a surplus of wool, and exported in the above period approximately the following quantity:—

| Period      | Tons    | Lbs. Yearly |
|-------------|---------|-------------|
| 1821-40 . . | 60,000  | 6,600,000   |
| 1841-70 . . | 330,000 | 24,000,000  |
| 1871-87 . . | 260,000 | 35,000,000  |

67 years . . . 650,000 . . .

In 1824 there were 324 factories, and in 1866 the number had risen to 1831, with 105,000 operatives, who turned out goods valued at 18 millions sterling.

The importation of woollen manufactures from abroad was as follows, viz.:—

| Year     | £       | Year     | £         | Year     | £         |
|----------|---------|----------|-----------|----------|-----------|
| 1860 . . | 460,000 | 1870 . . | 970,000   | 1880 . . | 1,210,000 |
| 1865 . . | 400,000 | 1875 . . | 1,600,000 | 1887 . . | 270,000   |

It appears that Russia is now almost able to supply her own needs.

## AUSTRIA

The business of sixty-seven years was approximately as follows:—

| Period       | Tons<br>Wool<br>Consumed | Tons<br>Yarn<br>Spun | Value, Millions £ |                  |     |
|--------------|--------------------------|----------------------|-------------------|------------------|-----|
|              |                          |                      | Wool              | Manu-<br>facture | Net |
| 1821-30 . .  | 270,000                  | 180,000              | 30                | 81               | 51  |
| 1831-40 . .  | 290,000                  | 200,000              | 33                | 85               | 52  |
| 1841-50 . .  | 310,000                  | 210,000              | 33                | 90               | 57  |
| 1851-60 . .  | 320,000                  | 220,000              | 35                | 93               | 58  |
| 1861-70 . .  | 320,000                  | 220,000              | 34                | 107              | 73  |
| 1871-80 . .  | 380,000                  | 250,000              | 36                | 110              | 74  |
| 1881-87 . .  | 310,000                  | 210,000              | 25                | 84               | 59  |
| 67 years . . | 2,200,000                | 1,490,000            | 226               | 650              | 424 |

In 1840 the woollen-mills of the Empire counted 100,000 operatives. Statistics for 1880 showed 657 mills, 62,000 operatives, 11,000 power-looms, 550,000 spindles, moved by 14,000 horse-power. Spallart valued the product at £12,300,000 in 1884. The disposal of the manufactures was as follows:—

|               | Yearly Average           |           |            |
|---------------|--------------------------|-----------|------------|
|               | Home Con-<br>sumption, £ | Export, £ | Total, £   |
| 1841-60 . . . | 9,100,000                | ...       | 9,100,000  |
| 1861-70 . . . | 9,100,000                | 1,600,000 | 10,700,000 |
| 1871-80 . . . | 8,800,000                | 2,200,000 | 11,000,000 |
| 1881-87 . . . | 9,700,000                | 2,300,000 | 12,000,000 |

At the same time there has been a consumption of foreign imported goods.

The total value of woollen goods consumed since 1860 has been:—

| Period       | Millions £ |          |       | Annual<br>Average,<br>£ |
|--------------|------------|----------|-------|-------------------------|
|              | Austrian   | Imported | Total |                         |
| 1861-70 . .  | 91         | 18       | 109   | 10,900,000              |
| 1871-80 . .  | 88         | 17       | 105   | 10,500,000              |
| 1881-87 . .  | 68         | 10       | 78    | 11,100,000              |
| 27 years . . | 247        | 45       | 292   | ...                     |

## ITALY

In 1860 the woollen-mills depended almost wholly on native wool, but now almost one-half is imported. The business of sixty-seven years may be estimated approximately thus:—

| Period       | Tons    |           | Value, Millions £ |                  |     |
|--------------|---------|-----------|-------------------|------------------|-----|
|              | Wool    | Yarn Spun | Wool              | Manu-<br>facture | Net |
| 1821-30 . .  | 90,000  | 60,000    | 11                | 27               | 16  |
| 1831-40 . .  | 100,000 | 65,000    | 12                | 27               | 15  |
| 1841-50 . .  | 120,000 | 75,000    | 13                | 32               | 19  |
| 1851-60 . .  | 130,000 | 80,000    | 15                | 34               | 19  |
| 1861-70 . .  | 160,000 | 95,000    | 17                | 46               | 29  |
| 1871-80 . .  | 190,000 | 115,000   | 20                | 49               | 29  |
| 1881-87 . .  | 160,000 | 95,000    | 12                | 34               | 22  |
| 67 years . . | 950,000 | 585,000   | 100               | 249              | 149 |

The consumption of wool was approximately as follows :—

| Period       | Tons    |         |         | Lbs. Yearly |
|--------------|---------|---------|---------|-------------|
|              | Italian | Foreign | Total   |             |
| 1821-60 . .  | 370,000 | 70,000  | 440,000 | 24,000,000  |
| 1861-80 . .  | 230,000 | 120,000 | 350,000 | 39,000,000  |
| 1881-87 . .  | 90,000  | 70,000  | 160,000 | 52,000,000  |
| 67 years . . | 690,000 | 260,000 | 950,000 | ...         |

Meantime the mills have been wholly insufficient to supply the needs of the country.

The total value of woollen goods consumed in Italy since 1860 was as follows :—

| Period       | Millions £ Sterling Aggregate |          |       | Annual Average, £ |
|--------------|-------------------------------|----------|-------|-------------------|
|              | Home-Made                     | Imported | Total |                   |
| 1861-70 . .  | 46                            | 21       | 67    | 6,700,000         |
| 1871-80 . .  | 49                            | 22       | 71    | 7,100,000         |
| 1881-87 . .  | 34                            | 15       | 49    | 7,000,000         |
| 27 years . . | 129                           | 58       | 187   | 6,900,000         |

It appears that not only 40 per cent. of the wool used in the country is of foreign growth, but also that one-third of the woollen goods is imported. In 1840 the kingdom of Sardinia had 62 woollen-mills, employing 5400 hands. In 1877 the kingdom of Italy counted in its woollen-factories 25,000 operatives, with 6600 looms and 305,000 spindles, the mills representing an aggregate of 7300 horse-power, of which 6200 water, the rest steam.

#### SPAIN

The business of sixty-seven years may be estimated approximately thus :—

| Period       | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ |                  |     |
|--------------|--------------------|----------------|-------------------|------------------|-----|
|              |                    |                | Wool              | Manu-<br>facture | Net |
| 1821-30 . .  | 150,000            | 100,000        | 16                | 45               | 29  |
| 1831-40 . .  | 160,000            | 110,000        | 18                | 47               | 29  |
| 1841-50 . .  | 160,000            | 110,000        | 17                | 47               | 30  |
| 1851-60 . .  | 200,000            | 130,000        | 22                | 56               | 34  |
| 1861-70 . .  | 220,000            | 150,000        | 24                | 71               | 47  |
| 1871-80 . .  | 250,000            | 170,000        | 26                | 75               | 49  |
| 1881-87 . .  | 170,000            | 110,000        | 14                | 44               | 30  |
| 67 years . . | 1,310,000          | 880,000        | 137               | 385              | 248 |

In spite of high protective duties, Spain is forced to obtain woollen manufactures in large quantities from abroad.

The consumption of Spanish and imported woollen goods since 1860 has been as follows :—

| Period       | Millions £ Sterling Aggregate |          |       | Annual Average, £ |
|--------------|-------------------------------|----------|-------|-------------------|
|              | Spanish                       | Imported | Total |                   |
| 1861-70 . .  | 71                            | 8        | 79    | 7,900,000         |
| 1871-80 . .  | 75                            | 8        | 83    | 8,300,000         |
| 1881-87 . .  | 44                            | 8        | 52    | 7,400,000         |
| 27 years . . | 190                           | 24       | 214   | ...               |

The export of Spanish wool has been as follows :—

|                    | Tons    |
|--------------------|---------|
| 1861-80 . . . . .  | 70,000  |
| 1881-87 . . . . .  | 35,000  |
| 27 years . . . . . | 105,000 |

The mills are unable to consume even the wool grown in Spain; they contain 7000 looms and 25,000 operatives.

#### PORTUGAL

The business of sixty-seven years was approximately as follows :—

| Period       | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ |                  |     |
|--------------|--------------------|----------------|-------------------|------------------|-----|
|              |                    |                | Wool              | Manu-<br>facture | Net |
| 1821-30 . .  | 20,000             | 10,000         | 2                 | 5                | 3   |
| 1831-40 . .  | 25,000             | 15,000         | 3                 | 7                | 4   |
| 1841-50 . .  | 30,000             | 20,000         | 4                 | 8                | 4   |
| 1851-60 . .  | 40,000             | 25,000         | 5                 | 11               | 6   |
| 1861-70 . .  | 50,000             | 30,000         | 6                 | 14               | 8   |
| 1871-80 . .  | 55,000             | 35,000         | 6                 | 15               | 9   |
| 1881-87 . .  | 45,000             | 30,000         | 4                 | 12               | 8   |
| 67 years . . | 265,000            | 165,000        | 30                | 72               | 42  |

Two-thirds of the wool used is native, one-third imported. Woollen goods are also imported to the value of £300,000, the total consumption of this class of goods being therefore nearly two millions sterling yearly.

#### SCANDINAVIA

The woollen industries of the three northern kingdoms collectively may be summed up approximately thus :—

| Period       | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ |                  |     |
|--------------|--------------------|----------------|-------------------|------------------|-----|
|              |                    |                | Wool              | Manu-<br>facture | Net |
| 1821-30 . .  | 60,000             | 40,000         | 7                 | 18               | 11  |
| 1831-40 . .  | 70,000             | 45,000         | 7                 | 19               | 12  |
| 1841-50 . .  | 80,000             | 50,000         | 8                 | 22               | 14  |
| 1851-60 . .  | 90,000             | 60,000         | 10                | 25               | 15  |
| 1861-70 . .  | 100,000            | 65,000         | 10                | 31               | 21  |
| 1871-80 . .  | 110,000            | 70,000         | 10                | 30               | 20  |
| 1881-87 . .  | 70,000             | 45,000         | 6                 | 18               | 12  |
| 67 years . . | 580,000            | 375,000        | 58                | 163              | 105 |

Denmark exports, and Sweden and Norway import wool. The consumption of home-made and imported goods was as follows :—

| Period      | Yearly Value, £ Sterling |           |           |
|-------------|--------------------------|-----------|-----------|
|             | Home-Made                | Imported  | Total     |
| 1861-70 . . | 3,100,000                | 800,000   | 3,900,000 |
| 1871-80 . . | 3,000,000                | 2,200,000 | 5,200,000 |
| 1881-87 . . | 2,600,000                | 2,850,000 | 5,450,000 |

The importations of woollen goods into the three kingdoms were as follows :—

|             | Yearly Value, £ |           |           |
|-------------|-----------------|-----------|-----------|
|             | 1861-70         | 1871-80   | 1881-87   |
| Sweden . .  | 220,000         | 900,000   | 1,200,000 |
| Norway . .  | 100,000         | 500,000   | 600,000   |
| Denmark . . | 500,000         | 800,000   | 1,050,000 |
| Total . .   | 820,000         | 2,200,000 | 2,850,000 |

## BELGIUM

The business of 67 years may be summed up approximately as follows :—

| Period       | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ |                   |     |
|--------------|--------------------|----------------|-------------------|-------------------|-----|
|              |                    |                | Wool              | Manu-<br>factures | Net |
| 1821-30 . .  | 35,000             | 10,000         | 2                 | 5                 | 3   |
| 1831-40 . .  | 45,000             | 15,000         | 3                 | 7                 | 4   |
| 1841-50 . .  | 75,000             | 25,000         | 5                 | 11                | 6   |
| 1851-60 . .  | 100,000            | 30,000         | 6                 | 13                | 7   |
| 1861-70 . .  | 310,000            | 100,000        | 18                | 47                | 29  |
| 1871-80 . .  | 500,000            | 170,000        | 29                | 75                | 46  |
| 1881-87 . .  | 320,000            | 110,000        | 15                | 44                | 29  |
| 67 years . . | 1,385,000          | 460,000        | 78                | 202               | 124 |

The wool is almost all imported, only 2 per cent. being Belgian. It is not, however, all made into stuffs, about one-fifth being re-exported as woollen yarn. The imports and exports of woollen goods, including yarn, showed :—

| Period      | Annual Average, £ |           |                    |
|-------------|-------------------|-----------|--------------------|
|             | Imports           | Exports   | Surplus<br>Exports |
| 1861-70 . . | 800,000           | 2,300,000 | 1,500,000          |
| 1871-80 . . | 900,000           | 3,800,000 | 2,900,000          |
| 1881-87 . . | 800,000           | 3,300,000 | 2,500,000          |

The output of the mills and the home consumption were :—

| Period      | Annual Average, £ |            |             |
|-------------|-------------------|------------|-------------|
|             | Output            | Net Export | Consumption |
| 1861-70 . . | 4,700,000         | 1,500,000  | 3,200,000   |
| 1871-80 . . | 7,500,000         | 2,900,000  | 4,600,000   |
| 1881-87 . . | 6,300,000         | 3,300,000  | 3,000,000   |

## UNITED STATES

The wool consumed was approximately as follows :—

|              | Tons      |           |           |
|--------------|-----------|-----------|-----------|
|              | American  | Imported  | Total     |
| 1821-40 . .  | 250,000   | 20,000    | 270,000   |
| 1841-60 . .  | 620,000   | 140,000   | 760,000   |
| 1861-80 . .  | 1,400,000 | 540,000   | 1,940,000 |
| 1881-87 . .  | 850,000   | 360,000   | 1,210,000 |
| 67 years . . | 3,120,000 | 1,060,000 | 4,180,000 |

## YACHTS

The number in Great Britain has been as follows :—

| Year     | Clubs | Yachts | Year     | Clubs | Yachts |
|----------|-------|--------|----------|-------|--------|
| 1853 . . | 18    | 1,046  | 1873 . . | 40    | 2,805  |
| 1863 . . | 18    | 1,348  | 1883 . . | 55    | 4,030  |

France has 9370 yachts, averaging three tons, and £61 in value : of the whole number, only 103 are steamers.

Lord Brassey's *Sunbeam* circumnavigated the globe in eleven months, from July 1876 to May 1877, making 14,465 miles by steam and 20,312 under sail, in all 34,777 miles, averaging 105 miles a day, including time in port. She was 157 feet long, 531 tons, 70 horse-power, and consumed 4 tons of coal daily, steaming 10 knots an hour. Mr. Lambert's *Wanderer* was 23 months making the tour of the globe (1880-82), but only 280 days actually at sea, having made 48,490 miles between steam and sail.

In 1840 there were 1420 mills, with 21,000 operatives, the number of the latter reaching 39,000 in 1850. The Census of 1880 showed 2689 mills, with a capital of 33 millions sterling, which had 162,000 operatives and two million spindles.

The business of sixty-seven years was approximately as follows :—

| Period       | Tons Wool Consumed | Tons Yarn Spun | Value, Millions £ |                   |     |
|--------------|--------------------|----------------|-------------------|-------------------|-----|
|              |                    |                | Wool              | Manu-<br>factures | Net |
| 1821-30 . .  | 100,000            | 60,000         | 10                | 27                | 17  |
| 1831-40 . .  | 170,000            | 100,000        | 17                | 45                | 28  |
| 1841-50 . .  | 340,000            | 190,000        | 30                | 81                | 51  |
| 1851-60 . .  | 420,000            | 210,000        | 38                | 117               | 79  |
| 1861-70 . .  | 690,000            | 350,000        | 62                | 190               | 128 |
| 1871-80 . .  | 1,250,000          | 610,000        | 101               | 282               | 181 |
| 1881-87 . .  | 1,210,000          | 590,000        | 83                | 241               | 158 |
| 67 years . . | 4,180,000          | 2,110,000      | 341               | 983               | 642 |

The consumption of woollen goods since 1840 has been approximately as follows :—

| Period       | Value, Millions £ Aggregate |          |       | Yearly<br>Average,<br>£ | Shillings<br>per<br>Inhab. |
|--------------|-----------------------------|----------|-------|-------------------------|----------------------------|
|              | American                    | Imported | Total |                         |                            |
| 1841-50 . .  | 81                          | 22       | 103   | 10,300,000              | 10.1                       |
| 1851-60 . .  | 117                         | 56       | 173   | 17,300,000              | 12.5                       |
| 1861-70 . .  | 190                         | 52       | 242   | 24,200,000              | 14.0                       |
| 1871-80 . .  | 282                         | 87       | 369   | 36,900,000              | 16.6                       |
| 1881-87 . .  | 241                         | 56       | 297   | 42,400,000              | 15.2                       |
| 47 years . . | 911                         | 273      | 1,184 | ...                     | ...                        |

## INDIA

In December 1889 there were four woollen mills, representing an aggregate capital of £1,200,000, with 7000 spindles and 300 looms. The consumption of wool is not stated, nor the value of products.

## WORK

Foot-Tons of Energy

|                                      |     |
|--------------------------------------|-----|
| Walking 1 mile . . . . .             | 17½ |
| Walking 4 miles . . . . .            | 70  |
| Carrying 60 lbs. 1 mile . . . . .    | 25  |
| Carrying 60 lbs. 4 miles . . . . .   | 100 |
| Pedlar's day's work . . . . .        | 303 |
| Convict's day's work . . . . .       | 310 |
| Dock labourer's day's work . . . . . | 325 |
| Pile-driving . . . . .               | 332 |
| Pavior . . . . .                     | 352 |
| Turning a winch . . . . .            | 374 |
| Man's ordinary work . . . . .        | 300 |
| Very hard ditto . . . . .            | 400 |

## Y.

## YARN

Exports of British yarn were as follows :—

| Year     | Million Lbs. |         |                   |       | Value, £   |
|----------|--------------|---------|-------------------|-------|------------|
|          | Cotton       | Woollen | Linen<br>and Jute | Total |            |
| 1821 . . | 22           | ...     | ...               | 22    | 2,306,000  |
| 1831 . . | 64           | 2       | 1                 | 67    | 4,270,000  |
| 1841 . . | 119          | 4       | 18                | 141   | 8,362,000  |
| 1851 . . | 144          | 14      | 19                | 177   | 9,071,000  |
| 1861 . . | 178          | 28      | 28                | 234   | 14,468,000 |
| 1871 . . | 194          | 44      | 50                | 298   | 23,641,000 |
| 1881 . . | 255          | 30      | 36                | 321   | 17,693,000 |
| 1889 . . | 252          | 45      | 48                | 345   | 17,300,000 |

The prices of yarn at various dates were in pence per pound :—

| Year           | Cotton | Woollen | Linen |
|----------------|--------|---------|-------|
| 1831 . . . . . | 22     | 26      | 19    |
| 1841 . . . . . | 14     | 29      | 12    |
| 1851 . . . . . | 12     | 25      | 12    |
| 1861 . . . . . | 13     | 30      | 14    |
| 1871 . . . . . | 19     | 34      | 15    |
| 1881 . . . . . | 13     | 26      | 14    |
| 1889 . . . . . | 11     | 23      | 15    |

The consumption of imported yarn in various countries in 1888 was as follows :—

|                    | Millions of Lbs. |         |            |       |
|--------------------|------------------|---------|------------|-------|
|                    | Cotton           | Woollen | Linen, &c. | Total |
| France . . . . .   | 20               | ...     | ...        | 20    |
| Germany . . . . .  | 34               | 27      | ...        | 61    |
| Russia . . . . .   | 9                | ...     | ...        | 9     |
| Austria . . . . .  | 22               | 9       | ...        | 31    |
| Italy . . . . .    | 8                | ...     | 9          | 17    |
| Spain . . . . .    | 1                | ...     | 8          | 9     |
| Sweden . . . . .   | 3                | 3       | ...        | 6     |
| Holland . . . . .  | 20               | 1       | ...        | 21    |
| Roumania . . . . . | 9                | ...     | ...        | 9     |
| Egypt . . . . .    | 3                | ...     | ...        | 3     |
| China . . . . .    | 90               | ...     | ...        | 90    |
| Japan . . . . .    | 64               | ...     | ...        | 64    |
| Total . . . . .    | 283              | 40      | 17         | 340   |

Belgium and Switzerland produce more yarn than they require, the former exporting about 30 million lbs., the latter 16 million lbs. yearly.

## Z.

## ZINC

The production of zinc was as follows :—

|                         | Tons    |         |
|-------------------------|---------|---------|
|                         | 1880    | 1888    |
| Great Britain . . . . . | 22,000  | 27,000  |
| Belgium . . . . .       | 99,000  | 133,000 |
| Prussia . . . . .       | 64,000  | 83,000  |
| United States . . . . . | 21,000  | 50,000  |
| Spain, &c. . . . .      | 22,000  | 24,000  |
| Total . . . . .         | 228,000 | 317,000 |

The zinc industry of Great Britain is shown thus :—

| Year | Tons            |               |        |               |             | Value<br>per<br>Ton,<br>£ |
|------|-----------------|---------------|--------|---------------|-------------|---------------------------|
|      | Produc-<br>tion | Im-<br>ported | Total  | Ex-<br>ported | Home<br>Use |                           |
| 1831 | 700             | 3,800         | 4,500  | 3,100         | 1,400       | 14                        |
| 1851 | 3,900           | 18,600        | 22,500 | 4,500         | 18,000      | 21                        |
| 1871 | 4,960           | 20,930        | 25,890 | 8,060         | 17,830      | 18                        |
| 1881 | 15,950          | 46,100        | 62,050 | 10,700        | 51,350      | 15                        |
| 1889 | 9,400           | 56,400        | 65,800 | 7,700         | 58,100      | 15                        |

In the previous table Great Britain is credited with a production of 27,000 tons, but this includes 18,000 tons extracted from foreign ores imported. Not all the zinc imported is metallic, a large portion being mineral ore. Belgian ore gives 18 per cent. of metal, German 16, British 28 per cent. The production of zinc in the world has trebled since 1870. See *Mining*.

# DICTIONARY OF STATISTICS.

## PART II.

### A

#### AGES AND SEXES

THE ages of some nations have been seriously affected in the last half-century by wars, emigration, and other causes; some have grown younger, others have lost severely in the age of 20 to 50, others show a lower percentage of children, as will appear in comparison further on. The census returns of all countries for 1890-91 (Spain 1887) show the relative proportions of age as follows:—

| Age      | England | Scotland | Ireland | France | Germany | Austria | Hungary | Switzerland | Spain | Scandinavia | Holland | Belgium | Bulgaria | Japan | Australia | U. States | Average |
|----------|---------|----------|---------|--------|---------|---------|---------|-------------|-------|-------------|---------|---------|----------|-------|-----------|-----------|---------|
| Under 10 | 239     | 243      | 208     | 175    | 242     | 239     | 262     | 217         | 230   | 239         | 245     | 224     | 305      | 228   | 265       | 243       | 238     |
| 10-20    | 213     | 216      | 234     | 174    | 207     | 197     | 191     | 198         | 186   | 195         | 202     | 202     | 192      | 204   | 208       | 217       | 202     |
| 20-30    | 172     | 168      | 162     | 163    | 162     | 162     | 156     | 161         | 160   | 146         | 156     | 165     | 116      | 153   | 197       | 183       | 161     |
| 30-40    | 131     | 126      | 108     | 138    | 127     | 131     | 137     | 125         | 132   | 124         | 121     | 126     | 122      | 135   | 132       | 135       | 129     |
| 40-50    | 99      | 96       | 98      | 123    | 104     | 109     | 108     | 114         | 114   | 101         | 101     | 103     | 108      | 115   | 85        | 94        | 104     |
| 50-60    | 71      | 72       | 85      | 101    | 78      | 83      | 78      | 91          | 86    | 84          | 83      | 83      | 65       | 78    | 64        | 64        | 79      |
| 60-70    | 47      | 48       | 60      | 76     | 52      | 52      | 46      | 64          | 65    | 68          | 59      | 60      | 45       | 57    | 33        | 39        | 54      |
| Over 70  | 28      | 31       | 45      | 50     | 28      | 27      | 22      | 30          | 27    | 43          | 33      | 37      | 47       | 30    | 16        | 25        | 33      |
| Total    | 1,000   | 1,000    | 1,000   | 1,000  | 1,000   | 1,000   | 1,000   | 1,000       | 1,000 | 1,000       | 1,000   | 1,000   | 1,000    | 1,000 | 1,000     | 1,000     | 1,000   |

The ratio of children, under 10, is so low in France and Ireland as to show that either the moral or the economic condition of those countries is unsatisfactory. The average of old persons, over 60, is highest in France and Scandinavia. The age of greatest physical strength being from 20 to 60, it is important to compare the ratios of this age in various countries as follows:—

| Per 1000 Inhabitants |                    |
|----------------------|--------------------|
| France . . . 525     | Australia . . 478  |
| Spain . . . 492      | Belgium . . . 477  |
| Switzerland . 491    | U. States . . 476  |
| Austria . . . 485    | England . . . 473  |
| Japan . . . 481      | Germany . . . 471  |
|                      | Scotland . . . 462 |
|                      | Holland . . . 461  |
|                      | Scandinavia . 455  |
|                      | Ireland . . . 453  |
|                      | Bulgaria . . . 411 |

With the exception of Bulgaria there is no country where the able-bodied population stands so low as in Ireland, which in some manner accounts for the unfortunate condition of the island, and shows the direct result of emigration.

The relative smallness of the able-bodied population in Bulgaria seems to indicate that the country has not yet recovered from the effects of the massacres committed there by the Turks in 1876. The very high ratio in France is partly due to the fact that 400,000 Belgian, and 250,000 Italian, operatives have settled there.

As regard sexes, the number of females compared with males of corresponding age in the various countries is shown as follows:—

| Age       | Number of Females to 1000 Males |          |         |        |         |         |         |             |       |             |         |         |          |       |           |           |         |
|-----------|---------------------------------|----------|---------|--------|---------|---------|---------|-------------|-------|-------------|---------|---------|----------|-------|-----------|-----------|---------|
|           | England                         | Scotland | Ireland | France | Germany | Austria | Hungary | Switzerland | Spain | Scandinavia | Holland | Belgium | Bulgaria | Japan | Australia | U. States | Average |
| Under 10. | 1,008                           | 972      | 970     | 996    | 995     | 1,002   | 995     | 998         | 975   | 973         | 988     | 992     | 958      | 978   | 972       | 971       | 984     |
| 10-20     | 1,007                           | 977      | 958     | 996    | 1,001   | 1,026   | 1,032   | 1,006       | 1,025 | 982         | 997     | 988     | 974      | 977   | 990       | 992       | 996     |
| 20-30     | 1,119                           | 1,119    | 1,035   | 1,023  | 1,027   | 1,046   | 1,044   | 1,087       | 1,140 | 1,125       | 1,033   | 969     | 1,118    | 966   | 880       | 969       | 1,044   |
| 30-40     | 1,067                           | 1,090    | 1,090   | 983    | 1,041   | 1,048   | 991     | 1,073       | 1,095 | 1,128       | 1,025   | 1,005   | 1,047    | 947   | 740       | 887       | 1,016   |
| 40-50     | 1,078                           | 1,132    | 1,151   | 1,010  | 1,076   | 1,061   | 990     | 1,096       | 1,057 | 1,127       | 1,023   | 1,012   | 825      | 932   | 747       | 926       | 1,015   |
| 50-60     | 1,123                           | 1,208    | 1,064   | 1,025  | 1,117   | 1,103   | 1,009   | 1,122       | 1,072 | 1,123       | 1,049   | 1,025   | 862      | 980   | 693       | 922       | 1,031   |
| 60-70     | 1,180                           | 1,313    | 1,061   | 1,055  | 1,182   | 1,150   | 1,062   | 1,152       | 1,034 | 1,152       | 1,108   | 1,072   | 922      | 1,068 | 662       | 922       | 1,008   |
| Over 70   | 1,308                           | 1,653    | 1,077   | 1,137  | 1,223   | 1,094   | 1,042   | 1,137       | 1,128 | 1,311       | 1,239   | 1,194   | 973      | 1,310 | 700       | 934       | 1,153   |
| General   | 1,064                           | 1,072    | 1,029   | 1,014  | 1,040   | 1,044   | 1,015   | 1,058       | 1,040 | 1,068       | 1,024   | 1,005   | 961      | 980   | 866       | 953       | 1,015   |

There is a dearth of females in Bulgaria, Japan, and Australia, but a large surplus in England, Scotland, Switzerland, and Scandinavia. If we take the usual marrying age for women, say from 20 to 40, we find as follows:—

## MARRYING AGE

## Females to 1000 Males

|                   |                   |               |
|-------------------|-------------------|---------------|
| Scandinavia 1,127 | Switzerland 1,080 | Hungary 1,017 |
| Spain 1,118       | Ireland 1,063     | France 1,003  |
| Scotland 1,105    | Austria 1,047     | Belgium 987   |
| England 1,083     | Germany 1,034     | U. States 928 |
| Bulgaria 1,083    | Holland 1,029     | Australia 810 |

It is worthy of notice that although Bulgaria has a deficit of females there is nevertheless in that country a surplus of women of marrying age, exceeding 8 per cent. It is also remarkable that, except in France and Germany, the excess of women of marrying age is greater in all countries than the average surplus of females of all ages.

As regards changes in the ratios of sex in the last decade\* we find:—

## Number of Females to 1000 Males

|                | 1861  | 1891  |                   | 1881  | 1891  |
|----------------|-------|-------|-------------------|-------|-------|
| England . . .  | 1,053 | 1,064 | Scandinavia . . . | 1,051 | 1,068 |
| Scotland . . . | 1,079 | 1,072 | Holland . . .     | 1,023 | 1,024 |
| Ireland . . .  | 1,041 | 1,029 | Belgium . . .     | 1,002 | 1,005 |
| U. Kingdom . . | 1,053 | 1,062 | Switzerland . .   | 1,040 | 1,058 |
| France . . .   | 1,005 | 1,014 | Greece . . .      | 901   | 921   |
| Germany . . .  | 1,038 | 1,040 | United States . . | 966   | 953   |
| Austria . . .  | 1,046 | 1,044 | Canada . . .      | 968   | 965   |
| Hungary . . .  | 1,031 | 1,015 | Australia . . .   | 849   | 866   |
| Spain . . .    | 1,044 | 1,040 | Average . . .     | 1,013 | 1,016 |

It appears, therefore, that the surplus of females in general averages 3 per thousand more than was the case in 1881. And if we take only the 14 European countries we find the mean for 1891 was 1035, as against 1032 in 1881, showing in like manner an increase of 3 per thousand. Considering only the sexes of persons between 20 and 40 years of age, the surplus of females in European countries is as follows:—

|                 |         |                 |           |
|-----------------|---------|-----------------|-----------|
| England . . .   | 403,000 | Austria . . .   | 160,000   |
| Scotland . . .  | 60,000  | Hungary . . .   | 50,000    |
| Ireland . . .   | 35,000  | Spain . . .     | 196,000   |
| United Kingdom  | 498,000 | Scandinavia . . | 144,000   |
| France . . .    | 28,000  | Holland . . .   | 19,000    |
| Germany . . .   | 235,000 | Bulgaria . . .  | 30,000    |
| Switzerland . . | 32,000  | Total . . .     | 1,392,000 |

On the other hand there is a deficit of women of that age (20-40) of 14,000 in Belgium, 127,000 in Australia, 49,000 in Canada, and 690,000 in the United States, in all 880,000. If this number were to emigrate from Europe it would reduce the surplus to 512,000.

## ENGLAND AND WALES

| Age            | Number (000 omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 10 . . . | 3,461                | 3,488   | 6,949  | 239   | 1,008                 |
| 10-20 . . .    | 3,076                | 3,098   | 6,174  | 213   | 1,007                 |
| 20-30 . . .    | 2,358                | 2,638   | 4,996  | 172   | 1,119                 |
| 30-40 . . .    | 1,843                | 1,966   | 3,809  | 131   | 1,067                 |
| 40-50 . . .    | 1,388                | 1,496   | 2,884  | 99    | 1,078                 |
| 50-60 . . .    | 963                  | 1,082   | 2,045  | 71    | 1,123                 |
| 60-70 . . .    | 617                  | 728     | 1,345  | 47    | 1,180                 |
| Over 70 . . .  | 347                  | 454     | 801    | 28    | 1,308                 |
| Total pop.     | 14,053               | 14,950  | 29,003 | 1,000 | 1,064                 |

\* In 1881 the ratio in Italy was 995 females to 1000 males: in Russia the new census gives 1028 females to 1000 males.

## SCOTLAND

| Age            | Number (000 omitted) |         |       | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|-------|-------|-----------------------|
|                | Males                | Females | Total |       |                       |
| Under 10 . . . | 497                  | 483     | 980   | 243   | 972                   |
| 10-20 . . .    | 440                  | 430     | 870   | 216   | 977                   |
| 20-30 . . .    | 319                  | 357     | 676   | 168   | 1,119                 |
| 30-40 . . .    | 243                  | 265     | 508   | 126   | 1,090                 |
| 40-50 . . .    | 182                  | 206     | 388   | 96    | 1,132                 |
| 50-60 . . .    | 130                  | 157     | 287   | 72    | 1,208                 |
| 60-70 . . .    | 83                   | 110     | 193   | 48    | 1,313                 |
| Over 70 . . .  | 49                   | 75      | 124   | 31    | 1,653                 |
| Total pop.     | 1,943                | 2,083   | 4,026 | 1,000 | 1,072                 |

## IRELAND

|                |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|
| Under 10 . . . | 497   | 482   | 979   | 208   | 970   |
| 10-20 . . .    | 557   | 543   | 1,100 | 234   | 958   |
| 20-30 . . .    | 375   | 388   | 763   | 162   | 1,035 |
| 30-40 . . .    | 243   | 265   | 508   | 108   | 1,090 |
| 40-50 . . .    | 215   | 248   | 463   | 98    | 1,151 |
| 50-60 . . .    | 193   | 205   | 398   | 85    | 1,064 |
| 60-70 . . .    | 130   | 144   | 280   | 60    | 1,061 |
| Over 70 . . .  | 103   | 111   | 214   | 45    | 1,077 |
| Total pop.     | 2,319 | 2,386 | 4,705 | 1,000 | 1,089 |

## UNITED KINGDOM

|                |        |        |        |       |       |
|----------------|--------|--------|--------|-------|-------|
| Under 10 . . . | 4,455  | 4,453  | 8,908  | 236   | 1,000 |
| 10-20 . . .    | 4,073  | 4,071  | 8,144  | 216   | 1,000 |
| 20-30 . . .    | 3,052  | 3,383  | 6,435  | 170   | 1,109 |
| 30-40 . . .    | 2,329  | 2,496  | 4,825  | 128   | 1,072 |
| 40-50 . . .    | 1,785  | 1,950  | 3,735  | 100   | 1,098 |
| 50-60 . . .    | 1,286  | 1,444  | 2,730  | 72    | 1,183 |
| 60-70 . . .    | 836    | 982    | 1,818  | 48    | 1,174 |
| Over 70 . . .  | 499    | 640    | 1,139  | 30    | 1,300 |
| Total pop.     | 18,315 | 19,419 | 37,734 | 1,000 | 1,060 |

## UNITED STATES

|                |        |        |        |       |     |
|----------------|--------|--------|--------|-------|-----|
| Under 10 . . . | 7,715  | 7,494  | 15,209 | 243   | 971 |
| 10-20 . . .    | 6,824  | 6,768  | 13,592 | 217   | 990 |
| 20-30 . . .    | 5,803  | 5,621  | 11,424 | 183   | 969 |
| 30-40 . . .    | 4,476  | 3,968  | 8,444  | 135   | 887 |
| 40-50 . . .    | 3,073  | 2,845  | 5,918  | 94    | 926 |
| 50-60 . . .    | 2,081  | 1,918  | 3,999  | 64    | 922 |
| 60-70 . . .    | 1,285  | 1,184  | 2,469  | 39    | 922 |
| Over 70 . . .  | 811    | 756    | 1,567  | 25    | 922 |
| Total pop.     | 32,068 | 30,554 | 62,622 | 1,000 | 953 |

## Whites

|                |        |        |        |       |     |
|----------------|--------|--------|--------|-------|-----|
| Under 10 . . . | 6,628  | 6,425  | 13,053 | 237   | 970 |
| 10-20 . . .    | 5,863  | 5,805  | 11,668 | 212   | 990 |
| 20-30 . . .    | 5,148  | 4,947  | 10,095 | 184   | 961 |
| 30-40 . . .    | 4,032  | 3,552  | 7,584  | 139   | 881 |
| 40-50 . . .    | 2,767  | 2,548  | 5,315  | 96    | 921 |
| 50-60 . . .    | 1,877  | 1,746  | 3,623  | 65    | 930 |
| 60-70 . . .    | 1,167  | 1,083  | 2,250  | 41    | 931 |
| Over 70 . . .  | 724    | 671    | 1,395  | 26    | 925 |
| Total pop.     | 28,206 | 26,777 | 54,983 | 1,000 | 949 |

## Coloured

|                |       |       |       |       |       |
|----------------|-------|-------|-------|-------|-------|
| Under 10 . . . | 1,087 | 1,069 | 2,156 | 283   | 983   |
| 10-20 . . .    | 961   | 963   | 1,924 | 252   | 1,002 |
| 20-30 . . .    | 655   | 674   | 1,329 | 174   | 1,009 |
| 30-40 . . .    | 444   | 416   | 860   | 112   | 937   |
| 40-50 . . .    | 306   | 297   | 603   | 79    | 970   |
| 50-60 . . .    | 204   | 172   | 376   | 49    | 843   |
| 60-70 . . .    | 118   | 101   | 219   | 29    | 856   |
| Over 70 . . .  | 87    | 85    | 172   | 22    | 977   |
| Total pop.     | 3,862 | 3,777 | 7,639 | 1,000 | 976   |

## AGES AND SEXES

609

## AGES AND SEXES

## FRANCE

| Age            | Number (ooo omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 10 . . . | 3,345                | 3,331   | 6,676  | 175   | 996                   |
| 10-20 . . .    | 3,339                | 3,325   | 6,664  | 174   | 996                   |
| 20-30 . . .    | 3,064                | 3,136   | 6,200  | 163   | 1,023                 |
| 30-40 . . .    | 2,652                | 2,608   | 5,260  | 138   | 983                   |
| 40-50 . . .    | 2,337                | 2,361   | 4,698  | 123   | 1,010                 |
| 50-60 . . .    | 1,899                | 1,947   | 3,846  | 101   | 1,025                 |
| 60-70 . . .    | 1,401                | 1,478   | 2,879  | 76    | 1,055                 |
| Over 70 . . .  | 895                  | 1,015   | 1,910  | 50    | 1,137                 |
| Total pop.     | 18,932               | 19,201  | 38,133 | 1,000 | 1,014                 |

## GERMANY

| Age            | Number (ooo omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 10 . . . | 5,994                | 5,666   | 11,660 | 242   | 995                   |
| 10-20 . . .    | 5,105                | 5,110   | 10,215 | 207   | 1,001                 |
| 20-30 . . .    | 3,947                | 4,055   | 8,002  | 162   | 1,027                 |
| 30-40 . . .    | 3,090                | 3,217   | 6,307  | 127   | 1,041                 |
| 40-50 . . .    | 2,472                | 2,660   | 5,132  | 104   | 1,076                 |
| 50-60 . . .    | 1,827                | 2,041   | 3,868  | 78    | 1,117                 |
| 60-70 . . .    | 1,177                | 1,391   | 2,568  | 52    | 1,182                 |
| Over 70 . . .  | 619                  | 757     | 1,376  | 28    | 1,223                 |
| Total pop.     | 24,231               | 25,197  | 49,428 | 1,000 | 1,040                 |

## AUSTRIA

| Age            | Number (ooo omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 10 . . . | 2,849                | 2,856   | 5,705  | 239   | 1,002                 |
| 10-20 . . .    | 2,332                | 2,393   | 4,725  | 197   | 1,026                 |
| 20-30 . . .    | 1,896                | 1,983   | 3,879  | 162   | 1,046                 |
| 30-40 . . .    | 1,531                | 1,604   | 3,135  | 131   | 1,048                 |
| 40-50 . . .    | 1,258                | 1,335   | 2,593  | 109   | 1,061                 |
| 50-60 . . .    | 939                  | 1,036   | 1,975  | 83    | 1,103                 |
| 60-70 . . .    | 580                  | 667     | 1,247  | 52    | 1,150                 |
| Over 70 . . .  | 304                  | 333     | 637    | 27    | 1,094                 |
| Total pop.     | 11,689               | 12,207  | 23,896 | 1,000 | 1,044                 |

## HUNGARY

| Age            | Number (ooo omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 10 . . . | 2,293                | 2,289   | 4,582  | 262   | 995                   |
| 10-20 . . .    | 1,641                | 1,694   | 3,335  | 191   | 1,032                 |
| 20-30 . . .    | 1,328                | 1,388   | 2,716  | 156   | 1,044                 |
| 30-40 . . .    | 1,197                | 1,187   | 2,384  | 137   | 991                   |
| 40-50 . . .    | 943                  | 933     | 1,876  | 108   | 990                   |
| 50-60 . . .    | 682                  | 688     | 1,370  | 78    | 1,009                 |
| 60-70 . . .    | 389                  | 413     | 802    | 46    | 1,062                 |
| Over 70 . . .  | 195                  | 204     | 399    | 22    | 1,042                 |
| Total pop.     | 8,668                | 8,796   | 17,464 | 1,000 | 1,015                 |

## AUSTRIA-HUNGARY

| Age            | Number (ooo omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 10 . . . | 5,142                | 5,145   | 10,287 | 248   | 1,001                 |
| 10-20 . . .    | 3,973                | 4,087   | 8,060  | 195   | 1,029                 |
| 20-30 . . .    | 3,224                | 3,371   | 6,595  | 160   | 1,045                 |
| 30-40 . . .    | 2,728                | 2,791   | 5,519  | 134   | 1,023                 |
| 40-50 . . .    | 2,201                | 2,268   | 4,469  | 108   | 1,031                 |
| 50-60 . . .    | 1,621                | 1,724   | 3,345  | 81    | 1,064                 |
| 60-70 . . .    | 969                  | 1,080   | 2,049  | 49    | 1,112                 |
| Over 70 . . .  | 499                  | 537     | 1,036  | 25    | 1,076                 |
| Total pop.     | 20,357               | 21,003  | 41,360 | 1,000 | 1,032                 |

## ITALY (1881)

| Age            | Number (ooo omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 20 . . . | 5,967                | 5,827   | 11,794 | 416   | 976                   |
| 20-30 . . .    | 2,263                | 2,312   | 4,575  | 162   | 1,022                 |
| 30-40 . . .    | 1,901                | 1,932   | 3,833  | 135   | 1,016                 |
| 40-50 . . .    | 2,847                | 2,861   | 5,708  | 201   | 1,005                 |
| Over 60 . . .  | 1,288                | 1,262   | 2,550  | 86    | 980                   |
| Total pop.     | 14,266               | 14,194  | 28,460 | 1,000 | 995                   |

## SWITZERLAND

| Age            | Number (ooo omitted) |         |       | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|-------|-------|-----------------------|
|                | Males                | Females | Total |       |                       |
| Under 10 . . . | 317                  | 316     | 633   | 217   | 998                   |
| 10-20 . . .    | 288                  | 290     | 578   | 198   | 1,006                 |
| 20-30 . . .    | 225                  | 244     | 469   | 161   | 1,087                 |
| 30-40 . . .    | 176                  | 189     | 365   | 125   | 1,073                 |
| 40-50 . . .    | 159                  | 174     | 333   | 114   | 1,096                 |
| 50-60 . . .    | 125                  | 140     | 265   | 91    | 1,122                 |
| 60-70 . . .    | 86                   | 100     | 186   | 64    | 1,152                 |
| Over 70 . . .  | 41                   | 47      | 88    | 30    | 1,137                 |
| Total pop.     | 1,417                | 1,500   | 2,917 | 1,000 | 1,058                 |

## SPAIN

| Age            | Number (ooo omitted) |         |        | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|--------|-------|-----------------------|
|                | Males                | Females | Total  |       |                       |
| Under 10 . . . | 2,040                | 1,987   | 4,027  | 230   | 975                   |
| 10-20 . . .    | 1,613                | 1,654   | 3,267  | 186   | 1,025                 |
| 20-30 . . .    | 1,364                | 1,455   | 2,819  | 160   | 1,140                 |
| 30-40 . . .    | 1,108                | 1,213   | 2,321  | 132   | 1,095                 |
| 40-50 . . .    | 974                  | 1,030   | 2,004  | 114   | 1,057                 |
| 50-60 . . .    | 725                  | 777     | 1,502  | 86    | 1,072                 |
| 60-70 . . .    | 562                  | 581     | 1,143  | 65    | 1,034                 |
| Over 70 . . .  | 227                  | 256     | 483    | 27    | 1,128                 |
| Total pop.     | 8,613                | 8,953   | 17,566 | 1,000 | 1,040                 |

## DENMARK

| Age            | Number (ooo omitted) |         |       | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|-------|-------|-----------------------|
|                | Males                | Females | Total |       |                       |
| Under 10 . . . | 269                  | 264     | 533   | 243   | 981                   |
| 10-20 . . .    | 214                  | 210     | 424   | 194   | 984                   |
| 20-30 . . .    | 153                  | 173     | 326   | 149   | 1,129                 |
| 30-40 . . .    | 135                  | 146     | 281   | 129   | 1,085                 |
| 40-50 . . .    | 106                  | 114     | 220   | 101   | 1,068                 |
| 50-60 . . .    | 85                   | 92      | 177   | 81    | 1,077                 |
| 60-70 . . .    | 64                   | 71      | 135   | 62    | 1,114                 |
| Over 70 . . .  | 39                   | 50      | 89    | 41    | 1,282                 |
| Total pop.     | 1,065                | 1,120   | 2,185 | 1,000 | 1,051                 |

## SWEDEN

| Age            | Number (ooo omitted) |         |       | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|-------|-------|-----------------------|
|                | Males                | Females | Total |       |                       |
| Under 10 . . . | 560                  | 546     | 1,106 | 231   | 973                   |
| 10-20 . . .    | 466                  | 454     | 920   | 192   | 976                   |
| 20-30 . . .    | 336                  | 360     | 696   | 146   | 1,071                 |
| 30-40 . . .    | 281                  | 314     | 595   | 124   | 1,121                 |
| 40-50 . . .    | 232                  | 263     | 495   | 104   | 1,134                 |
| 50-60 . . .    | 198                  | 227     | 425   | 89    | 1,146                 |
| 60-70 . . .    | 156                  | 185     | 341   | 71    | 1,186                 |
| Over 70 . . .  | 88                   | 119     | 207   | 43    | 1,340                 |
| Total pop.     | 2,317                | 2,468   | 4,785 | 1,000 | 1,065                 |

## NORWAY

| Age            | Number (ooo omitted) |         |       | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|-------|-------|-----------------------|
|                | Males                | Females | Total |       |                       |
| Under 10 . . . | 253                  | 243     | 496   | 249   | 960                   |
| 10-20 . . .    | 200                  | 200     | 400   | 201   | 1,000                 |
| 20-30 . . .    | 126                  | 159     | 285   | 143   | 1,260                 |
| 30-40 . . .    | 108                  | 131     | 239   | 120   | 1,220                 |
| 40-50 . . .    | 88                   | 103     | 191   | 96    | 1,160                 |
| 50-60 . . .    | 73                   | 81      | 154   | 78    | 1,120                 |
| 60-70 . . .    | 63                   | 70      | 133   | 67    | 1,120                 |
| Over 70 . . .  | 41                   | 51      | 92    | 46    | 1,244                 |
| Total pop.     | 952                  | 1,038   | 1,990 | 1,000 | 1,090                 |

## SCANDINAVIA

| Age            | Number (ooo omitted) |         |       | Ratio | Females to 1000 Males |
|----------------|----------------------|---------|-------|-------|-----------------------|
|                | Males                | Females | Total |       |                       |
| Under 10 . . . | 1,082                | 1,053   | 2,135 | 239   | 973                   |
| 10-20 . . .    | 880                  | 864     | 1,744 | 195   | 982                   |
| 20-30 . . .    | 615                  | 692     | 1,307 | 146   | 1,125                 |
| 30-40 . . .    | 524                  | 591     | 1,115 | 124   | 1,128                 |
| 40-50 . . .    | 426                  | 480     | 906   | 101   | 1,127                 |
| 50-60 . . .    | 356                  | 400     | 756   | 84    | 1,123                 |
| 60-70 . . .    | 283                  | 326     | 609   | 68    | 1,152                 |
| Over 70 . . .  | 168                  | 220     | 388   | 43    | 1,311                 |
| Total pop.     | 4,334                | 4,626   | 8,960 | 1,000 | 1,068                 |

# AGES AND SEXES

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# AGES AND SEXES

## HOLLAND

| Age          | Number (000 omitted) |         |       | Ratio | Females to 1000 Males |
|--------------|----------------------|---------|-------|-------|-----------------------|
|              | Males                | Females | Total |       |                       |
| Under 10 . . | 555                  | 548     | 1,103 | 245   | 988                   |
| 10-20 . . .  | 456                  | 455     | 911   | 202   | 997                   |
| 20-30 . . .  | 347                  | 359     | 706   | 156   | 1,033                 |
| 30-40 . . .  | 270                  | 277     | 547   | 121   | 1,025                 |
| 40-50 . . .  | 225                  | 230     | 455   | 101   | 1,023                 |
| 50-60 . . .  | 182                  | 191     | 373   | 83    | 1,040                 |
| 60-70 . . .  | 126                  | 139     | 265   | 59    | 1,108                 |
| Over 70 . .  | 67                   | 84      | 151   | 33    | 1,239                 |
| Total pop.   | 2,228                | 2,283   | 4,511 | 1,000 | 1,024                 |

## BELGIUM

|              |       |       |       |       |       |
|--------------|-------|-------|-------|-------|-------|
| Under 10 . . | 683   | 678   | 1,361 | 224   | 992   |
| 10-20 . . .  | 617   | 609   | 1,226 | 202   | 988   |
| 20-30 . . .  | 510   | 494   | 1,004 | 165   | 969   |
| 30-40 . . .  | 380   | 382   | 762   | 126   | 1,005 |
| 40-50 . . .  | 310   | 314   | 624   | 103   | 1,012 |
| 50-60 . . .  | 249   | 255   | 504   | 83    | 1,025 |
| 60-70 . . .  | 175   | 187   | 362   | 60    | 1,072 |
| Over 70 . .  | 103   | 123   | 226   | 37    | 1,194 |
| Total pop.   | 3,027 | 3,042 | 6,069 | 1,000 | 1,005 |

## FINLAND

|              |       |       |       |       |       |
|--------------|-------|-------|-------|-------|-------|
| Under 10 . . | 302   | 299   | 601   | 253   | 987   |
| 10-20 . . .  | 240   | 238   | 478   | 201   | 989   |
| 20-30 . . .  | 179   | 179   | 358   | 150   | 1,000 |
| 30-40 . . .  | 154   | 157   | 311   | 131   | 1,018 |
| 40-50 . . .  | 125   | 133   | 258   | 108   | 1,062 |
| 50-60 . . .  | 86    | 96    | 182   | 77    | 1,116 |
| 60-70 . . .  | 59    | 71    | 130   | 54    | 1,214 |
| Over 70 . .  | 26    | 36    | 62    | 26    | 1,406 |
| Total pop.   | 1,171 | 1,209 | 2,380 | 1,000 | 1,032 |

## ROUMANIA

The official estimate of ages and population is as follows:—

|                | No.       | Ratio |
|----------------|-----------|-------|
| Under 20 . . . | 2,450,000 | 430   |
| 20-40 . . .    | 1,730,000 | 304   |
| 40-60 . . .    | 1,190,000 | 208   |
| Over 60 . . .  | 330,000   | 58    |

Total . 5,700,000 1,000

To every thousand males there are only 967 females.

## BULGARIA

| Age          | Number (000 omitted) |         |       | Ratio | Females to 1000 Males |
|--------------|----------------------|---------|-------|-------|-----------------------|
|              | Males                | Females | Total |       |                       |
| Under 10 . . | 492                  | 471     | 963   | 305   | 958                   |
| 10-20 . . .  | 307                  | 299     | 606   | 192   | 974                   |
| 20-30 . . .  | 172                  | 193     | 365   | 116   | 1,118                 |
| 30-40 . . .  | 188                  | 197     | 385   | 122   | 1,047                 |
| 40-50 . . .  | 187                  | 153     | 340   | 108   | 825                   |
| 50-60 . . .  | 109                  | 94      | 203   | 65    | 862                   |
| 60-70 . . .  | 74                   | 68      | 142   | 45    | 922                   |
| Over 70 . .  | 76                   | 74      | 150   | 47    | 973                   |
| Total pop.   | 1,605                | 1,549   | 3,154 | 1,000 | 965                   |

## JAPAN

| Age          | Number (000 omitted) |         |        | Ratio | Females to 1000 Males |
|--------------|----------------------|---------|--------|-------|-----------------------|
|              | Males                | Females | Total  |       |                       |
| Under 10 . . | 4,683                | 4,582   | 9,265  | 228   | 978                   |
| 10-20 . . .  | 4,203                | 4,105   | 8,308  | 204   | 977                   |
| 20-30 . . .  | 3,161                | 3,055   | 6,216  | 153   | 966                   |
| 30-40 . . .  | 2,823                | 2,674   | 5,497  | 135   | 947                   |
| 40-50 . . .  | 2,418                | 2,252   | 4,670  | 115   | 932                   |
| 50-60 . . .  | 1,608                | 1,577   | 3,185  | 78    | 980                   |
| 60-70 . . .  | 1,131                | 1,208   | 2,339  | 57    | 1,068                 |
| Over 70 . .  | 536                  | 702     | 1,238  | 30    | 1,310                 |
| Total pop.   | 20,563               | 20,155  | 40,718 | 1,000 | 980                   |

## AUSTRALIA

|              |       |       |       |       |     |
|--------------|-------|-------|-------|-------|-----|
| Under 10 . . | 599   | 495   | 1,094 | 265   | 972 |
| 10-20 . . .  | 397   | 393   | 790   | 208   | 990 |
| 20-30 . . .  | 398   | 349   | 747   | 197   | 880 |
| 30-40 . . .  | 292   | 214   | 506   | 132   | 740 |
| 40-50 . . .  | 186   | 139   | 325   | 85    | 747 |
| 50-60 . . .  | 143   | 99    | 242   | 64    | 693 |
| 60-70 . . .  | 77    | 51    | 128   | 33    | 662 |
| Over 70 . .  | 36    | 25    | 61    | 16    | 700 |
| Total pop.   | 2,038 | 1,765 | 3,803 | 1,000 | 866 |

## CAPE COLONY

| Age          | Whites | Coloured | Total | Ratio | Whites per cent |
|--------------|--------|----------|-------|-------|-----------------|
| Under 10 . . | 114    | 342      | 456   | 299   | 25.0            |
| 10-20 . . .  | 83     | 280      | 363   | 237   | 22.8            |
| 20-30 . . .  | 68     | 192      | 260   | 170   | 26.2            |
| 30-40 . . .  | 48     | 129      | 177   | 116   | 27.1            |
| 40-50 . . .  | 30     | 92       | 122   | 80    | 24.5            |
| 50-60 . . .  | 16     | 58       | 76    | 50    | 23.7            |
| 60-70 . . .  | 11     | 33       | 44    | 29    | 25.0            |
| Over 70 . .  | 5      | 25       | 30    | 19    | 17.0            |
| Total pop.   | 377    | 1,151    | 1,528 | 1,000 | 24.7            |

## CANADA

The census of 1891 compares with 1881 as follows:—

| Age           | Number (000 omitted) |       | Ratio |       |
|---------------|----------------------|-------|-------|-------|
|               | 1881                 | 1891  | 1881  | 1891  |
| Under 5 . . . | 579                  | 604   | 134   | 125   |
| 5-15 . . . .  | 1,061                | 1,136 | 245   | 235   |
| 15-20 . . . . | 476                  | 512   | 110   | 106   |
| 20-30 . . . . | 761                  | 860   | 176   | 178   |
| 30-50 . . . . | 865                  | 1,018 | 200   | 211   |
| Over 50 . . . | 583                  | 703   | 135   | 145   |
| Total pop. .  | 4,325                | 4,833 | 1,000 | 1,000 |

## UNITED KINGDOM

The census of 1891 shows that the proportions of age and sex in the three kingdoms have undergone the following changes since 1881:—

## ENGLAND AND WALES

| Age          | 1881  |         |       | 1891  |         |       |
|--------------|-------|---------|-------|-------|---------|-------|
|              | Males | Females | Total | Males | Females | Total |
| Under 15 . . | 182   | 183     | 365   | 175   | 176     | 351   |
| 15-45 . . .  | 216   | 230     | 446   | 221   | 238     | 459   |
| 45-55 . . .  | 40    | 44      | 84    | 41    | 46      | 87    |
| Over 55 . .  | 49    | 56      | 105   | 47    | 56      | 103   |
| Total . . .  | 487   | 513     | 1,000 | 484   | 516     | 1,000 |



## SCOTLAND

| Age            | 1881  |         |       | 1891  |         |       |
|----------------|-------|---------|-------|-------|---------|-------|
|                | Males | Females | Total | Males | Females | Total |
| Under 15 . . . | 185   | 181     | 366   | 180   | 176     | 356   |
| 15-45 . . .    | 213   | 230     | 443   | 217   | 232     | 449   |
| 45-55 . . .    | 37    | 45      | 82    | 39    | 41      | 80    |
| Over 55 . . .  | 46    | 63      | 109   | 47    | 68      | 115   |
| Total . . .    | 481   | 519     | 1,000 | 483   | 517     | 1,000 |

## IRELAND

|                |     |     |       |     |     |       |
|----------------|-----|-----|-------|-----|-----|-------|
| Under 15 . . . | 178 | 172 | 350   | 165 | 160 | 325   |
| 15-45 . . .    | 206 | 224 | 430   | 216 | 227 | 443   |
| 45-55 . . .    | 41  | 45  | 86    | 46  | 51  | 97    |
| Over 55 . . .  | 65  | 69  | 134   | 66  | 69  | 135   |
| Total . . .    | 490 | 510 | 1,000 | 493 | 507 | 1,000 |

## UNITED KINGDOM

|                |     |     |       |     |     |       |
|----------------|-----|-----|-------|-----|-----|-------|
| Under 15 . . . | 182 | 181 | 363   | 174 | 174 | 348   |
| 15-45 . . .    | 214 | 229 | 443   | 220 | 236 | 456   |
| 45-55 . . .    | 40  | 44  | 84    | 42  | 46  | 88    |
| Over 55 . . .  | 51  | 59  | 110   | 49  | 59  | 108   |
| Total . . .    | 487 | 513 | 1,000 | 485 | 515 | 1,000 |

Comparing the last census with the preceding, we find that the ratio of young people under 15 has fallen very notably in the three kingdoms, especially in Ireland. As a necessary consequence the proportion of persons between 15 and 45 has risen: the ratio of this class has risen 3 per cent. in Ireland, the same in England, and 1½ per cent. in Scotland. Persons between 45 and 55 have risen in ratio both in England and Ireland, but fallen in Scotland. Finally, those over 55 show a relative decline in England, but a rise in the sister kingdoms. This last class is much greater in Ireland than in Great Britain. When we consider sexes we find the preponderance of females has increased in England, while it has declined in Scotland and Ireland. Taking the United Kingdom as a whole, the excess of the female population is now 62 per thousand, as compared with 53 per thousand in 1881. This cannot be the result of emigration, seeing that in Ireland the sexes are less unequal. If we limit our observation to persons between 15 and 45, we find the preponderance of females is 77 per thousand in England, 69 in Scotland, and 50 per thousand in Ireland. Altogether, the proportion of women between 15 and 45 in the United Kingdom is 3 per cent. higher now than in 1881, and yet the birth-rate has fallen remarkably.

## FRANCE

The ratios of population by four censuses were:—

| Age            | 1841  | 1861  | 1881  | 1891  |
|----------------|-------|-------|-------|-------|
| Under 10 . . . | 185   | 186   | 183   | 175   |
| 10-20 . . .    | 176   | 169   | 170   | 174   |
| 20-30 . . .    | 163   | 164   | 158   | 163   |
| 30-40 . . .    | 148   | 144   | 137   | 138   |
| 40-50 . . .    | 125   | 125   | 123   | 123   |
| 50-60 . . .    | 102   | 101   | 103   | 101   |
| Over 60 . . .  | 101   | 111   | 126   | 126   |
| Total . . .    | 1,000 | 1,000 | 1,000 | 1,000 |

The ratio of persons between 30 and 40 is 4 per cent. less than it was in 1861, probably the result of the Franco-German war. The ratio of persons over 60 has risen 25 per cent.

## GERMANY

The census of 1891 compares with that of 1871 as follows:—

| Age            | Number (000 omitted) |        |          | Ratio |       |
|----------------|----------------------|--------|----------|-------|-------|
|                | 1871                 | 1891   | Increase | 1871  | 1891  |
| Under 20 . . . | 17,850               | 22,175 | 4,325    | 435   | 449   |
| 20-40 . . .    | 12,220               | 14,309 | 2,089    | 298   | 289   |
| 40-60 . . .    | 7,790                | 9,000  | 1,210    | 190   | 182   |
| Over 60 . . .  | 3,160                | 3,944  | 784      | 77    | 80    |
| Total pop. . . | 41,020               | 49,428 | 8,408    | 1,000 | 1,000 |

The class which shows the greatest increase is that of persons under 20, which grew 24 per cent. in 20 years, while the rest of the population rose only 17 per cent. At present Germany has 449, France only 349, per thousand of her population under 20 years of age. The German census of 1891 compares with that of 1885 as follows:—

| Age            | Number (000 omitted) |        |         |        |
|----------------|----------------------|--------|---------|--------|
|                | Males                |        | Females |        |
|                | 1885                 | 1891   | 1885    | 1891   |
| Under 20 . . . | 10,490               | 11,099 | 10,510  | 11,076 |
| 20-40 . . .    | 6,585                | 7,037  | 6,880   | 7,272  |
| 40-60 . . .    | 4,100                | 4,299  | 4,465   | 4,701  |
| Over 60 . . .  | 1,760                | 1,796  | 2,065   | 2,148  |
| Total pop. . . | 22,935               | 24,231 | 23,920  | 25,197 |

The changes which took place in the composition of the nation as regards sex were as follows:—

| Age            | Number of Females to 1000 Males |       |
|----------------|---------------------------------|-------|
|                | 1885                            | 1891  |
| Under 20 . . . | 1,002                           | 998   |
| 20-40 . . .    | 1,045                           | 1,033 |
| 40-60 . . .    | 1,089                           | 1,093 |
| Over 60 . . .  | 1,173                           | 1,196 |
| General . . .  | 1,044                           | 1,040 |

The surplus of females under 40 years of age has diminished, but over 40 it has increased, and on the whole it is 4 per thousand less than it was in 1885.

## AUSTRIA

The census of Austria (without Hungary) in 1890 compares with that of 1880 as follows:—

| Age            | Number (000 omitted) |        |         |        |
|----------------|----------------------|--------|---------|--------|
|                | Males                |        | Females |        |
|                | 1880                 | 1890   | 1880    | 1890   |
| Under 20 . . . | 4,770                | 5,181  | 4,845   | 5,249  |
| 20-40 . . .    | 3,190                | 3,427  | 3,365   | 3,587  |
| 40-60 . . .    | 2,045                | 2,197  | 2,245   | 2,371  |
| Over 60 . . .  | 815                  | 884    | 870     | 1,000  |
| Total pop. . . | 10,820               | 11,689 | 11,325  | 12,207 |

# AGES AND SEXES

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# AGES AND SEXES

The changes as regards sex are shown as follows :—

| Age                | Number of Females to 1000 Males |       |
|--------------------|---------------------------------|-------|
|                    | 1880                            | 1890  |
| Under 20 . . . . . | 1,016                           | 1,013 |
| 20-40 . . . . .    | 1,055                           | 1,047 |
| 40-60 . . . . .    | 1,008                           | 1,079 |
| Over 60 . . . . .  | 1,067                           | 1,131 |
| General . . . . .  | 1,046                           | 1,044 |

The surplus of females declined 2 per thousand in 10 years.

## SWITZERLAND

The composition of the Swiss population was as follows :—

| Age                | 1880  |         |       | 1888  |         |       |
|--------------------|-------|---------|-------|-------|---------|-------|
|                    | Males | Females | Total | Males | Females | Total |
| Under 20 . . . . . | 281   | 285     | 566   | 284   | 291     | 575   |
| 20-40 . . . . .    | 167   | 179     | 346   | 158   | 172     | 330   |
| Over 60 . . . . .  | 42    | 46      | 88    | 44    | 51      | 95    |
| Total . . . . .    | 490   | 510     | 1,000 | 486   | 514     | 1,000 |

The surplus of females has gone up from 40 to 58 per thousand, and it is to be observed that the ratio of persons between 30 and 60 years has declined very seriously, while that of old people, over 60, shows a rise of 8 per cent.

## SPAIN

The census of 1887 compares with previous ones thus :—

| Age                | 1846  | 1860  | 1887  |
|--------------------|-------|-------|-------|
| Under 20 . . . . . | 442   | 420   | 416   |
| 20-40 . . . . .    | 322   | 343   | 292   |
| 40-60 . . . . .    | 179   | 179   | 200   |
| Over 60 . . . . .  | 57    | 58    | 92    |
| Total pop. . . . . | 1,000 | 1,000 | 1,000 |

The classes under 40 show a startling decline, which may be the result of emigration or of civil wars, and is unfortunate.

## SCANDINAVIA

The three northern kingdoms have undergone the following changes in 20 years :—

| Age                | Sweden |       | Norway |       | Denmark |       |
|--------------------|--------|-------|--------|-------|---------|-------|
|                    | 1870   | 1890  | 1870   | 1890  | 1870    | 1890  |
| Under 20 . . . . . | 431    | 423   | 434    | 450   | 422     | 437   |
| 20-40 . . . . .    | 312    | 270   | 310    | 263   | 310     | 278   |
| 40-60 . . . . .    | 179    | 193   | 166    | 174   | 184     | 182   |
| Over 60 . . . . .  | 78     | 114   | 90     | 113   | 84      | 103   |
| Total pop. . . . . | 1,000  | 1,000 | 1,000  | 1,000 | 1,000   | 1,000 |

These kingdoms show a marked decline in the ratio of persons between 20 and 60 years of age, and a corresponding increase in that of old people.

## HOLLAND

The census of 1889 compares with previous ones thus :—

| Age                | 1849  | 1869  | 1889  |
|--------------------|-------|-------|-------|
| Under 20 . . . . . | 425   | 427   | 447   |
| 20-40 . . . . .    | 308   | 309   | 277   |
| 40-60 . . . . .    | 188   | 187   | 181   |
| Over 60 . . . . .  | 79    | 77    | 92    |
| Total pop. . . . . | 1,000 | 1,000 | 1,000 |

Here, as in most countries, the ratio of old people has risen remarkably.

## AUSTRALIA

The census of 1891 gave the following result :—

| Age                | Number (000 omitted) |          |            |            |              |          |              |
|--------------------|----------------------|----------|------------|------------|--------------|----------|--------------|
|                    | N. S. Wales          | Victoria | N. Zealand | Queensland | S. Australia | Tasmania | W. Australia |
| Under 10 . . . . . | 308                  | 278      | 169        | 107        | 89           | 41       | 12           |
| 10-20 . . . . .    | 230                  | 232      | 146        | 74         | 69           | 30       | 9            |
| 20-30 . . . . .    | 218                  | 243      | 104        | 85         | 58           | 28       | 11           |
| 30-40 . . . . .    | 156                  | 146      | 76         | 58         | 43           | 19       | 8            |
| 40-50 . . . . .    | 99                   | 87       | 60         | 36         | 27           | 11       | 5            |
| 50-60 . . . . .    | 64                   | 81       | 44         | 23         | 19           | 8        | 3            |
| 60-70 . . . . .    | 32                   | 51       | 19         | 8          | 11           | 5        | 2            |
| Over 70 . . . . .  | 17                   | 22       | 9          | 3          | 4            | 5        | 1            |
| Total pop. . . . . | 1,124                | 1,140    | 627        | 394        | 320          | 147      | 50           |

## Ratio

| Age                | 1842 | 1855 | 83  | 48  | 41 | 19 | 5  |
|--------------------|------|------|-----|-----|----|----|----|
| Under 20 . . . . . | 142  | 135  | 83  | 48  | 41 | 19 | 5  |
| 20-40 . . . . .    | 98   | 102  | 47  | 37  | 27 | 13 | 5  |
| 40-60 . . . . .    | 43   | 44   | 27  | 16  | 12 | 5  | 2  |
| Over 60 . . . . .  | 12   | 19   | 8   | 3   | 4  | 2  | 1  |
| Total . . . . .    | 295  | 300  | 165 | 104 | 84 | 39 | 13 |

The distribution of sexes in the colonies was as follows :—

|                           | Males     | Females   | Females to 1000 Males |
|---------------------------|-----------|-----------|-----------------------|
| New South Wales . . . . . | 608,000   | 516,000   | 849                   |
| Victoria . . . . .        | 598,000   | 542,000   | 907                   |
| New Zealand . . . . .     | 333,000   | 294,000   | 883                   |
| Queensland . . . . .      | 224,000   | 170,000   | 760                   |
| South Australia . . . . . | 167,000   | 154,000   | 922                   |
| Tasmania . . . . .        | 78,000    | 69,000    | 885                   |
| West Australia . . . . .  | 30,000    | 20,000    | 667                   |
| Total . . . . .           | 2,038,000 | 1,765,000 | 866                   |

## BELGIUM

The census of 1890 compares with previous ones thus :—

| Age                | 1846  | 1856  | 1880  | 1890  |
|--------------------|-------|-------|-------|-------|
| Under 10 . . . . . | 225   | 206   | 235   | 224   |
| 10-20 . . . . .    | 188   | 191   | 192   | 202   |
| 20-30 . . . . .    | 166   | 165   | 154   | 165   |
| 30-40 . . . . .    | 135   | 140   | 127   | 126   |
| 40-50 . . . . .    | 118   | 116   | 107   | 103   |
| 50-60 . . . . .    | 78    | 94    | 86    | 83    |
| 60-70 . . . . .    | 55    | 55    | 59    | 60    |
| Over 70 . . . . .  | 35    | 33    | 40    | 37    |
| Total . . . . .    | 1,000 | 1,000 | 1,000 | 1,000 |

Persons between 20 and 40 stand in much lower ratio than they did 40 years ago, but this class has improved

since 1880. It is probably affected by the large number of Belgian operatives who go into France, to avoid military service.

# UNITED STATES

The census of 1890 compares with the preceding one thus :—

| Age            | Number (000 omitted) |        | Ratio |       |
|----------------|----------------------|--------|-------|-------|
|                | 1880                 | 1890   | 1880  | 1890  |
| Under 10 . . . | 13,394               | 15,209 | 267   | 243   |
| 10-20 . . . .  | 10,727               | 13,592 | 214   | 217   |
| 20-30 . . . .  | 9,168                | 11,424 | 183   | 183   |
| 30-40 . . . .  | 6,309                | 8,444  | 126   | 135   |
| 40-50 . . . .  | 4,558                | 5,918  | 91    | 94    |
| 50-60 . . . .  | 3,111                | 3,999  | 62    | 64    |
| 60-70 . . . .  | 1,830                | 2,469  | 36    | 39    |
| Over 70 . . .  | 1,059                | 1,567  | 21    | 25    |
| Total pop. .   | 50,156               | 62,622 | 1,000 | 1,000 |

The class of children under 10 shows a relative decline of 9 per cent., while all classes over 30 years of age show a notable rise.

# AGRICULTURE

The productive area in 1895 was approximately as follows :—

|                    | Millions of Acres |         |       | Acres per 100 Inhabitants |
|--------------------|-------------------|---------|-------|---------------------------|
|                    | Crops             | Pasture | Total |                           |
| Great Britain .    | 16                | 17      | 33    | 91                        |
| Ireland . . .      | 4                 | 11      | 15    | 330                       |
| France . . . .     | 67                | 23      | 90    | 230                       |
| Germany . . .      | 65                | 22      | 87    | 170                       |
| Russia . . . .     | 255               | 335     | 590   | 560                       |
| Austria . . .      | 52                | 33      | 85    | 205                       |
| Italy . . . . .    | 38                | 15      | 53    | 175                       |
| Spain & Portugal . | 36                | 29      | 65    | 290                       |
| Other States .     | 47                | 42      | 89    | 240                       |
| Europe . . . .     | 580               | 527     | 1,107 | 290                       |
| United States .    | 226               | 397     | 623   | 890                       |

As a general rule two productive acres are required for the support of each inhabitant, and where this ratio does not exist food must be imported. It appears, thus, that Great Britain, Germany, and Italy are over-populated, while Russia, Spain, and Ireland have not sufficient inhabitants. The production of food in various countries may be compared by reducing all to a common denominator, that is considering 100 gallons of wine or 3 tons of potatoes as equal to a ton of grain, and one of meat equal to 8 of grain. In 1894-96 the production, on the said basis, averaged as follows :—

|               | Tons Yearly of Food |             |             | Tons per Farming-hand |
|---------------|---------------------|-------------|-------------|-----------------------|
|               | Grain               | Sundries    | Total       |                       |
| U. Kingdom .  | 7,500,000           | 10,900,000  | 18,400,000  | 7.2                   |
| France . . .  | 18,100,000          | 22,700,000  | 40,800,000  | 5.7                   |
| Germany . .   | 18,600,000          | 23,500,000  | 42,100,000  | 5.3                   |
| Russia . . .  | 53,000,000          | 23,700,000  | 76,700,000  | 2.2                   |
| Austria . .   | 19,500,000          | 14,100,000  | 33,600,000  | 2.7                   |
| Italy . . . . | 6,700,000           | 10,600,000  | 17,300,000  | 2.2                   |
| Spain . . . . | 5,800,000           | 9,900,000   | 15,700,000  | 3.8                   |
| Denmark . .   | 2,100,000           | 1,200,000   | 3,300,000   | 8.2                   |
| Holland . .   | 1,100,000           | 1,700,000   | 2,800,000   | 6.1                   |
| Europe . . .  | 145,200,000         | 132,000,000 | 277,200,000 | 3.2                   |
| U. States . . | 89,400,000          | 41,400,000  | 130,800,000 | 14.5                  |

Considering merely the weight of food produced, it appears that one farming hand in the United States raises as much as two in the United Kingdom, three in Germany, five in Austria, or seven in Russia. There is, in fact, a prodigious waste of labour in most countries of Europe. The number of farmers and farm-labourers in Europe is just nine times that of the United States, while the weight of food raised is only double; that is to say, it takes 4½ Europeans to raise as much food as an American. The production of grain in 1892-95 averaged as follows :—

|                 | Millions of Bushels |       |         |       | Bushels per acre |
|-----------------|---------------------|-------|---------|-------|------------------|
|                 | Wheat               | Oats  | Various | Total |                  |
| U. Kingdom .    | 49                  | 167   | 85      | 301   | 34               |
| France . . . .  | 303                 | 216   | 205     | 724   | 20               |
| Germany . . .   | 122                 | 176   | 384     | 682   | 18               |
| Russia . . . .  | 322                 | 590   | 1,208   | 2,120 | 12               |
| Austria . . . . | 196                 | 170   | 414     | 780   | 19               |
| Italy . . . . . | 122                 | 18    | 93      | 233   | 11               |
| Spain & Port. . | 96                  | 13    | 153     | 262   | 11               |
| Danub. States . | 101                 | 18    | 159     | 278   | 15               |
| Other States .  | 40                  | 145   | 168     | 353   | 25               |
| Europe . . . .  | 1,351               | 1,513 | 2,869   | 5,733 | 16               |
| United States . | 467                 | 824   | 2,284   | 3,575 | 24               |
| Canada . . . .  | 48                  | 104   | 49      | 201   | 20               |
| Australia . . . | 38                  | 17    | 11      | 66    | 12               |
| Argentina . . . | 77                  | ...   | 48      | 125   | 13               |
| Total . . . .   | 1,981               | 2,458 | 5,261   | 9,700 | 18               |

If the grain crops of India, Asia Minor, &c., were added to the above (say 600 million bushels), the total would be a little over 10 milliards of bushels or 250 million tons; nearly double the quantity raised 40 years ago. This is, of course, exclusive of rice. The following table shows the approximate weight :—

|                  | Millions of Bushels yearly |         |          |
|------------------|----------------------------|---------|----------|
|                  | 1851-60                    | 1892-95 | Increase |
| Europe . . . .   | 4,150                      | 5,733   | 1,583    |
| United States .  | 1,050                      | 3,575   | 2,525    |
| Colonies . . . . | 60                         | 392     | 332      |
| Total . . . .    | 5,260                      | 9,700   | 4,440    |

Levasseur's table of wheat production in Europe shows :—

|                       | Millions of Bushels yearly |         |         |
|-----------------------|----------------------------|---------|---------|
|                       | 1831-40                    | 1876-82 | 1885-90 |
| United Kingdom . . .  | 119                        | 91      | 77      |
| France . . . . .      | 188                        | 279     | 304     |
| Germany . . . . .     | 50                         | 102     | 108     |
| Russia . . . . .      | 110                        | 276     | 268     |
| Austria . . . . .     | 64                         | 138     | 171     |
| Italy . . . . .       | 36                         | 141     | 121     |
| Spain . . . . .       | 58                         | 168     | 86      |
| Portugal . . . . .    | 4                          | 10      | 6       |
| Scandinavia . . . . . | 4                          | 8       | 10      |
| Holland . . . . .     | ...                        | 6       | 6       |
| Belgium . . . . .     | 8                          | 22      | 19      |
| Switzerland . . . . . | 1                          | 2       | 4       |
| Roumania . . . . .    | 15                         | 34      | 39      |
| Turkey, &c. . . . .   | 4                          | 61      | 81      |
| Europe . . . . .      | 661                        | 1,338   | 1,300   |

The *Bulletin des Halles* stated the wheat crop and consumption in 1894 thus :—

|                   | Million Bush. |             |                  | Million Bush. |             |
|-------------------|---------------|-------------|------------------|---------------|-------------|
|                   | Crop          | Consumption |                  | Crop          | Consumption |
| U. Kingdom . . .  | 58            | 230         | Europe . . .     | 1,360         | 1,520       |
| France . . .      | 340           | 360         | U. States . . .  | 454           | 294         |
| Germany . . .     | 117           | 150         | Canada . . .     | 33            | 27          |
| Russia . . .      | 300           | 200         | S. America . . . | 101           | 66          |
| Austria . . .     | 180           | 170         | Asia . . .       | 301           | 299         |
| Italy . . .       | 117           | 143         | Australia . . .  | 40            | 29          |
| Spain & Port. . . | 100           | 110         | Algeria . . .    | 37            | 29          |
| Various . . .     | 148           | 157         | Egypt, &c. . .   | 14            | 16          |
| Europe . . .      | 1,360         | 1,520       | The World . . .  | 2,340         | 2,280       |

The area under wheat, and the crops, have increased in 20 years as follows :—

|                        | Acres (000 omitted) |         | Million Bushels |       |
|------------------------|---------------------|---------|-----------------|-------|
|                        | 1876                | 1896    | 1876            | 1896  |
| U. Kingdom . . .       | 3,100               | 1,700   | 80              | 58    |
| France . . .           | 17,100              | 17,100  | 280             | 310   |
| Germany . . .          | 4,400               | 4,800   | 100             | 120   |
| Russia . . .           | 28,800              | 31,900  | 190             | 330   |
| Austria . . .          | 8,800               | 10,900  | 120             | 200   |
| Italy . . .            | 11,700              | 11,300  | 140             | 120   |
| Spain & Portugal . . . | 10,500              | 8,500   | 120             | 100   |
| Scandinavia . . .      | 300                 | 300     | 8               | 9     |
| Holland . . .          | 200                 | 200     | 5               | 5     |
| Belgium . . .          | 700                 | 700     | 18              | 20    |
| Switzerland . . .      | 100                 | 100     | 2               | 2     |
| Roumania, &c. . .      | 6,300               | 7,500   | 17              | 146   |
| Europe . . .           | 92,000              | 95,000  | 1,170           | 1,420 |
| United States . . .    | 27,600              | 34,600  | 290             | 430   |
| Canada . . .           | 2,200               | 2,700   | 30              | 50    |
| Australia . . .        | 1,800               | 4,500   | 24              | 30    |
| Argentina . . .        | 300                 | 5,200   | 6               | 50    |
| India . . .            | 20,000              | 21,800  | 200             | 220   |
| Various . . .          | 10,100              | 14,200  | 160             | 200   |
| The World . . .        | 154,000             | 178,000 | 1,880           | 2,400 |

The average product per acre at the two periods was as follows :—

|                          | Bushels per Acre |      |
|--------------------------|------------------|------|
|                          | 1876             | 1896 |
| United Kingdom . . .     | 26               | 33   |
| European Continent . . . | 12               | 15   |
| United States . . .      | 11               | 12½  |
| Other countries . . .    | 12               | 11   |
| The World . . .          | 12               | 13½  |

The average wheat crop of the world for 14 years (1880-93) was in millions of bushels as follows :— Europe, 1270; United States, 440; India, 260; other countries, 210; total, 2180. See report of United States Agricultural Department.

Wheat constitutes one-fourth of the grain crop of Europe, one-fifth of that of the world. Taking the average yield of all grain per acre, the heaviest ratio falls to Ireland.

The various countries show as follows :—

| Bushels of Grain per Acre |    |                 |    |
|---------------------------|----|-----------------|----|
| Ireland . . .             | 38 | Sweden . . .    | 27 |
| Germany . . .             | 18 | Germany . . .   | 18 |
| Great Britain . . .       | 33 | U. States . . . | 24 |
| Roumania . . .            | 15 | Belgium . . .   | 31 |
| Canada . . .              | 20 | Russia . . .    | 12 |
| Holland . . .             | 31 | France . . .    | 20 |
| Italy . . .               | 11 | Denmark . . .   | 28 |
| Austria . . .             | 19 | Spain . . .     | 11 |

The percentage of area under grain in the various countries has a wide range, being influenced by climate, soil, population, and other circumstances, viz :—

| Acres under Grain in 100 of Area |    |                 |    |
|----------------------------------|----|-----------------|----|
| Ireland . . .                    | 7  | Spain . . .     | 17 |
| Germany . . .                    | 29 | U. States . . . | 8  |
| Holland . . .                    | 18 | Italy . . .     | 29 |
| Great Britain . . .              | 13 | France . . .    | 28 |
| Denmark . . .                    | 32 | Russia . . .    | 13 |
| Austria . . .                    | 28 | Belgium . . .   | 33 |

The production of grain compared with population is as follows :—

| Bushels per Inhabitant |    |                 |    |
|------------------------|----|-----------------|----|
| Great Britain . . .    | 7  | Belgium . . .   | 12 |
| France . . .           | 19 | Italy . . .     | 7  |
| Germany . . .          | 13 | Russia . . .    | 20 |
| Holland . . .          | 9  | Spain . . .     | 13 |
| Denmark . . .          | 42 | Ireland . . .   | 12 |
| Austria . . .          | 19 | U. States . . . | 54 |

The area devoted to pasture in various parts of the world is :—

|                     | Millions of Acres | Cattle,* Millions | Acres per Head |
|---------------------|-------------------|-------------------|----------------|
| Europe . . .        | 527               | 172               | 3.1            |
| United States . . . | 397               | 76                | 5.2            |
| Australia . . .     | 802               | 35                | 23.0           |
| Argentina . . .     | 238               | 41                | 5.8            |
| Total . . .         | 1,701             | 324               | 5.2            |

One hundred acres of pasture land will carry about 200 sheep or 33 horned cattle. An acre of artificial grasses or turnips will maintain 6 sheep or one head of cattle. In Australia, however, the pasture is usually so poor that 100 acres will carry only 100 sheep or 16 big cattle; in Argentina, on the other hand, the average is 300 sheep or 50 cattle per 100 acres.

The annual production of meat exceeds 15 million tons, and of this amount Europe stands for more than 60 per cent., viz :—

|                    | Tons      |           |           |            |
|--------------------|-----------|-----------|-----------|------------|
|                    | Beef      | Mutton    | Pork      | Total      |
| U. Kingdom . . .   | 590,000   | 320,000   | 190,000   | 1,100,000  |
| France . . .       | 700,000   | 210,000   | 290,000   | 1,200,000  |
| Germany . . .      | 880,000   | 150,000   | 490,000   | 1,520,000  |
| Russia . . .       | 1,380,000 | 480,000   | 430,000   | 2,290,000  |
| Austria . . .      | 710,000   | 140,000   | 360,000   | 1,210,000  |
| Other States . . . | 1,045,000 | 608,000   | 407,000   | 2,060,000  |
| Europe . . .       | 5,305,000 | 1,908,000 | 2,167,000 | 9,380,000  |
| U. States . . .    | 2,410,000 | 370,000   | 2,050,000 | 4,830,000  |
| Colonies . . .     | 500,000   | 295,000   | 85,000    | 880,000    |
| Total . . .        | 8,215,000 | 2,573,000 | 4,302,000 | 15,090,000 |

The live stock of Europe in 1896 compares with Moreau's tables for 1838 as follows :—

| Year       | Millions |        |       |      |
|------------|----------|--------|-------|------|
|            | Horses   | Cattle | Sheep | Pigs |
| 1838 . . . | 26       | 71     | 185   | 43   |
| 1896 . . . | 39       | 105    | 176   | 53   |

\* The unit is a horse or a cow, and sheep are counted as six for one.

The live stock of the United States showed as follows :—

| Year           | Millions |        |       |      |
|----------------|----------|--------|-------|------|
|                | Horses   | Cattle | Sheep | Pigs |
| 1840 . . . . . | 4        | 15     | 19    | 26   |
| 1870 . . . . . | 8        | 24     | 29    | 25   |
| 1897 . . . . . | 17       | 47     | 37    | 41   |

The value of all farm products in the years 1891-95 averaged as follows :—

|                      | Millions £ |         |       | Shillings per Acre |
|----------------------|------------|---------|-------|--------------------|
|                      | Tillage    | Pasture | Total |                    |
| United Kingdom . .   | 126        | 104     | 230   | 96                 |
| France . . . . .     | 284        | 132     | 416   | 92                 |
| Germany . . . . .    | 262        | 155     | 417   | 96                 |
| Russia . . . . .     | 370        | 170     | 540   | 18                 |
| Austria . . . . .    | 215        | 109     | 324   | 76                 |
| Other States . . . . | 417        | 226     | 643   | 61                 |
| Europe . . . . .     | 1,674      | 896     | 2,570 | 47                 |
| United States . . .  | 486        | 327     | 813   | 45                 |

The value of farm products at four different periods in the nineteenth century is shown approximately in the following table :—

|                     | Before 1840 |            | 1850-63 |            | 1874-84 |            | 1891-1896  |
|---------------------|-------------|------------|---------|------------|---------|------------|------------|
|                     | Year        | Millions £ | Year    | Millions £ | Year    | Millions £ | Millions £ |
| Great Britain . . . | 1836        | 158        | 1855    | 221        | 1878    | 196        | 175        |
| Ireland . . . . .   | 1836        | 69         | 1855    | 72         | 1878    | 65         | 55         |
| United Kingdom . .  | 1836        | 227        | 1855    | 293        | 1878    | 261        | 230        |
| France . . . . .    | 1825        | 253        | 1862    | 440        | 1882    | 504        | 416        |
| Germany . . . . .   | 1830        | 120        | 1856    | 231        | 1880    | 466        | 417        |
| Russia . . . . .    | 1834        | 248        | 1850    | 295        | 1882    | 426        | 540        |
| Austria . . . . .   | 1838        | 205        | 1863    | 281        | 1880    | 340        | 324        |
| Italy . . . . .     | 1838        | 114        | 1860    | 155        | 1874    | 180        | 204        |
| Spain . . . . .     | 1826        | 77         | 1852    | 112        | 1880    | 140        | 135        |
| Portugal . . . . .  | 1826        | 13         | 1852    | 20         | 1880    | 31         | 26         |
| Sweden and Nor. .   | 1837        | 20         | 1857    | 30         | 1882    | 49         | 46         |
| Denmark . . . . .   | 1827        | 7          | 1852    | 22         | 1882    | 35         | 35         |
| Holland . . . . .   | 1830        | 21         | 1852    | 27         | 1882    | 39         | 36         |
| Belgium . . . . .   | 1830        | 26         | 1852    | 38         | 1884    | 55         | 44         |
| Switzerland . . . . | 1830        | 12         | 1860    | 16         | 1884    | 22         | 20         |
| Roumania, &c. . .   | 1830        | 27         | 1860    | 50         | 1884    | 108        | 97         |
| Europe . . . . .    |             | 1,370      |         | 2,010      |         | 2,656      | 2,570      |
| United States . . . | 1830        | 140        | 1860    | 430        | 1880    | 703        | 772        |
| Canada . . . . .    | 1836        | 9          | 1860    | 21         | 1880    | 46         | 57         |
| Australia . . . . . | 1836        | 3          | 1860    | 20         | 1880    | 56         | 70         |
| Argentina . . . . . | 1836        | 5          | 1860    | 15         | 1880    | 31         | 45         |
| South Africa . . .  | 1836        | 1          | 1860    | 2          | 1880    | 7          | 8          |
| Uruguay . . . . .   | 1836        | 2          | 1860    | 5          | 1880    | 7          | 8          |
| Total . . . . .     |             | 1,530      |         | 2,503      |         | 3,506      | 3,530      |

In Europe there was a steady rise of agricultural values from 1820 till 1874-5, but a decline set in about 1878, since which year there has been a fall of about 200 millions, or 8 per cent. On the other hand the United States have had a rise of 10 per cent. since 1880.

The amount of agricultural capital in 1891-96 was approximately as follows :—

|                     | Value, Millions £ Sterling |        |          |        |
|---------------------|----------------------------|--------|----------|--------|
|                     | Land                       | Cattle | Sundries | Total  |
| Great Britain . . . | 1,390                      | 143    | 153      | 1,686  |
| Ireland . . . . .   | 296                        | 59     | 36       | 391    |
| France . . . . .    | 2,580                      | 232    | 281      | 3,093  |
| Germany . . . . .   | 1,977                      | 303    | 228      | 2,508  |
| Russia . . . . .    | 2,113                      | 350    | 247      | 2,710  |
| Austria . . . . .   | 1,473                      | 161    | 163      | 1,797  |
| Italy . . . . .     | 1,180                      | 92     | 127      | 1,399  |
| Spain . . . . .     | 1,056                      | 46     | 110      | 1,212  |
| Portugal . . . . .  | 138                        | 11     | 15       | 164    |
| Sweden and Norway   | 212                        | 41     | 25       | 278    |
| Denmark . . . . .   | 205                        | 26     | 23       | 254    |
| Holland . . . . .   | 240                        | 28     | 27       | 295    |
| Belgium . . . . .   | 300                        | 22     | 32       | 354    |
| Switzerland . . . . | 138                        | 18     | 16       | 172    |
| Danubian States . . | 420                        | 42     | 46       | 508    |
| Greece . . . . .    | 94                         | 5      | 10       | 109    |
| Europe . . . . .    | 13,812                     | 1,579  | 1,539    | 16,930 |
| United States . . . | 3,314                      | 451    | 377      | 4,142  |
| Canada . . . . .    | 245                        | 43     | 23       | 311    |
| Australia . . . . . | 236                        | 120    | 36       | 392    |
| Argentina . . . . . | 129                        | 51     | 18       | 198    |
| Total . . . . .     | 17,736                     | 2,245  | 1,992    | 21,973 |

Agricultural capital almost reaches 22 milliards sterling, and as the aggregate wealth of nations is a little over 70 milliards, the former may be said to represent one-third of the total. If we would compare the gross value of farm products yearly with the amount of capital, the result will be as follows :—

| Percentage on Capital |      |                   |      |                     |      |
|-----------------------|------|-------------------|------|---------------------|------|
| U. Kingdom . . . .    | 11.1 | Italy . . . . .   | 14.5 | Switzerland . . . . | 11.6 |
| France . . . . .      | 13.4 | Spain . . . . .   | 11.2 | U. States . . . . . | 19.6 |
| Germany . . . . .     | 16.6 | Denmark . . . .   | 13.8 | Canada . . . . .    | 18.4 |
| Russia . . . . .      | 19.9 | Holland . . . . . | 12.4 | Australia . . . . . | 17.1 |
| Austria . . . . .     | 17.7 | Belgium . . . . . | 12.5 | Argentina . . . . . | 23.2 |

Agricultural capital divided among population gives the ratios per inhabitant thus :—

| £ per Head         |    |                   |     |                     |    |
|--------------------|----|-------------------|-----|---------------------|----|
| U. Kingdom . . . . | 53 | Italy . . . . .   | 45  | Belgium . . . . .   | 50 |
| France . . . . .   | 80 | Spain . . . . .   | 68  | U. States . . . . . | 58 |
| Germany . . . . .  | 48 | Portugal . . . .  | 35  | Canada . . . . .    | 60 |
| Russia . . . . .   | 26 | Denmark . . . .   | 115 | Australia . . . . . | 92 |
| Austria . . . . .  | 41 | Holland . . . . . | 61  | Argentina . . . . . | 50 |

The relative importance of agriculture in the several countries is shown by the proportions of wealth, earnings, and population corresponding to this pursuit, viz. :—

|                     | Percentage of Agricultural, in total |        |          |
|---------------------|--------------------------------------|--------|----------|
|                     | Population                           | Wealth | Earnings |
| Great Britain . . . | 10                                   | 15     | 8        |
| Ireland . . . . .   | 45                                   | 60     | 35       |
| France . . . . .    | 42                                   | 32     | 21       |
| Germany . . . . .   | 39                                   | 31     | 20       |
| Russia . . . . .    | 70                                   | 43     | 32       |
| Austria . . . . .   | 62                                   | 39     | 27       |
| Italy . . . . .     | 52                                   | 45     | 28       |
| Holland . . . . .   | 22                                   | 33     | 18       |
| Belgium . . . . .   | 25                                   | 36     | 14       |
| United States . . . | 35                                   | 25     | 16       |
| Canada . . . . .    | 43                                   | 31     | 18       |
| Australia . . . . . | 25                                   | 36     | 20       |
| Average . . . . .   | 40                                   | 31     | 20       |

Viewed simply as a money-making occupation, agriculture is by no means so profitable as other pursuits, for while it represents broadly about 40 per cent. of the population and 31 per cent. of the wealth, it stands for only 20 per cent. of the earnings of nations. Agricultural interests stand highest in Russia and Ireland, lowest in Great Britain and Holland.

## UNITED KINGDOM

The returns of 1897 show the productive area to be nearly 48 million acres or 62 per cent. of the total, viz. :—

|                 | Acres (ooo omitted) |          |         |          |
|-----------------|---------------------|----------|---------|----------|
|                 | England             | Scotland | Ireland | U. King. |
| Wheat . . .     | 1,840               | 50       | 50      | 1,940    |
| Oats . . .      | 2,090               | 970      | 1,170   | 4,230    |
| Barley, &c. . . | 2,280               | 250      | 190     | 2,720    |
| All grain . . . | 6,210               | 1,270    | 1,410   | 8,830    |
| Potatoes . . .  | 390                 | 120      | 680     | 1,190    |
| Turnips . . .   | 1,360               | 480      | 310     | 2,150    |
| Sundries . . .  | 4,650               | 1,630    | 1,440   | 7,720    |
| All crops . . . | 12,610              | 3,500    | 3,840   | 19,950   |
| Pasture . . .   | 15,150              | 1,390    | 11,380  | 27,920   |
| Total . . .     | 27,760              | 4,890    | 15,220  | 47,870   |

The crops of the United Kingdom in the last 3 years were :—

|                       | 1895       | 1896       | 1897       |
|-----------------------|------------|------------|------------|
| Wheat, tons . . .     | 960,000    | 1,460,000  | 1,410,000  |
| Oats, " . . .         | 4,360,000  | 4,070,000  | 4,090,000  |
| Barley, &c., " . . .  | 2,120,000  | 2,220,000  | 2,110,000  |
| All grain, " . . .    | 7,440,000  | 7,750,000  | 7,610,000  |
| Potatoes, " . . .     | 7,060,000  | 6,250,000  | 4,110,000  |
| Turnips, &c., " . . . | 35,600,000 | 33,000,000 | 37,200,000 |
| Hay, " . . .          | 12,200,000 | 11,400,000 | 14,100,000 |
| Total . . .           | 62,300,000 | 59,300,000 | 63,020,000 |

The crops of 1897 were 6 per cent. less in weight than those of 1894. The average yield per acre for the last three years was as follows :—

|                     | Great Britain | Ireland | United Kingdom |
|---------------------|---------------|---------|----------------|
| Wheat, bushel . . . | 30            | 30      | 30             |
| Oats, " . . .       | 37            | 41      | 38             |
| Barley, " . . .     | 33            | 37      | 34             |
| Potatoes, " . . .   | 240           | 146     | 187            |
| Turnips, cwt. . .   | 262           | 288     | 266            |
| Hay, " . . .        | 24            | 43      | 28             |

Irish crops are, as a rule, much heavier than those of Great Britain, the only exception being potatoes, which in Ireland rarely give 4 tons per acre, whereas in Great Britain the average is 6 tons. The most remarkable difference is as regards hay, the yield per acre in Ireland being always double what it is in Great Britain.

The crops of the last 10 years gave the following yield per acre for the United Kingdom.

| Year       | Bushels per Acre |        |      |           |
|------------|------------------|--------|------|-----------|
|            | Wheat            | Barley | Oats | All Grain |
| 1887 . . . | 32               | 31     | 34   | 33        |
| 1888 . . . | 28               | 33     | 38   | 34        |
| 1889 . . . | 30               | 32     | 40   | 35        |
| 1890 . . . | 31               | 35     | 42   | 37        |
| 1891 . . . | 31               | 35     | 40   | 36        |
| 1892 . . . | 26               | 35     | 40   | 35        |
| 1893 . . . | 26               | 29     | 38   | 32        |
| 1894 . . . | 31               | 35     | 42   | 38        |
| 1895 . . . | 26               | 32     | 39   | 34        |
| 1896 . . . | 34               | 34     | 38   | 36        |
| 1897 . . . | 30               | 33     | 39   | 35        |

A comparison of the value of farm products at present with M'Culloch's estimates in 1846 and Caird's in 1878 results as follows :—

|                     | 1846<br>£   | 1878<br>£   | 1896<br>£   |
|---------------------|-------------|-------------|-------------|
| Grain . . .         | 77,000,000  | 87,000,000  | 38,200,000  |
| Hay and straw . . . | 19,000,000  | 22,000,000  | 44,000,000  |
| Potatoes, &c. . .   | 41,600,000  | 16,700,000  | 43,800,000  |
| Meat . . .          | 46,500,000  | 87,000,000  | 55,200,000  |
| Dairy . . .         | 19,400,000  | 39,500,000  | 33,000,000  |
| Sundries . . .      | 14,500,000  | 8,500,000   | 15,800,000  |
| Total . . .         | 218,000,000 | 260,700,000 | 230,000,000 |

M'Culloch's valuation for 1846 was made up for the three kingdoms as follows :—

|                     | Millions £ Sterling |          |         |          |
|---------------------|---------------------|----------|---------|----------|
|                     | England             | Scotland | Ireland | U. King. |
| Grain . . .         | 51.8                | 9.7      | 15.5    | 77.0     |
| Hay and straw . . . | 13.0                | 2.4      | 3.6     | 19.0     |
| Green crops . . .   | 28.7                | 5.3      | 7.6     | 41.6     |
| Meat . . .          | 26.0                | 6.3      | 14.2    | 46.5     |
| Dairy . . .         | 13.4                | 2.4      | 3.6     | 19.4     |
| Sundries . . .      | 9.1                 | 1.9      | 3.5     | 14.5     |
| Total . . .         | 142.0               | 28.0     | 48.0    | 218.0    |

The value of all farm products is now about the same as 60 years ago, viz. :—

| Year       | Millions £ Sterling |          |         |          |
|------------|---------------------|----------|---------|----------|
|            | England             | Scotland | Ireland | U. King. |
| 1836 . . . | 136.1               | 23.2     | 60.3    | 226.6    |
| 1846 . . . | 142.0               | 28.0     | 48.0    | 218.0    |
| 1895 . . . | 147.0               | 28.0     | 55.0    | 230.0    |

The estimate for 1836 was made by Moreau, that for 1846 by M'Culloch.

The mean value in the years 1893-95 was as follows :—

|                | Millions £ Sterling |          |         |          |
|----------------|---------------------|----------|---------|----------|
|                | England             | Scotland | Ireland | U. King. |
| Grain . . .    | 26.6                | 5.2      | 6.4     | 38.2     |
| Straw . . .    | 9.1                 | 1.5      | 1.6     | 12.2     |
| Potatoes . . . | 8.8                 | 2.4      | 7.0     | 18.2     |
| Hay . . .      | 20.3                | 2.1      | 9.4     | 31.8     |
| Sundries . . . | 18.2                | 3.8      | 3.6     | 25.6     |
| Tillage . . .  | 83.0                | 15.0     | 28.0    | 126.0    |
| Meat . . .     | 33.2                | 7.4      | 14.6    | 55.2     |
| Dairy . . .    | 21.0                | 3.6      | 8.4     | 33.0     |
| Sundries . . . | 9.8                 | 2.0      | 4.0     | 15.8     |
| Total . . .    | 147.0               | 28.0     | 55.0    | 230.0    |

The value of products compared with the number of hands, according to last census, shows as follows :—

|                      | Hands     | £           | £ per Hand |
|----------------------|-----------|-------------|------------|
| England . . .        | 1,337,000 | 147,000,000 | 110        |
| Scotland . . .       | 249,000   | 28,000,000  | 112        |
| Ireland . . .        | 941,000   | 55,000,000  | 58         |
| United Kingdom . . . | 2,527,000 | 230,000,000 | 91         |

There seems to be a great waste of labour in Ireland, since it takes two hands in that island to produce as much value as one in Great Britain. Moreover the value of yield per acre of productive area is comparatively low in Ireland, viz. :—

|                    | Acres      | £           | Shillings per Acre |
|--------------------|------------|-------------|--------------------|
| England . . . . .  | 27,800,000 | 147,000,000 | 106                |
| Scotland . . . . . | 4,900,000  | 28,000,000  | 114                |
| Ireland . . . . .  | 15,200,000 | 55,000,000  | 72                 |
| United Kingdom . . | 47,900,000 | 230,000,000 | 96                 |

Although the weight of crops per acre is heavier in Ireland, the gross value of product is less than in Great Britain, because the great markets of consumption are in the latter island. The gross product per acre of productive area in the United Kingdom is 4 shillings more than in France. Agricultural capital in the United Kingdom has declined about 450 millions sterling in 15 years, say 30 millions per annum, viz. :—

| Year           | Millions £ |        |          |       |
|----------------|------------|--------|----------|-------|
|                | Land       | Cattle | Sundries | Total |
| 1880 . . . . . | 2,086      | 209    | 230      | 2,525 |
| 1895 . . . . . | 1,686      | 202    | 189      | 2,077 |

Agricultural capital in the three kingdoms stands approximately as follows :—

|                    | Millions £ |        |          |       |
|--------------------|------------|--------|----------|-------|
|                    | Land       | Cattle | Sundries | Total |
| England . . . . .  | 1,202      | 118    | 132      | 1,452 |
| Scotland . . . . . | 188        | 25     | 21       | 234   |
| Ireland . . . . .  | 296        | 59     | 36       | 391   |
| United Kingdom . . | 1,686      | 202    | 189      | 2,077 |

The value of agricultural product after deducting rent and taxes in the three kingdoms is as follows :—

|                   | England, £  | Scotland, £ | Ireland, £ |
|-------------------|-------------|-------------|------------|
| Product . . . . . | 147,000,000 | 28,000,000  | 55,000,000 |
| Rent . . . . .    | 40,100,000  | 6,300,000   | 10,800,000 |
| Taxes . . . . .   | 16,200,000  | 1,900,000   | 2,700,000  |
| Balance . . . . . | 90,700,000  | 19,800,000  | 41,500,000 |

The balance gives the following averages as to productive area and hands :—

|                    | Shillings per Acre | £ per Hand |
|--------------------|--------------------|------------|
| England . . . . .  | 65                 | 68         |
| Scotland . . . . . | 81                 | 80         |
| Ireland . . . . .  | 54                 | 44         |
| United Kingdom . . | 64                 | 60         |

Pastoral industry has increased as follows :—

|                  | Great Britain |            | Ireland   |            |
|------------------|---------------|------------|-----------|------------|
|                  | 1855          | 1897       | 1855      | 1897       |
| Horses . . . . . | 1,490,000     | 1,540,000  | 550,000   | 530,000    |
| Cattle . . . . . | 4,390,000     | 6,540,000  | 3,560,000 | 4,460,000  |
| Sheep . . . . .  | 24,370,000    | 26,410,000 | 3,600,000 | 4,160,000  |
| Pigs . . . . .   | 2,510,000     | 2,350,000  | 1,180,000 | 1,330,000  |
| Total . . . . .  | 32,760,000    | 36,840,000 | 8,890,000 | 10,480,000 |

Thus the total live stock of the United Kingdom has risen from 41½ to 47 millions, an increase of 14 per cent. in 41 years, whereas population increased 40 per cent. in the same interval. Agricultural matters are also treated under the items of *Food Supply* and *Land*.

FRANCE

There has been little variation of agricultural area in the last 16 years, except as regards vineyards, which have suffered severely from phylloxera :—

|                      | 1880       | 1896       |
|----------------------|------------|------------|
| Wheat, acres . . . . | 16,990,000 | 16,970,000 |
| Oats " . . . . .     | 8,580,000  | 9,670,000  |
| Rye, &c. " . . . .   | 11,440,000 | 9,320,000  |
| All grain " . . . .  | 37,010,000 | 35,960,000 |
| Vineyards " . . . .  | 5,450,000  | 4,360,000  |
| Beetroot " . . . .   | 1,110,000  | 1,630,000  |
| Potatoes " . . . .   | 3,220,000  | 3,810,000  |

While the area under grain is not much larger than it was 40 years ago, the system of agriculture has so much improved that the weight of crop is one-fourth heavier, viz. :—

|                     | Crop, Tons |            | Bushels per Acre |      |
|---------------------|------------|------------|------------------|------|
|                     | 1855       | 1895       | 1855             | 1896 |
| Wheat . . . . .     | 5,300,000  | 8,200,000  | 13.0             | 19.4 |
| Oats, &c. . . . .   | 9,800,000  | 10,800,000 | 19.6             | 22.8 |
| All grain . . . . . | 15,100,000 | 19,000,000 | 16.8             | 21.1 |

The area and crops of the last five years (1892-96) gave the following averages :—

|                     | Acres      | Bushels     | Bush. per Ac. |
|---------------------|------------|-------------|---------------|
| Wheat . . . . .     | 17,200,000 | 313,000,000 | 18.2          |
| Oats . . . . .      | 9,600,000  | 234,000,000 | 24.4          |
| Rye . . . . .       | 3,800,000  | 67,000,000  | 17.6          |
| Barley . . . . .    | 2,200,000  | 44,000,000  | 20.0          |
| Various . . . . .   | 3,600,000  | 66,000,000  | 18.0          |
| All grain . . . . . | 36,400,000 | 723,000,000 | 19.9          |

The devastation caused by phylloxera resulted in the loss of 1,900,000 acres of vineyard :—

| Year              | Acres, Vines | Million Galls. Wine | Gallons per Acre |
|-------------------|--------------|---------------------|------------------|
| 1871 . . . . .    | 6,040,000    | 1,300               | 215              |
| 1891 . . . . .    | 4,410,000    | 660                 | 150              |
| 1895 . . . . .    | 4,150,000    | 590                 | 142              |
| 1891-95 . . . . . | 4,370,000    | 770                 | 176              |

The average vintage during 40 years before the phylloxera was 140 gallons per acre, so that it may be said the present area of vineyards gives a fair crop (176 gallons per acre). Most of the destroyed vineyards have been laid down under potatoes or beetroot, the area of which has increased by one-fourth, viz. :—

|                    | 1880      | 1895      | Increase, Ac. |
|--------------------|-----------|-----------|---------------|
| Potatoes . . . . . | 3,220,000 | 3,810,000 | 590,000       |
| Beetroot . . . . . | 1,110,000 | 1,630,000 | 520,000       |
|                    | 4,330,000 | 5,440,000 | 1,110,000     |

Pastoral industry is stationary, as official returns show :—

| Year         | Cattle     | Sheep      | Pigs      |
|--------------|------------|------------|-----------|
| 1885 . . . . | 13,100,000 | 24,100,000 | 5,880,000 |
| 1890 . . . . | 13,560,000 | 23,200,000 | 6,020,000 |
| 1896 . . . . | 13,330,000 | 21,200,000 | 6,400,000 |

The value of agricultural products has fallen heavily in recent years, notwithstanding protective tariffs and other futile measures, viz. :—

|                     | Millions £ Sterling |      | 1895 |
|---------------------|---------------------|------|------|
|                     | 1886                | 1890 |      |
| Grain . . . .       | 129                 | 120  | 114  |
| Wine . . . .        | 49                  | 45   | 33   |
| Other crops . . . . | 104                 | 106  | 120  |
| Meat . . . .        | 60                  | 65   | 56   |
| Dairy . . . .       | 59                  | 46   | 46   |
| Sundries . . . .    | 59                  | 56   | 47   |
| Total . . . .       | 460                 | 438  | 416  |

De Foville would include dung among agricultural products, and estimates the annual quantity at 100 million tons, worth about 40 millions sterling; it is, however, excluded by all statisticians. The loss of agricultural capital since 1880 has been even greater than in the United Kingdom, averaging 32 millions sterling per annum, viz. :—

| Year         | Millions £ |        |          |       |
|--------------|------------|--------|----------|-------|
|              | Land       | Cattle | Sundries | Total |
| 1880 . . . . | 2,986      | 231    | 357      | 3,574 |
| 1895 . . . . | 2,580      | 232    | 281      | 3,093 |

Although agriculture occupies 44 per cent. of the population, France has to import both grain and meat. See *Food Supply*.

#### GERMANY

The cultivated area has almost doubled in 40 years, viz. :—

| Year         | Cultivated | Uncultivated | Total, Acres |
|--------------|------------|--------------|--------------|
| 1856 . . . . | 35,330,000 | 93,710,000   | 129,040,000  |
| 1896 . . . . | 65,200,000 | 68,300,000   | 133,500,000  |

The progress of agriculture in the last 15 years is shown thus :—

|                   | Acres (000 omitted) |         | Crop, Tons (000 omitted) |         |
|-------------------|---------------------|---------|--------------------------|---------|
|                   | 1880-82             | 1894-96 | 1880-82                  | 1894-96 |
| Wheat . . . .     | 4,490               | 4,910   | 2,280                    | 2,900   |
| Rye . . . .       | 14,620              | 14,800  | 5,500                    | 6,950   |
| Oats, &c. . . .   | 14,830              | 18,240  | 7,020                    | 8,750   |
| All grain . . . . | 33,940              | 37,950  | 14,800                   | 18,600  |
| Potatoes . . . .  | 6,830               | 7,500   | 21,100                   | 31,000  |
| Beetroot . . . .  | 1,250               | 2,120   | 12,600                   | 20,300  |
| Hay . . . .       | 14,600              | 14,600  | 18,200                   | 17,200  |
| Various . . . .   | 1,280               | 2,980   | 3,100                    | 9,500   |
| Total . . . .     | 57,900              | 65,150  | 69,800                   | 96,600  |

The area under crops has risen 12 per cent. since 1882. The average weight of crop per acre (excluding hay) was 31 cwt. (1.55 ton) in the last 3 years, as compared with 24 cwt. in 1880-82; that is to say, an improvement of 30 per cent. Nevertheless agriculture is backward: only 48 per cent. of the empire is under cultivation, although as many hands are employed as in the United States. The production of food is equivalent to 5 tons for each farming-hand, against 15 tons in the United States. Germany has to subsist on imported grain for two months every year. Notwithstanding the density of population, live stock (excepting sheep) is increasing in numbers :—

| Year         | Horses    | Cattle     | Sheep      | Pigs       |
|--------------|-----------|------------|------------|------------|
| 1873 . . . . | 3,350,000 | 15,780,000 | 25,200,000 | 7,120,000  |
| 1893 . . . . | 3,840,000 | 17,560,000 | 16,700,000 | 12,170,000 |

The value of farm products has almost doubled since the valuation by Block and Viebahn in 1856, and now reaches 417 millions sterling, viz. :—

|                  | Millions £* |         |              |         |
|------------------|-------------|---------|--------------|---------|
|                  | Prussia     | Bavaria | Other States | Germany |
| Grain . . . .    | 65.0        | 12.4    | 31.8         | 109.2   |
| Potatoes . . . . | 41.8        | 8.6     | 13.2         | 63.6    |
| Hay . . . .      | 20.4        | 3.5     | 4.1          | 28.0    |
| Roots, &c. . . . | 38.0        | 8.3     | 14.9         | 61.2    |
| Meat . . . .     | 37.8        | 9.4     | 15.8         | 63.0    |
| Dairy . . . .    | 35.9        | 8.9     | 15.2         | 60.0    |
| Sundries . . . . | 19.1        | 4.9     | 8.0          | 32.0    |
| Total . . . .    | 258.0       | 56.0    | 103.0        | 417.0   |

Prussia is less productive than some of the other German states, and stands for only 60 per cent. of the value of farm products, while she has 65 per cent. of the productive area of the empire. The agricultural capital of Germany is nearly 600 millions sterling less than that of France, and is made up thus :—

|                  | Millions £ |         |              |         |
|------------------|------------|---------|--------------|---------|
|                  | Prussia    | Bavaria | Other States | Germany |
| Land . . . .     | 1,252      | 264     | 461          | 1,977   |
| Cattle . . . .   | 187        | 46      | 70           | 303     |
| Sundries . . . . | 144        | 31      | 53           | 228     |
| Total . . . .    | 1,583      | 341     | 584          | 2,508   |

Dividing the amount among the number of farms, we find a ratio of £840 to each farm in Germany, as compared with £880 in France, £3200 in England, and £760 in Ireland. The agricultural capital and products of Germany, France, and the United Kingdom may be compared thus :—

|                        | Millions £ Sterling |         | £ per Inhabitant |         |
|------------------------|---------------------|---------|------------------|---------|
|                        | Capital             | Product | Capital          | Product |
| Germany . . . .        | 2,508               | 417     | 48               | 8       |
| France . . . .         | 3,093               | 416     | 80               | 11      |
| United Kingdom . . . . | 2,077               | 230     | 53               | 6       |

The quota of agricultural product to each farming hand is only £44 in Germany, against £58 in France and £91 in the United Kingdom.

\* The table is read thus: 65.0 means £65,000,000, and 12.4 means £12,400,000.



## RUSSIA

Official returns for 1892 show that the emancipation of the serfs has caused the farming area to be almost doubled in twenty years, viz. :—

|                      | Millions of Acres |       |
|----------------------|-------------------|-------|
|                      | 1872              | 1892  |
| Farming area . . . . | 305               | 589   |
| Forests, &c. . . . . | 939               | 752   |
| Total . . . . .      | 1,244             | 1,341 |

In the above table Poland is included, as also in the following statement of grain. The averages for 1893-1895 were :—

|                   | Millions of Bushels |        |             |
|-------------------|---------------------|--------|-------------|
|                   | Crop                | Export | Consumption |
| Wheat . . . . .   | 330                 | 135    | 195         |
| Rye . . . . .     | 780                 | 44     | 736         |
| Oats . . . . .    | 650                 | 46     | 594         |
| Various . . . . . | 450                 | 125    | 335         |
| Total . . . . .   | 2,210               | 350    | 1,860       |

The value of grain exported in the said three years averaged 34 millions sterling. The crops of Russia proper and Poland averaged separately as follows :—

|                     | Millions of Bushels |        |       |
|---------------------|---------------------|--------|-------|
|                     | Russia              | Poland | Total |
| Wheat . . . . .     | 314                 | 16     | 330   |
| Rye . . . . .       | 728                 | 52     | 780   |
| Oats . . . . .      | 605                 | 45     | 650   |
| Barley, &c. . . . . | 427                 | 23     | 450   |
| Total . . . . .     | 2,074               | 136    | 2,210 |

Later years show a great decline in Russian crops. The following table refers to Russia proper, exclusive of Poland :—

|                     | Millions of Bushels |       |       |         |
|---------------------|---------------------|-------|-------|---------|
|                     | 1895                | 1896  | 1897  | Average |
| Wheat . . . . .     | 232                 | 218   | 180   | 210     |
| Rye . . . . .       | 658                 | 622   | 506   | 595     |
| Oats . . . . .      | 545                 | 506   | 405   | 485     |
| Barley, &c. . . . . | 250                 | 262   | 233   | 248     |
| Total . . . . .     | 1,685               | 1,608 | 1,324 | 1,541   |

Consumption is accounted for in this way : 360 million bushels kept for seed, 440 million given to cattle, and 900 million used for human food, an average of 8½ bushels per inhabitant : this last includes not only what is used for bread but also what is made into Vodka brandy and beer. The production of wine has increased so rapidly that the vintage reaches 55 million gallons, being 120 gallons to the acre. The production of meat is approximately 2,300,000 tons yearly, including 250,000 tons in Poland. The census of 1888 compared with that of 1877 showed a decline of 10 per cent. in cattle and 15 per cent. both in sheep and in pigs, which was perhaps owing to the rapid increase of population and conse-

quently greater consumption of meat. The census of 1888 showed as follows :—

|                  | Russia     | Poland    | Total       |
|------------------|------------|-----------|-------------|
| Horses . . . . . | 19,700,000 | 1,200,000 | 20,900,000  |
| Cattle . . . . . | 24,600,000 | 3,000,000 | 27,600,000  |
| Sheep . . . . .  | 44,500,000 | 3,700,000 | 48,200,000  |
| Pigs . . . . .   | 9,200,000  | 1,500,000 | 10,700,000  |
| Total . . . . .  | 98,000,000 | 9,400,000 | 107,400,000 |

The area covered by the principal crops in 1895 was approximately :—

|                       | Acres       |            |             |
|-----------------------|-------------|------------|-------------|
|                       | Russia      | Poland     | Total       |
| Grain . . . . .       | 161,300,000 | 9,200,000  | 170,500,000 |
| Potatoes . . . . .    | 5,820,000   | 1,750,000  | 7,570,000   |
| Flax and hemp . . . . | 4,680,000   | ...        | 4,680,000   |
| Hay, &c. . . . .      | 116,200,000 | 2,250,000  | 118,450,000 |
| Total . . . . .       | 288,000,000 | 13,600,000 | 301,600,000 |

The value of agricultural products in 1894 was approximately :—

|                    | Millions £ Sterling |        |       |
|--------------------|---------------------|--------|-------|
|                    | Russia              | Poland | Total |
| Grain . . . . .    | 242                 | 16     | 258   |
| Potatoes . . . . . | 16                  | 5      | 21    |
| Flax, &c. . . . .  | 14                  | ...    | 14    |
| Hay . . . . .      | 46                  | 2      | 48    |
| Sundries . . . . . | 26                  | 6      | 32    |
| Meat . . . . .     | 77                  | 10     | 87    |
| Dairy, &c. . . . . | 74                  | 9      | 83    |
| Total . . . . .    | 495                 | 48     | 543   |

The above gives an average gross product per acre of 34 shillings in Russia and 70 in Poland. This, however, is exclusive of 290 million acres used for permanent pasture, and if these were brought into account the average yield on the whole farming area of Russia and Poland would be only 18 shillings per acre. The agricultural capital of the empire has more than doubled since the emancipation of the serfs, showing approximately as follows :—

| Year           | Millions £ Sterling |        |          |       |
|----------------|---------------------|--------|----------|-------|
|                | Land                | Cattle | Sundries | Total |
| 1870 . . . . . | 798                 | 320    | 112      | 1,230 |
| 1895 . . . . . | 2,113               | 360    | 247      | 2,720 |

The capital in 1895 stood more or less as follows :—

|                  | Millions £ Sterling |        |          |       |
|------------------|---------------------|--------|----------|-------|
|                  | Land                | Cattle | Sundries | Total |
| Russia . . . . . | 1,957               | 325    | 228      | 2,510 |
| Poland . . . . . | 156                 | 35     | 19       | 210   |
| Total . . . . .  | 2,113               | 360    | 247      | 2,720 |

See *Food, Land.*

## AUSTRIA-HUNGARY

The area under crops in the whole monarchy showed the following averages:—

|                    | Acres      |            |
|--------------------|------------|------------|
|                    | 1881-83    | 1893-95    |
| Grain . . . . .    | 35,400,000 | 41,200,000 |
| Potatoes . . . . . | 3,450,000  | 4,020,000  |
| Beetroot . . . . . | 710,000    | 1,600,000  |
| Vines . . . . .    | 1,440,000  | 1,300,000  |
| Sundries . . . . . | 2,200,000  | 4,180,000  |
| Total . . . . .    | 43,200,000 | 53,300,000 |

The only branch of agriculture which shows a decline is vineyards, while the area of grain has increased at the rate of half a million acres yearly since 1883. The two portions of the monarchy stood in 1893-95 as follows:—

|                    | Acres      |            |            |
|--------------------|------------|------------|------------|
|                    | Austria    | Hungary    | Monarchy   |
| Grain . . . . .    | 17,140,000 | 24,060,000 | 41,200,000 |
| Vines . . . . .    | 620,000    | 680,000    | 1,300,000  |
| Roots, &c. . . . . | 6,740,000  | 4,060,000  | 10,800,000 |
| Total . . . . .    | 24,500,000 | 28,800,000 | 53,300,000 |

The average crops in the same three years were as follows:—

|                     | Tons       |            |            |
|---------------------|------------|------------|------------|
|                     | Austria    | Hungary    | Total      |
| Wheat . . . . .     | 1,070,000  | 3,830,000  | 4,900,000  |
| Oats . . . . .      | 2,520,000  | 1,780,000  | 4,300,000  |
| Rye, &c. . . . .    | 4,110,000  | 6,090,000  | 10,200,000 |
| All grain . . . . . | 7,700,000  | 11,700,000 | 19,400,000 |
| Potatoes . . . . .  | 9,100,000  | 3,300,000  | 12,400,000 |
| Beetroot . . . . .  | 7,500,000  | 4,500,000  | 12,000,000 |
| Hay . . . . .       | 10,800,000 | 8,200,000  | 19,000,000 |
| Total . . . . .     | 35,100,000 | 27,700,000 | 62,800,000 |

Nearly one-third of the monarchy is still under forest, viz., 24 million acres in Austria and 23 millions in Hungary. Austria does not raise enough food for her population, the deficit being met by the surplus in Hungary.

Pastoral industry seems to make no progress; the latest returns give a total of 40 million head of live stock, as compared with 45 millions in 1870. At present the returns show as follows:—

|                  | Austria    | Hungary    | Total      |
|------------------|------------|------------|------------|
| Horses . . . . . | 1,580,000  | 1,750,000  | 3,330,000  |
| Cattle . . . . . | 8,040,000  | 4,880,000  | 13,520,000 |
| Sheep . . . . .  | 4,230,000  | 13,870,000 | 15,100,000 |
| Pigs . . . . .   | 3,550,000  | 4,800,000  | 8,350,000  |
| Total . . . . .  | 18,000,000 | 22,300,000 | 40,300,000 |

The gross value of farming products is approximately as follows:—

|                       | Millions £ Sterling |         |       |
|-----------------------|---------------------|---------|-------|
|                       | Austria             | Hungary | Total |
| Grain . . . . .       | 48                  | 72      | 120   |
| Green crops . . . . . | 59                  | 36      | 95    |
| Meat . . . . .        | 26                  | 25      | 51    |
| Dairy, &c. . . . .    | 37                  | 21      | 58    |
| Total . . . . .       | 170                 | 154     | 324   |

The productive area of the whole monarchy, including 32 million acres of permanent pasture, is 85,400,000 acres, and the value of products averages 76 shillings per acre, as compared with 92 shillings in France. In half a century the agricultural capital has almost trebled, mainly owing to the emancipation of the serfs, viz.:—

| Year           | Millions £ Sterling |        |          |       |
|----------------|---------------------|--------|----------|-------|
|                | Land                | Cattle | Sundries | Total |
| 1840 . . . . . | 543                 | 50     | 59       | 652   |
| 1894 . . . . . | 1,473               | 161    | 163      | 1,797 |

In 1894 the two kingdoms stood approximately as follows:—

|                    | Austria | Hungary | Total |
|--------------------|---------|---------|-------|
| Land . . . . .     | 796     | 677     | 1,473 |
| Cattle . . . . .   | 88      | 73      | 161   |
| Sundries . . . . . | 88      | 75      | 163   |
| Total . . . . .    | 972     | 825     | 1,797 |

In 1885 the whole monarchy contained 6,150,000 farms. Each farm, therefore, represents a capital of £290, and a gross annual product of £52, the bulk of the peasants being poor, while the princely land-owners of Hungary and Bohemia possess enormous wealth.

## ITALY

A great portion of the kingdom consists of mountains, forests, or waste lands, but so indefatigable is the Italian peasantry that in 15 years nearly 5 million acres have been reclaimed, the arable and the uncultivated areas showing as follows:—

|                      | Acres      |            |           |
|----------------------|------------|------------|-----------|
|                      | 1880       | 1895       | Increase  |
| Grain . . . . .      | 20,300,000 | 20,500,000 | 200,000   |
| Vines . . . . .      | 4,800,000  | 8,500,000  | 3,700,000 |
| Olives . . . . .     | 2,200,000  | 2,600,000  | 400,000   |
| Sundries . . . . .   | 12,200,000 | 12,600,000 | 400,000   |
| Tillage . . . . .    | 39,500,000 | 44,200,000 | 4,700,000 |
| Pasture, &c. . . . . | 31,300,000 | 26,600,000 | ...       |
| Total . . . . .      | 70,800,000 | 70,800,000 | ...       |

Grain crops are light, seldom exceeding 13 bushels per acre, the average for 3 years ending 1895 having been as follows:—

|                     | Acres      | Tons      | Bushels per Acre |
|---------------------|------------|-----------|------------------|
| Wheat . . . . .     | 11,300,000 | 3,030,000 | 10.7             |
| Maize . . . . .     | 4,750,000  | 1,720,000 | 14.5             |
| Oats, &c. . . . .   | 4,380,000  | 1,050,000 | 9.5              |
| All grain . . . . . | 20,430,000 | 5,800,000 | 11.3             |

The production of wine in the last 3 years has averaged 580 million gallons, or about 70 gallons per acre, against 176 in France, the Italian vintage rarely giving a higher average than 90 gallons per acre. Rice cultivation shows a remarkable falling off, the crop ranging from 350,000 to 400,000 tons, which is barely two-thirds of what it was 15 years ago, and this circumstance causes much dissatisfaction, as the growth of rice is a most unhealthy occupation. In order to convey a correct idea of the agricultural industry, it may be well to give here the old territorial divisions as they now stand in tillage area, approximately, thus:—

|                           | Acres (000 omitted) |       |          |        |
|---------------------------|---------------------|-------|----------|--------|
|                           | Grain               | Wine  | Sundries | Total  |
| Venice . . . . .          | 2,100               | 1,050 | 1,350    | 4,480  |
| Lombardy . . . . .        | 2,050               | 500   | 1,420    | 3,970  |
| Piedmont . . . . .        | 1,820               | 750   | 1,830    | 4,400  |
| Duchies . . . . .         | 2,400               | 1,650 | 2,150    | 6,200  |
| Papal States . . . . .    | 3,600               | 2,050 | 2,550    | 8,200  |
| Naples . . . . .          | 5,800               | 1,600 | 3,900    | 11,300 |
| Sicily . . . . .          | 2,200               | 720   | 1,580    | 4,500  |
| Sardinia Island . . . . . | 530                 | 180   | 240      | 950    |
| Total . . . . .           | 20,500              | 8,500 | 15,000   | 44,000 |

The acreage under grain is made up as follows (000 omitted):—

|                           | Wheat  | Maize | Oats, &c. | Total  |
|---------------------------|--------|-------|-----------|--------|
| Venice . . . . .          | 750    | 1,030 | 320       | 2,100  |
| Lombardy . . . . .        | 730    | 830   | 490       | 2,050  |
| Piedmont . . . . .        | 770    | 480   | 570       | 1,820  |
| Duchies . . . . .         | 1,480  | 550   | 390       | 2,400  |
| Papal States . . . . .    | 2,180  | 930   | 490       | 3,600  |
| Naples . . . . .          | 3,240  | 960   | 1,500     | 5,800  |
| Sicily . . . . .          | 1,650  | 20    | 530       | 2,200  |
| Sardinia Island . . . . . | 400    | 20    | 110       | 530    |
| Total . . . . .           | 11,300 | 4,800 | 4,400     | 20,500 |

Sundries include hay, green crops, olive groves, &c., as follows, in acres (000 omitted):—

|                           | Hay   | Olives | Green Crops | Total  |
|---------------------------|-------|--------|-------------|--------|
| Venice . . . . .          | 670   | ...    | 660         | 1,330  |
| Lombardy . . . . .        | 990   | ...    | 430         | 1,420  |
| Piedmont . . . . .        | 890   | 150    | 790         | 1,830  |
| Duchies . . . . .         | 870   | 300    | 980         | 2,150  |
| Papal States . . . . .    | 1,190 | 330    | 1,030       | 2,550  |
| Naples . . . . .          | 510   | 1,440  | 1,950       | 3,900  |
| Sicily . . . . .          | 670   | 330    | 580         | 1,580  |
| Sardinia Island . . . . . | 110   | 50     | 80          | 240    |
| Total . . . . .           | 5,900 | 2,600  | 6,500       | 15,000 |

The official valuation of farm products is only 176 millions sterling, but this is exclusive of hay. The total value appears to be 208 millions sterling, viz:—

|                          | Official, £ | Real, £     |
|--------------------------|-------------|-------------|
| Grain . . . . .          | 53,400,000  | 53,400,000  |
| Wine . . . . .           | 33,500,000  | 33,500,000  |
| Hay . . . . .            | ...         | 26,700,000  |
| Fruit, &c. . . . .       | 9,600,000   | 15,200,000  |
| Meat, dairy, &c. . . . . | 79,000,000  | 79,200,000  |
| Total . . . . .          | 175,500,000 | 208,000,000 |

The productive area, including 9 million acres of permanent pasture, covers 53 million acres; the value of products therefore averages 77 shillings per acre, against 92 in France. The number of hands engaged in farming

is 7,800,000, which leaves the average product for each hand only £27, as compared with £58 in France.

Agricultural capital has trebled since 1840, viz:—

| Year           | Millions £ |        |          |       |
|----------------|------------|--------|----------|-------|
|                | Land       | Cattle | Sundries | Total |
| 1840 . . . . . | 377        | 30     | 41       | 448   |
| 1890 . . . . . | 1,180      | 92     | 127      | 1,399 |

The agricultural resources of Italy are so insufficient for her population that the average importation of grain reaches 700,000 tons yearly. See *Food, Land*.

#### SPAIN

Official returns for 1888 show 41 million acres under grain, equivalent to a crop of at least 10 million tons, which would leave a surplus of 3 million tons for exportation. We find, however, that so far from any surplus there is an average deficit of 330,000 tons, which is covered by importation. This shows that the official return is a gross exaggeration. The *Uebersichten* of 1893 estimates the aggregate crop at 5 million tons, Spallart's estimate having been 8 millions, and the actual production appears to be under 6 million tons. Hence it will be evident that the statement of Spanish agriculture in Part I. of this volume is altogether too high. The area of the kingdom is 125,300,000 acres, of which 72,100,000 consist of mountain and forests, the rest being apparently as shown in the following table:—

|                       | Area, Acres |                          | Product, £  |
|-----------------------|-------------|--------------------------|-------------|
| Grain . . . . .       | 20,800,000  | Grain . . . . .          | 39,200,000  |
| Vineyards . . . . .   | 4,200,000   | Wine . . . . .           | 33,600,000  |
| Other crops . . . . . | 7,200,000   | Sundries . . . . .       | 21,200,000  |
| Pasture . . . . .     | 21,000,000  | Meat, dairy, &c. . . . . | 41,200,000  |
| Total . . . . .       | 53,200,000  | Total . . . . .          | 135,200,000 |

This gives an average of 51 shillings per acre, against 77 shillings in Italy, but the product per hand is greater in Spain, namely £33, against £27 in Italy. As regards the production of wine, Spain holds third rank among nations, the vintage being usually one-fifth less than that of Italy, or about one-half that of France: in 1895 and 1896 the average was 420 million gallons. The growth of agricultural capital has been retarded by civil wars, the increase having been less than 50 per cent. in 60 years, viz:—

| Year           | Millions £ Sterling |        |          |       |
|----------------|---------------------|--------|----------|-------|
|                | Land                | Cattle | Sundries | Total |
| 1832 . . . . . | 724                 | 34     | 76       | 834   |
| 1892 . . . . . | 1,056               | 46     | 110      | 1,212 |

Dividing the above capital among the number of farms, it gives an average of £444 each, as compared with £880 in France. See *Cattle, Food, Land*.

#### PORTUGAL

The total area under crops is less than 4 million acres, or one-fifth of the kingdom, viz:—

|                       | Area, Acres | Product, £ |
|-----------------------|-------------|------------|
| Grain . . . . .       | 2,600,000   | 5,500,000  |
| Vineyards . . . . .   | 500,000     | 6,700,000  |
| Other crops . . . . . | 800,000     | 5,700,000  |
| Pasture . . . . .     | 7,700,000   | 8,100,000  |
| Waste . . . . .       | 9,200,000   | ...        |
| Total . . . . .       | 20,800,000  | 26,000,000 |

Official returns give a total product estimated at £23,200,000, but this seems to omit dairy products. The productive area, tillage and pasture, being 11,600,000 acres, the average product is 45 shillings per acre, against 51 in Spain. Portuguese writers assert that the area under crops could be trebled but for the system of land tenure, which forces the people to emigrate. The vintage ranges from 50 to 80 million gallons, of which about one-fourth is exported. Agricultural capital reaches 164 millions sterling, of which 138 millions are represented by land. Peasant farms show an average value of £210 each. See *Cattle, Food, Land*.

#### SWEDEN AND NORWAY.

The climate of these countries is so adverse that agriculture has made little progress in recent years, the area under crops hardly reaching 9 million acres, or 5 per cent. of the total extent. Latest returns show:—

| Area              | Sweden      | Norway     | Total       |
|-------------------|-------------|------------|-------------|
| Grain, acres . .  | 4,150,000   | 450,000    | 4,600,000   |
| Sundries, acres . | 4,250,000   | 150,000    | 4,400,000   |
| Pasture, " . .    | 3,900,000   | 2,200,000  | 6,100,000   |
| Forest, &c. " .   | 98,400,000  | 76,900,000 | 175,300,000 |
| Total " . .       | 110,700,000 | 79,700,000 | 190,400,000 |
| Grain, tons . .   | 2,800,000   | 400,000    | 3,200,000   |
| Potatoes, tons .  | 1,300,000   | 500,000    | 1,800,000   |

The hay crop of Sweden averages 2½ million tons, that of Norway may be estimated at 1 million. Live stock in Sweden shows an increase of 500,000 in 20 years, but in Norway has been stationary, latest returns being as follows:—

|              | Sweden    | Norway    | Total     |
|--------------|-----------|-----------|-----------|
| Horses . . . | 500,000   | 150,000   | 650,000   |
| Cattle . . . | 2,520,000 | 1,010,000 | 2,530,000 |
| Sheep . . .  | 1,400,000 | 1,700,000 | 3,100,000 |
| Pigs . . .   | 770,000   | 120,000   | 890,000   |
| Total . .    | 5,190,000 | 2,980,000 | 7,170,000 |

Farmers are not wholly dependent on agricultural products; many of them devote themselves also to fishing or wood-cutting. The approximate value of agricultural industry is as follows:—

|                  | Sweden, £  | Norway, £ | Total, £   |
|------------------|------------|-----------|------------|
| Grain . . .      | 13,000,000 | 2,000,000 | 15,000,000 |
| Hay & sundries . | 6,800,000  | 1,300,000 | 8,100,000  |
| Meat . . .       | 8,000,000  | 2,800,000 | 10,800,000 |
| Dairy, &c. . .   | 9,200,000  | 2,900,000 | 12,100,000 |
| Total . .        | 37,000,000 | 9,000,000 | 46,000,000 |

Agricultural capital has quadrupled in 60 years, being now approximately as follows:—

|              | Millions £ Sterling |        |          |       |
|--------------|---------------------|--------|----------|-------|
|              | Land                | Cattle | Sundries | Total |
| Sweden . . . | 154                 | 29     | 18       | 201   |
| Norway . . . | 58                  | 12     | 7        | 77    |
| Total . .    | 212                 | 41     | 25       | 278   |

The average of capital to each farm is £730. See *Cattle, Food, Land*.

#### DENMARK.

This prosperous little kingdom shows an increase in the last 15 years of 400,000 acres under cultivation, 300,000 tons in average grain crop, and of 6 millions sterling in the value of exports of farm products. The average crops showed thus:—

|                       | 1879-82   | 1895-96   |
|-----------------------|-----------|-----------|
| Oats, tons . . .      | 750,000   | 950,000   |
| Barley, tons . .      | 550,000   | 520,000   |
| Rye, &c. tons . .     | 650,000   | 800,000   |
| Total grain, tons . . | 1,950,000 | 2,270,000 |
| Potatoes, tons . .    | 240,000   | 520,000   |
| Roots, tons . . .     | 440,000   | 3,520,000 |
| Total, tons . . .     | 2,630,000 | 6,310,000 |

Besides the above there are large crops of hay and clover, averaging together 1,400,000 tons yearly. Although the production of grain exceeds one ton per head of the population, there is none for export, a large quantity being kept for cattle. Pastoral industry thrives apace, the returns showing an increase of 10 per cent. in live stock since 1881. If we reduce all live stock to a common denominator equivalent to horned cattle, it will be found that Denmark carries a very high proportion to its area under grass, viz.:—

|                   | Pasture, Acres | Cattle     | Do. per 100 Acres |
|-------------------|----------------|------------|-------------------|
| Denmark . . .     | 2,600,000      | 2,400,000  | 92                |
| Holland . . .     | 2,800,000      | 2,100,000  | 75                |
| Great Britain . . | 16,600,000     | 12,300,000 | 75                |
| Ireland . . .     | 11,200,000     | 5,700,000  | 51                |

The productive area of Denmark, between tillage and pasture, is only 7,100,000 acres, yet the value of products reaches 35 millions sterling, equal to 99 shillings per acre, as compared with 92 shillings in France, and 75 in Ireland, which shows that in spite of an ungenial climate the Danes contrive to carry on agriculture with great success. They export meat, butter, and eggs to the value of 10 millions sterling per annum. The official value of crops is 15 millions sterling, apparently exclusive of market-garden products. The total value is approximately as follows: grain 12, other crops 7, meat 6, dairy 8, sundries 2; total 35 millions. The aggregate value of farms being 254 millions sterling, the product is equal to 14 per cent. on capital, against 13½ per cent. in France. The latest and best agricultural machinery is more used in Denmark than elsewhere. Agricultural exports are equal to £5 per head of the population, as compared with £2 in Canada, £2 in the United States, £3 in Ireland, and £8 in Australia. See *Cattle, Food, Land*.

#### HOLLAND

This little kingdom is so well irrigated that it has 420 yards of canal per acre of superficial extent. Hence we find that the yield of grain per acre is 7 per cent. higher even than in Denmark, and averages 30 bushels. Although the area under grain is 10 per cent. less than it was 15 years ago, the crops are heavier, the averages at two periods showing thus:—

|                 | Tons      |           | Bushels per Acre |         |
|-----------------|-----------|-----------|------------------|---------|
|                 | 1880-82   | 1893-95   | 1880-82          | 1893-95 |
| Oats . . .      | 310,000   | 370,000   | 42               | 45      |
| Rye . . .       | 230,000   | 270,000   | 19               | 23      |
| Wheat, &c. . .  | 390,000   | 370,000   | 22               | 27      |
| Total grain . . | 930,000   | 1,010,000 | 26               | 30      |
| Potatoes . . .  | 1,200,000 | 1,830,000 | 138              | 200     |
| Beetroot . . .  | 410,000   | 890,000   | 360              | 420     |

The yield per acre is heavier not only in grain but also in potatoes and beetroot. At the same time horned cattle have increased 2 per cent., pigs 92 per cent., and the export of dairy products risen to more than 100,000 tons yearly. Pastures are so rich that cattle for the market often weigh over a ton, and milch cows give an average product of 250 pounds of cheese and butter, a result unequalled in any part of the world. The following table shows the value of all products, and of what is exported :—

| Product, £      |            | Export, £      |           |
|-----------------|------------|----------------|-----------|
| Grain . . .     | 6,200,000  | Butter . . .   | 1,150,000 |
| Green crops . . | 11,700,000 | Cheese . . .   | 950,000   |
| Meat . . .      | 6,100,000  | Flax . . .     | 300,000   |
| Dairy . . .     | 9,800,000  | Meat . . .     | 600,000   |
| Sundries . . .  | 2,200,000  | Vegetables . . | 2,200,000 |
| Total . . .     | 36,000,000 | Total . . .    | 5,200,000 |

Agricultural capital has declined in the last 10 years, as shown thus :—

| Year       | Millions £ |        |          |       |
|------------|------------|--------|----------|-------|
|            | Land       | Cattle | Sundries | Total |
| 1886 . . . | 314        | 28     | 38       | 380   |
| 1896 . . . | 240        | 28     | 27       | 295   |

The value of products per acre is 142 shillings, against 92 in France and 96 in the United Kingdom. Dutch farmers are apparently the richest and most prosperous in the world, each farm representing a capital of £1800 and a gross output of £220, although the average area is no more than 34 acres. See *Cattle, Food, Land*.

#### BELGIUM

This is a country of kitchen gardens and spade cultivation, yielding a prodigious amount of agricultural products in ratio to extent, the average output showing 160 shillings per acre. The crops of 1893-96 compare with those of 1880 thus :—

|                 | Tons      |           | Bushels per Acre |         |
|-----------------|-----------|-----------|------------------|---------|
|                 | 1880      | 1893-96   | 1880             | 1893-96 |
| Wheat . . .     | 440,000   | 440,000   | 24               | 26      |
| Oats . . .      | 660,000   | 650,000   | 43               | 43      |
| Rye . . .       | 430,000   | 500,000   | 25               | 27      |
| Barley, &c. . . | 330,000   | 310,000   | 33               | 33      |
| Total . . .     | 1,860,000 | 1,900,000 | 31               | 32      |
| Potatoes . . .  | 2,820,000 | 3,650,000 | 115              | ...     |
| Beetroot . . .  | 1,750,000 | 2,150,000 | 480              | 520     |

Notwithstanding the industry of the people, the country does not produce food for more than 60 per cent. of the population, whereas the waste of labour is so great that the number of hands engaged in agriculture ought to be sufficient, with proper machinery, to raise food for 11,000,000 persons, or nearly double the actual population of Belgium, if the area of the kingdom were larger. Thus it comes to pass that the maximum product of farming per acre, so far from being advantageous, must be regarded as deplorable in an economic sense. The old adage which says "the plough is silver but the spade is golden" contains as much nonsense as can be conveyed in so few words. Far better would it be if 500,000 Belgian farmers were located beyond the Mississippi.

The following table shows the value of agricultural products, and of similar imports :—

| Products, £     |            | Imports, £     |            |
|-----------------|------------|----------------|------------|
| Grain . . .     | 12,100,000 | Grain . . .    | 7,800,000  |
| Green crops . . | 16,800,000 | Meat . . .     | 1,500,000  |
| Meat . . .      | 5,000,000  | Butter . . .   | 400,000    |
| Dairy, &c. . .  | 10,100,000 | Sundries . . . | 300,000    |
| Total . . .     | 44,000,000 | Total . . .    | 10,000,000 |

Agricultural capital has fallen heavily in 15 years, viz. :—

| Year       | Millions £ Sterling |        |          |       |
|------------|---------------------|--------|----------|-------|
|            | Land                | Cattle | Sundries | Total |
| 1880 . . . | 377                 | 24     | 44       | 445   |
| 1895 . . . | 300                 | 22     | 32       | 354   |

The value of product compared with capital is the same as in Holland, 12 per cent. See *Cattle, Food, Land*.

#### SWITZERLAND

Agriculture is an industry of secondary importance, although it gives occupation to 40 per cent. of the Swiss people. There are 300,000 farms, with an average of 4 acres under tillage and 13 under pasture, the peasants in many cases adding to their income by cutting timber, or by receiving travellers into their houses in the summer season. The country hardly raises food for one-third of its population, the value of products and of imports showing thus :—

| Products, £     |            | Imports, £     |           |
|-----------------|------------|----------------|-----------|
| Grain . . .     | 2,000,000  | Grain . . .    | 3,300,000 |
| Green crops . . | 7,000,000  | Meat . . .     | 2,200,000 |
| Meat . . .      | 4,000,000  | Vegetables . . | 400,000   |
| Dairy, &c. . .  | 7,000,000  | Sundries . . . | 300,000   |
| Total . . .     | 20,000,000 | Total . . .    | 6,200,000 |

Dairy-farming is carried on with great success in various cantons, the export of cheese and condensed milk exceeding 40,000 tons yearly, worth 3 millions sterling. The total farming capital is 172 millions, of which land stands for 138 millions sterling, the average value of each farm being £490, against £880 in France.

#### THE DANUBIAN STATES

Although agriculture is the chief occupation, it is very backward in these countries, the number of hands engaged in farming being out of all proportion to the results obtained.

|                 | Acres (000 omitted) |        |          |        |
|-----------------|---------------------|--------|----------|--------|
|                 | Roumania            | Servia | Bulgaria | Total  |
| Grain . . .     | 10,600              | 2,400  | 4,900    | 17,900 |
| Green crops . . | 2,600               | 2,500  | 1,600    | 6,700  |
| Pasture . . .   | 9,600               | 5,600  | 5,700    | 20,900 |
| Forest, &c. . . | 9,600               | 1,700  | 11,400   | 22,700 |
| Total . . .     | 32,400              | 12,200 | 23,600   | 68,200 |

#### Crop, Million Bushels

|                 |     |    |    |     |
|-----------------|-----|----|----|-----|
| Wheat . . .     | 57  | 12 | 32 | 101 |
| Maize . . .     | 65  | 14 | 22 | 101 |
| Barley, &c. . . | 46  | 10 | 20 | 76  |
| Total . . .     | 168 | 36 | 74 | 278 |

The aggregate area under vineyards in the three States is 1,100,000 acres, the vintage showing as follows:—

|                    | Millions of Gallons |      |         |
|--------------------|---------------------|------|---------|
|                    | 1895                | 1896 | Average |
| Roumania . . . . . | 68                  | 164  | 116     |
| Servia . . . . .   | 17                  | 25   | 21      |
| Bulgaria . . . . . | 26                  | 30   | 28      |
| Total . . . . .    | 111                 | 219  | 165     |

Fruit is largely cultivated in Servia, orchards covering 180,000 acres, and producing the famous Slivovitz plum, of which 20,000 tons are exported yearly for making brandy. Cattle-farming is much attended to in all three States, live stock being approximately as follows:—

|                  | Number (000 omitted) |        |          |        |
|------------------|----------------------|--------|----------|--------|
|                  | Roumania             | Servia | Bulgaria | Total  |
| Horses . . . . . | 600                  | 150    | 250      | 900    |
| Cattle . . . . . | 2,500                | 800    | 300      | 3,600  |
| Sheep . . . . .  | 5,200                | 3,500  | 8,500    | 17,200 |
| Pigs . . . . .   | 900                  | 900    | 500      | 2,300  |
| Total . . . . .  | 9,200                | 5,300  | 9,500    | 24,000 |

These States export agricultural products to the value of 15 millions sterling yearly, for the most part grain; not more than two-thirds of the crops are kept for consumption, the surplus for export usually exceeding two million tons of grain. The value of farm products is approximately as follows:—

|                       | Millions £ Sterling |        |          |       |
|-----------------------|---------------------|--------|----------|-------|
|                       | Roumania            | Servia | Bulgaria | Total |
| Grain . . . . .       | 23                  | 5      | 10       | 38    |
| Green crops . . . . . | 9                   | 4      | 6        | 19    |
| Meat . . . . .        | 8                   | 4      | 4        | 16    |
| Sundries . . . . .    | 6                   | 2      | 2        | 10    |
| Total . . . . .       | 46                  | 15     | 22       | 83    |

The total product gives only 38 shillings per acre, against 75 shillings in Austria-Hungary. The average coming to each hand employed in agriculture is no more than £21, as compared with £58 in France and the same in Ireland. Agricultural capital is shown approximately as follows:—

|                    | Millions £ Sterling |        |          |       |
|--------------------|---------------------|--------|----------|-------|
|                    | Roumania            | Servia | Bulgaria | Total |
| Land . . . . .     | 200                 | 90     | 130      | 420   |
| Cattle . . . . .   | 22                  | 10     | 10       | 42    |
| Sundries . . . . . | 22                  | 10     | 14       | 46    |
| Total . . . . .    | 244                 | 110    | 154      | 508   |

There are altogether 1,300,000 farms; average value £384, average product £65. See *Food, Land*.

#### GREECE

The progress of agriculture has been slow, viz:—

|                        | Acres      |            |            |
|------------------------|------------|------------|------------|
|                        | 1860       | 1889       | 1893       |
| Cultivated . . . . .   | 810,000    | 2,090,000  | 2,340,000  |
| Uncultivated . . . . . | 10,590,000 | 13,810,000 | 13,560,000 |
| Total . . . . .        | 11,400,000 | 15,900,000 | 15,900,000 |

The difference of area in the above table arises from the annexation of Thessaly in 1881. According to Greek writers, one-half of the uncultivated land could be brought under tillage, but agriculture is so backward that Greece has to import both grain and meat. Latest official returns showed 1,210,000 acres under grain, producing 200,000 tons of wheat and 200,000 of maize, barley, and rye; this was equivalent to an average crop of 13 bushels to the acre. Currant-growing was for some years most profitable, this fruit being worth £20 a ton in the decade ending 1890, but of late years it has fallen to £11, causing widespread agricultural depression. Currants have been grown chiefly for exportation, being much used in the manufacture of claret and other wines in France. Greece exported on an average 60,000 tons yearly before the phylloxera made great ravages (1876), and subsequently the demand for currants was such that the export reached 120,000 tons in 1893. The area under vineyards is 340,000 acres, and official returns put down the vintage at 66 million gallons, but this appears an exaggeration, the average for the last two years having been only 41 millions, that is, 120 gallons of wine per acre, as compared with 150 in the Danubian States. The value of agricultural products and the amount of capital are shown approximately as follows:—

|                       | Products, £ |                    | Capital, £  |
|-----------------------|-------------|--------------------|-------------|
| Grain . . . . .       | 2,400,000   | Land . . . . .     | 94,000,000  |
| Other crops . . . . . | 6,600,000   | Cattle . . . . .   | 5,000,000   |
| Meat, &c. . . . .     | 5,000,000   | Sundries . . . . . | 10,000,000  |
| Total . . . . .       | 14,000,000  | Total . . . . .    | 109,000,000 |

The total productive area, between tillage and pasture, being 8,200,000 acres, the product is equal to 34 shillings per acre: it gives, moreover, £21 for each hand engaged in farming, being the same as in the Danubian States.

The progress made in Greek agriculture is seen by comparing Bickford's tables for 1889 with those of Bikelas for 1860, viz:—

|                                 | 1860       | 1889       |
|---------------------------------|------------|------------|
| Wheat, . . . . . acres          | 230,000    | 620,000    |
| Other grain, . . . . . "        | 330,000    | 590,000    |
| Vines and currants, . . . . . " | 160,000    | 440,000    |
| Sundries, . . . . . "           | 90,000     | 440,000    |
| Under crops, . . . . . "        | 810,000    | 2,090,000  |
| Fallow, . . . . . "             | 630,000    | 1,010,000  |
| Forest, . . . . . "             | 1,350,000  | 1,500,000  |
| Mountains, &c. . . . . "        | 8,610,000  | 11,300,000 |
| Total . . . . .                 | 11,400,000 | 15,900,000 |

There are 60,000 acres under currant plantations, which give an ordinary yield of 3 tons per acre, the crop having quadrupled in 40 years, viz:—

| Year           | Tons   | Year           | Tons    |
|----------------|--------|----------------|---------|
| 1851 . . . . . | 41,000 | 1871 . . . . . | 81,000  |
| 1861 . . . . . | 43,000 | 1881 . . . . . | 125,000 |
| 1866 . . . . . | 56,000 | 1891 . . . . . | 167,000 |

#### UNITED STATES

The position of agriculture may be taken in at a glance by considering the occupied and the unoccupied areas in the great divisions of the Union

(exclusive of Alaska) according to the census of 1890, viz. :—

| Division          | Millions of Acres |             |             |       |
|-------------------|-------------------|-------------|-------------|-------|
|                   | Im-proved         | Unim-proved | Unoc-cupied | Total |
| New England . . . | 11                | 9           | 24          | 44    |
| Middle . . . . .  | 36                | 13          | 24          | 73    |
| South . . . . .   | 104               | 146         | 272         | 522   |
| Prairie . . . . . | 184               | 73          | 271         | 528   |
| Pacific . . . . . | 23                | 24          | 708         | 755   |
| Total . . . . .   | 358               | 265         | 1,299       | 1,922 |

The total area occupied by farms was 623 million acres, or nearly one-third of the Union. An official report for 1895 showed the area under other crops than hay to be 183 million acres, from which it would appear that 440 million acres are devoted to pasture. As a natural result of the Homestead Law of 1862, and of the new railways constructed in the West, we find that farming has made prodigious strides in the Prairie and the Pacific States. The improved area at the successive census dates was as follows :—

| Divisions         | Millions of Acres |      |      |      |      |
|-------------------|-------------------|------|------|------|------|
|                   | 1850              | 1860 | 1870 | 1880 | 1890 |
| New England . . . | 11                | 12   | 12   | 13   | 11   |
| Middle . . . . .  | 26                | 30   | 33   | 37   | 36   |
| South . . . . .   | 49                | 65   | 58   | 82   | 104  |
| Prairie . . . . . | 27                | 52   | 78   | 137  | 184  |
| Pacific . . . . . | ...               | 4    | 8    | 16   | 23   |
| Union . . . . .   | 113               | 163  | 189  | 285  | 358  |

If we compare the number of hands with the extent of farms at the above dates we find that, doubtless owing to improved machinery, each hand now cultivates 10 acres more than down to the year 1870, being an improvement of 50 per cent. in 20 years, viz. :—

| Year           | Hands     | Acres       | Acres per Hand |
|----------------|-----------|-------------|----------------|
| 1850 . . . . . | 3,120,000 | 113,100,000 | 36             |
| 1860 . . . . . | 4,890,000 | 163,100,000 | 33             |
| 1870 . . . . . | 5,668,000 | 188,800,000 | 33             |
| 1880 . . . . . | 7,217,000 | 284,600,000 | 40             |
| 1890 . . . . . | 8,323,000 | 357,600,000 | 49             |

Western and Southern farms are steadily growing larger, while those of New England and the Middle States become smaller, the latter being apparently the result of a great development of dairy-farming in recent years, viz. :—

| Divisions         | Hands     |           | Acres per Hand |      |
|-------------------|-----------|-----------|----------------|------|
|                   | 1870      | 1890      | 1870           | 1890 |
| New England . . . | 263,000   | 273,000   | 46             | 39   |
| Middle . . . . .  | 620,000   | 827,000   | 53             | 43   |
| South . . . . .   | 2,640,000 | 3,850,000 | 22             | 27   |
| Prairie . . . . . | 1,950,000 | 3,060,000 | 40             | 60   |
| Pacific . . . . . | 195,000   | 313,000   | 42             | 73   |
| Union . . . . .   | 5,668,000 | 8,323,000 | 33             | 49   |

The grain crops are on a colossal scale, summing up in the last 25 years almost 1600 million tons, being an average of 64 millions tons yearly, viz. :—

| Period             | Yearly Average, Tons (ooo omitted) |        |           |        |
|--------------------|------------------------------------|--------|-----------|--------|
|                    | Maize                              | Wheat  | Oats, &c. | Total  |
| 1872-76 . . . . .  | 27,200                             | 7,100  | 8,900     | 43,200 |
| 1877-81 . . . . .  | 36,400                             | 10,100 | 11,500    | 58,000 |
| 1882-86 . . . . .  | 40,500                             | 10,900 | 15,600    | 67,000 |
| 1887-91 . . . . .  | 43,600                             | 11,100 | 18,700    | 73,400 |
| 1892-96 . . . . .  | 43,400                             | 12,300 | 20,300    | 76,000 |
| 25 years . . . . . | 38,200                             | 10,400 | 15,000    | 63,600 |

Less than one-twelfth of the grain produced has been exported, viz. :—

| Period             | Yearly Average, Tons |           |             |
|--------------------|----------------------|-----------|-------------|
|                    | Crop                 | Export    | Consumption |
| 1872-76 . . . . .  | 43,200,000           | 2,700,000 | 40,500,000  |
| 1877-81 . . . . .  | 58,000,000           | 5,800,000 | 52,200,000  |
| 1882-86 . . . . .  | 67,000,000           | 4,500,000 | 62,500,000  |
| 1887-91 . . . . .  | 73,400,000           | 4,400,000 | 69,000,000  |
| 1892-96 . . . . .  | 70,000,000           | 6,500,000 | 63,500,000  |
| 25 years . . . . . | 63,600,000           | 4,700,000 | 58,900,000  |

The weight of grain exported in 25 years was 118 million tons, of which 75 millions were wheat, 37 millions maize, and the rest oats and barley. The agricultural returns for the years 1893-95 give the following averages :—

|                     | Acres       | Tons       | Crop Value, £ Sterling |
|---------------------|-------------|------------|------------------------|
| Maize . . . . .     | 72,200,000  | 41,500,000 | 119,000,000            |
| Wheat . . . . .     | 34,500,000  | 11,000,000 | 47,000,000             |
| Oats . . . . .      | 27,400,000  | 17,800,000 | 39,400,000             |
| Rye, &c. . . . .    | 6,000,000   | 2,700,000  | 10,100,000             |
| All grain . . . . . | 140,100,000 | 73,000,000 | 215,500,000            |

The following table shows for the same three years the average yield in bushels per acre, the value of crop per bushel, and the yield per acre of grain in money, American and English :—

|                   | Bushels per Acre | Cents per Bushel | Produce per Acre |           |
|-------------------|------------------|------------------|------------------|-----------|
|                   |                  |                  | \$               | Shillings |
| Maize . . . . .   | 23               | 36               | 8.00             | 33.3      |
| Wheat . . . . .   | 13               | 51               | 6.60             | 27.5      |
| Oats . . . . .    | 26               | 27               | 6.90             | 28.7      |
| Rye, &c. . . . .  | 19               | 43               | 8.10             | 33.7      |
| General . . . . . | 21               | 36               | 7.40             | 30.8      |

The crops of 1897, owing to the rise in wheat, gave a much better result, official returns showing as follows :—

|                  | Tons       | Value £     | Cents per Bushel |
|------------------|------------|-------------|------------------|
| Maize . . . . .  | 47,600,000 | 104,000,000 | 26               |
| Wheat . . . . .  | 13,300,000 | 89,000,000  | 80               |
| Oats . . . . .   | 17,500,000 | 31,000,000  | 21               |
| Rye, &c. . . . . | 2,700,000  | 9,000,000   | 40               |
| Total . . . . .  | 81,100,000 | 233,000,000 | 34               |

An official return in 1894 estimated the cost of producing grain, per acre, as follows, in American dollars and cents :—

|                      | New<br>England<br>\$ | Middle<br>\$ | South<br>\$ | Prairie<br>\$ |
|----------------------|----------------------|--------------|-------------|---------------|
| Rent . . . . .       | 4.14                 | 4.09         | 2.90        | 2.80          |
| Manure . . . . .     | 4.55                 | 5.58         | 1.99        | 1.74          |
| Tillage . . . . .    | 3.77                 | 2.87         | 1.62        | 1.70          |
| Harvesting . . . . . | 3.52                 | 2.05         | 0.87        | 1.27          |
| Sundries . . . . .   | 8.14                 | 5.26         | 4.00        | 3.47          |
| Total . . . . .      | 24.12                | 19.85        | 11.38       | 10.98         |

The cost of the two crops, wheat and maize, in 1894 was officially stated thus :—

|                      | Wheat<br>\$ | Maize<br>\$ | Total<br>\$   |
|----------------------|-------------|-------------|---------------|
| Rent . . . . .       | 98,300,000  | 189,700,000 | 288,000,000   |
| Manure . . . . .     | 75,600,000  | 116,400,000 | 192,000,000   |
| Tillage . . . . .    | 65,400,000  | 101,400,000 | 166,800,000   |
| Harvesting . . . . . | 41,600,000  | 76,400,000  | 118,000,000   |
| Sundries . . . . .   | 128,100,000 | 249,100,000 | 377,200,000   |
| Total . . . . .      | 409,000,000 | 733,000,000 | 1,142,000,000 |

In the same year the value of the crops was, wheat 226 millions, maize 555 million dollars, showing a loss of 183 million dollars on wheat and 178 millions on maize. Such losses, however, are not in hard cash, as the farmer often holds his land free of rent, and not less frequently has manure and tillage free of actual outlay.

Cotton-growing during the last 30 years is shown as follows :—

| Period            | Tons Yearly |           | Value, Millions \$ |        |
|-------------------|-------------|-----------|--------------------|--------|
|                   | Crop        | Exported  | Crop               | Export |
| 1867-71 . . . . . | 600,000     | 400,000   | 265                | 175    |
| 1872-76 . . . . . | 810,000     | 550,000   | 275                | 188    |
| 1877-81 . . . . . | 1,140,000   | 770,000   | 238                | 161    |
| 1882-86 . . . . . | 1,310,000   | 880,000   | 268                | 179    |
| 1887-91 . . . . . | 1,600,000   | 1,080,000 | 300                | 203    |
| 1892-96 . . . . . | 1,810,000   | 1,200,000 | 275                | 183    |

The difference between the weight of crop and what was exported represents the home consumption in American factories. Cotton is grown solely in the Southern States.

Hay represents nearly double the value of the cotton crop, the average for the last three years being 478 million dollars, viz. :—

| Divisions            | Hay, Acres | Tons       | Value, \$   |
|----------------------|------------|------------|-------------|
| N. England . . . . . | 3,700,000  | 4,100,000  | 51,000,000  |
| Middle . . . . .     | 8,600,000  | 10,000,000 | 119,000,000 |
| South . . . . .      | 3,400,000  | 4,500,000  | 48,000,000  |
| Prairie . . . . .    | 23,900,000 | 27,300,000 | 185,000,000 |
| Pacific . . . . .    | 4,600,000  | 10,100,000 | 75,000,000  |
| Union . . . . .      | 44,200,000 | 56,000,000 | 478,000,000 |

Potatoes show the following average returns for the same three years, 1893-95 :—

|                      | Acres     | Tons      | Value, \$  |
|----------------------|-----------|-----------|------------|
| N. England . . . . . | 180,000   | 550,000   | 10,600,000 |
| Middle . . . . .     | 710,000   | 1,440,000 | 23,800,000 |
| South . . . . .      | 240,000   | 420,000   | 9,700,000  |
| Prairie . . . . .    | 1,710,000 | 2,710,000 | 44,200,000 |
| Pacific . . . . .    | 110,000   | 290,000   | 4,800,000  |
| Union . . . . .      | 2,950,000 | 5,410,000 | 93,100,000 |

The Pacific States appear to give the heaviest hay crop in the world (except Ireland), their average being almost 2½ tons per acre. New England gives a heavier yield of potatoes per acre than the rest of the Union, the average for the United States being under 3 tons per acre, as compared with 6 tons in Great Britain and 4 in Ireland.

The area, product, and value of crops in 1896 were :—

|                     | Acres       | Tons        | Value, £    | Shill.<br>per Acre |
|---------------------|-------------|-------------|-------------|--------------------|
| Maize . . . . .     | 81,030,000  | 57,100,000  | 102,100,000 | 25                 |
| Wheat . . . . .     | 34,620,000  | 10,700,000  | 64,700,000  | 37                 |
| Oats . . . . .      | 27,570,000  | 17,700,000  | 27,400,000  | 20                 |
| Barley . . . . .    | 2,950,000   | 1,750,000   | 4,600,000   | 31                 |
| Rye, &c. . . . .    | 2,580,000   | 950,000     | 3,300,000   | 26                 |
| All grain . . . . . | 148,750,000 | 88,200,000  | 202,100,000 | 27                 |
| Hay . . . . .       | 43,260,000  | 59,300,000  | 79,900,000  | 37                 |
| Cotton . . . . .    | 23,450,000  | 1,840,000   | 59,200,000  | 51                 |
| Potatoes . . . . .  | 2,770,000   | 6,300,000   | 15,100,000  | 108                |
| Tobacco . . . . .   | 590,000     | 180,000     | 5,100,000   | 173                |
| Sugar, &c. . . . .  | 3,580,000   | 290,000     | 19,700,000  | 110                |
| Total . . . . .     | 222,400,000 | 156,110,000 | 381,100,000 | 34                 |

The average value of farm products in the last three years was approximately as follows, reduced to English money :—

|                      | Millions £ Sterling |       |        |          |       |       |          |       |
|----------------------|---------------------|-------|--------|----------|-------|-------|----------|-------|
|                      | Grain               | Hay   | Cotton | Potatoes | Meat  | Dairy | Sundries | Total |
| N. England . . . . . | 2.1                 | 10.5  | ...    | 2.2      | 3.1   | 6.7   | 5.4      | 30.0  |
| Middle . . . . .     | 19.9                | 24.8  | ...    | 4.8      | 12.9  | 26.8  | 17.7     | 106.0 |
| South . . . . .      | 56.2                | 10.0  | 51.0   | 2.0      | 44.0  | 19.4  | 26.4     | 209.0 |
| Prairie . . . . .    | 127.0               | 38.8  | ...    | 9.0      | 73.6  | 56.3  | 60.3     | 365.0 |
| Pacific . . . . .    | 10.8                | 15.9  | ...    | 1.0      | 23.3  | 0.8   | 10.2     | 62.0  |
| Total . . . . .      | 216.0               | 100.0 | 51.0   | 19.0     | 156.0 | 110.0 | 120.0    | 772.0 |

Cattle-farms, as already shown, cover an area of 400 million acres, with the following amount of stock in 1896 :—

|                      | Live Stock (000 omitted) |        |        |        |
|----------------------|--------------------------|--------|--------|--------|
|                      | Horses                   | Cattle | Sheep  | Pigs   |
| N. England . . . . . | 400                      | 1,300  | 700    | 300    |
| Middle . . . . .     | 1,600                    | 4,100  | 2,600  | 2,100  |
| South . . . . .      | 4,500                    | 14,500 | 7,600  | 16,400 |
| West . . . . .       | 10,900                   | 28,300 | 27,400 | 24,000 |
| Union . . . . .      | 17,400                   | 48,200 | 38,300 | 42,800 |

In the United States (as in Australia and Argentina) the flocks and herds are subject to great fluctuations. See *Cattle*, page 654.

The gross product per acre, counting only the improved area, comes out as follows in the various sections :—

| States               | Acres       | £ Sterling  | Shill.<br>per Acre |
|----------------------|-------------|-------------|--------------------|
| N. England . . . . . | 10,750,000  | 30,000,000  | 56                 |
| Middle . . . . .     | 35,750,000  | 106,000,000 | 59                 |
| South . . . . .      | 103,800,000 | 209,000,000 | 40                 |
| Prairie . . . . .    | 184,300,000 | 365,000,000 | 40                 |
| Pacific . . . . .    | 23,000,000  | 62,000,000  | 54                 |
| Union . . . . .      | 357,600,000 | 772,000,000 | 43                 |



Comparing product with the number of hands engaged, we find as follows:—

| States        | Hands     | £ Sterling  | £ per Hand |
|---------------|-----------|-------------|------------|
| Eastern . . . | 1,100,000 | 136,000,000 | 124        |
| South . . .   | 3,850,000 | 209,000,000 | 54         |
| Prairie . . . | 3,060,000 | 365,000,000 | 120        |
| Pacific . . . | 310,000   | 62,000,000  | 200        |
| Union . . .   | 8,320,000 | 772,000,000 | 93         |

The United States consume about five-sixths, and export one-sixth, of their farm products, as measured by value, viz:—

| Year           | Millions £ Sterling |          |       |
|----------------|---------------------|----------|-------|
|                | Consumption         | Exported | Total |
| 1860 . . . . . | 367                 | 53       | 420   |
| 1880 . . . . . | 556                 | 143      | 699   |
| 1886 . . . . . | 674                 | 101      | 775   |
| 1893 . . . . . | 685                 | 128      | 813   |

The value of farm products consumed in 1893 was £10.3 per inhabitant, against £11.1 in 1880, the price level having fallen so much, that although the quantity was increased the value was less.

The following table shows the *official* value of farms at the census of 1890, and the *real* approximate value in 1895, compared with the number of agricultural hands:—

| States               | Millions £ Sterling |       | £ per Hand |
|----------------------|---------------------|-------|------------|
|                      | 1890                | 1895  |            |
| N. England . . . . . | 122                 | 142   | 523        |
| Middle . . . . .     | 548                 | 646   | 780        |
| South . . . . .      | 610                 | 713   | 185        |
| West . . . . .       | 2,050               | 2,641 | 784        |
| Total . . . . .      | 3,330               | 4,142 | 497        |

Comparing the above amount of agricultural capital with the improved area, it gives an average of barely £12 per acre, which is lower than in most countries, viz:—

|                  | £ Capital |          |               | £ Capital |          |
|------------------|-----------|----------|---------------|-----------|----------|
|                  | Per Acre  | Per Hand |               | Per Acre  | Per Hand |
| U. States . . .  | 12        | 497      | France . . .  | 34        | 430      |
| G. Britain . . . | 51        | 1,060    | Ireland . . . | 16        | 415      |
| Germany . . .    | 29        | 270      | Italy . . .   | 26        | 175      |

The contrast between the United States and Great Britain in the above table is very striking, and explains why agriculture progresses in the former, and languishes in the latter, country.

#### CANADA

The area under crops, by latest returns, was 20 million acres, equal to 4 acres per inhabitant, as compared with 3½ in the United States. In some respects Canada is more agricultural than the great Republic: the propor-

tion of people living on farms is much higher, and the value of farm products is £11.5 per head of the whole population, whereas it is not quite £11 in the United States. The cultivated area stands thus:—

|                     | Acres (000 omitted) |       |          |        |
|---------------------|---------------------|-------|----------|--------|
|                     | Grain               | Hay   | Sundries | Total  |
| Ontario . . . . .   | 5,040               | 2,530 | 540      | 8,110  |
| Quebec . . . . .    | 1,220               | 2,460 | 1,500    | 5,180  |
| Manitoba . . . . .  | 1,590               | 250   | 990      | 2,830  |
| Acadia, &c. . . . . | 1,900               | 970   | 910      | 3,780  |
| Total . . . . .     | 9,750               | 6,210 | 3,940    | 19,900 |

The latest estimates of grain crops was approximately as follows:—

|                     | Tons      |                 | Tons      |
|---------------------|-----------|-----------------|-----------|
|                     |           |                 |           |
| Ontario . . . . .   | 3,200,000 | Wheat . . . .   | 1,300,000 |
| Quebec . . . . .    | 800,000   | Oats . . . . .  | 2,600,000 |
| Manitoba . . . . .  | 800,000   | Barley . . . .  | 400,000   |
| Acadia, &c. . . . . | 400,000   | Maize, &c. . .  | 900,000   |
| Total . . . . .     | 5,200,000 | Total . . . . . | 5,200,000 |

The production of grain averages 41 bushels per inhabitant, against 49 in the United States; this is the reverse of what we might expect, in view of the heavier crops obtained in Upper Canada, viz:—

|                     | Bushels per Acre |        |      |
|---------------------|------------------|--------|------|
|                     | Wheat            | Barley | Oats |
| Ontario . . . . .   | 18               | 26     | 35   |
| U. States . . . . . | 13               | 21     | 25   |

Tillage has not progressed so much as pastoral industry in late years. Dairy farms have multiplied, as well as grazing farms, and the value of exported food reaches 10 millions sterling per annum. In 1894 the value of all farm products was approximately:—

|                    | Millions £ Sterling |        |       |
|--------------------|---------------------|--------|-------|
|                    | Consumption.        | Export | Total |
| Grain . . . . .    | 17                  | 4      | 21    |
| Meat . . . . .     | 9                   | 2      | 11    |
| Dairy . . . . .    | 5                   | 4      | 9     |
| Sundries . . . . . | 16                  | ...    | 16    |
| Total . . . . .    | 47                  | 10     | 57    |

The improved or productive area increased 70 per cent. in a period of 10 years, down to 1891, viz:—

|                   | Acres under | 1881       | 1891       |
|-------------------|-------------|------------|------------|
|                   |             |            |            |
| Tillage . . . . . |             | 15,100,000 | 19,900,000 |
| Pasture . . . . . |             | 6,400,000  | 15,300,000 |
| Total . . . . .   |             | 21,500,000 | 35,200,000 |

The total farming capital of the Dominion is approximately 311 millions sterling (which is equal to

£60 per inhabitant, against £59 in the United States), as follows:—

|               | Millions £ Sterling |        |          |       |
|---------------|---------------------|--------|----------|-------|
|               | Land                | Cattle | Sundries | Total |
| Ontario . . . | 155                 | 21     | 10       | 186   |
| Quebec . . .  | 50                  | 11     | 6        | 67    |
| Acadia . . .  | 3                   | 6      | 3        | 32    |
| West . . .    | 17                  | 5      | 4        | 26    |
| Total . . .   | 245                 | 43     | 23       | 311   |

Dividing the total among the number of farms, it gives an average of £517 to each, against £730 in the United States and £880 in France.

#### AUSTRALIA

Official returns show that the area under tillage has increased 400,000 acres per annum since 1891, viz.:—

|                     | 1891      | 1896      |
|---------------------|-----------|-----------|
| Victoria . . .      | 2,120,000 | 2,660,000 |
| S. Australia . . .  | 1,930,000 | 2,140,000 |
| New S. Wales . . .  | 850,000   | 1,660,000 |
| New Zealand . . .   | 1,420,000 | 1,600,000 |
| Queensland, &c. . . | 470,000   | 670,000   |
| Total . . .         | 6,790,000 | 8,730,000 |

The above returns, however, exclude 9,100,000 acres of sown grasses in New Zealand, which would bring up the total cultivated area to 17,800,000 acres, or two million acres less than in Canada. Compared with population the area is about equal, being 4 acres per inhabitant in both cases. The area under grain is almost six million acres, viz.:—

|                    | Acres     |           |           | Crop, Tons |
|--------------------|-----------|-----------|-----------|------------|
|                    | Wheat     | Oats, &c. | All Grain |            |
| Victoria . . .     | 1,580,000 | 490,000   | 2,070,000 | 380,000    |
| S. Australia . . . | 1,690,000 | 60,000    | 1,750,000 | 230,000    |
| N. S. Wales . . .  | 870,000   | 260,000   | 1,130,000 | 300,000    |
| New Zealand . . .  | 260,000   | 420,000   | 680,000   | 400,000    |
| Queensland . . .   | 35,000    | 115,000   | 150,000   | 70,000     |
| Tasmania . . .     | 75,000    | 45,000    | 120,000   | 50,000     |
| W. Australia . . . | 30,000    | ...       | 30,000    | 10,000     |
| Total . . .        | 4,540,000 | 1,390,000 | 5,930,000 | 1,440,000  |

The aggregate grain crops of the seven colonies in the last three years were:—

|                | Tons      |           |           |           |
|----------------|-----------|-----------|-----------|-----------|
|                | 1894      | 1895      | 1896      | Average   |
| Wheat . . .    | 790,000   | 630,000   | 670,000   | 700,000   |
| Oats . . .     | 450,000   | 410,000   | 500,000   | 450,000   |
| Maize, &c. . . | 300,000   | 270,000   | 300,000   | 290,000   |
| Total . . .    | 1,540,000 | 1,310,000 | 1,470,000 | 1,440,000 |

Thus the average yield sums up only 58 million bushels yearly, which is less than 10 bushels per acre, against 21 in the United States. About 300,000 tons, or one-fifth

of the crop, are annually exported, home consumption (after deduction for seed) averaging 10 bushels per inhabitant. Vineyards cover an area of 60,000 acres, as compared with 22,000 acres in 1886: the average vintage is over 4 million gallons, giving a yield of 72 gallons per acre, or about half the average in Europe. The average for five years shows:—

|                       | Acres  | Gallons   | Gallons per Acre |
|-----------------------|--------|-----------|------------------|
| Victoria . . .        | 30,000 | 1,800,000 | 60               |
| N. S. Wales . . .     | 8,000  | 800,000   | 100              |
| S. Australia . . .    | 17,000 | 1,400,000 | 85               |
| W. Australia, &c. . . | 4,000  | 300,000   | 75               |
| Total . . .           | 59,000 | 4,300,000 | 72               |

Potatoes are cultivated successfully in all seven colonies, sugar only in Queensland and New South Wales: the crops of last three years were:—

|            | Tons     |            | Tons per Acre |      |
|------------|----------|------------|---------------|------|
|            | Potatoes | Sugar-cane | Potatoes      | Cane |
| 1894 . . . | 580,000  | ...        | 3.9           | ...  |
| 1895 . . . | 450,000  | ...        | 3.5           | ...  |
| 1896 . . . | 510,000  | 1,150,000  | 3.5           | 10.1 |

Pastoral interests greatly surpass those of tillage, wool alone standing for more than the total value of the crops, viz.:—

|                    | Millions £ Sterling* |      |          |       |
|--------------------|----------------------|------|----------|-------|
|                    | Crops                | Wool | Sundries | Total |
| N. S. Wales . . .  | 4.0                  | 9.6  | 7.2      | 20.8  |
| Victoria . . .     | 6.7                  | 2.9  | 6.4      | 16.0  |
| New Zealand . . .  | 4.8                  | 4.8  | 4.5      | 14.1  |
| Queensland . . .   | 1.4                  | 3.3  | 5.0      | 9.7   |
| S. Australia . . . | 3.3                  | 1.3  | 1.8      | 6.4   |
| Tasmania . . .     | 1.0                  | 0.3  | 0.8      | 2.1   |
| W. Australia . . . | 0.3                  | 0.3  | 0.3      | 0.9   |
| Total . . .        | 21.5                 | 22.5 | 26.0     | 70.0  |

Here, as well as in the United States and Argentina the flocks are subject to violent fluctuations, viz.:—

|              | 1881       | 1891        | 1896        |
|--------------|------------|-------------|-------------|
| Sheep . . .  | 78,100,000 | 124,500,000 | 110,500,000 |
| Cattle . . . | 8,700,000  | 11,900,000  | 12,700,000  |
| Horses . . . | 1,200,000  | 1,800,000   | 1,900,000   |
| Total . . .  | 88,000,000 | 138,200,000 | 125,100,000 |

The aggregate number of live stock rose 5 millions yearly between 1881 and 1891, but since the latter year we find an average fall of 2½ millions yearly. The wool-clip averages 320,000 tons, of which 300,000 are exported. The value of all farm products, as shown above, is 70 millions sterling per annum, equal to £17 per head of the population, against £11 in the United States and in Canada, the ratio in Denmark being the same as in

\* This table is to be read thus: N. S. Wales 4.0 means £4,000,000.

Australia. Agricultural wealth stands approximately as follows :—

|                    | Millions £ Sterling |        |          |       |
|--------------------|---------------------|--------|----------|-------|
|                    | Land                | Cattle | Sundries | Total |
| N. S. Wales . . .  | 85                  | 34     | 12       | 131   |
| Victoria . . . .   | 49                  | 21     | 7        | 77    |
| New Zealand . . .  | 43                  | 20     | 6        | 69    |
| Queensland . . . . | 18                  | 34     | 5        | 57    |
| S. Australia . . . | 28                  | 7      | 3        | 38    |
| Tasmania . . . . . | 9                   | 2      | 1        | 12    |
| W. Australia . . . | 4                   | 2      | 1        | 7     |
| Total . . . . .    | 236                 | 120    | 35       | 391   |

Australian pasture lands are generally poor; they rarely carry more than 300 sheep to the square mile, whereas in the Pampas of Argentina it is usual to have from 1000 to 1500.

### SOUTH AFRICA

Cape Colony and Natal are devoted rather to pasture than tillage. In 1893 the total area under crops between the two colonies was 1,540,000 acres, nine-tenths under grain. As population increases, the deficit of grain-supply diminishes, the importation having fallen from 50,000 tons in 1885 to 42,000 in 1895. The grain crop of Cape Colony in 1896 reached 200,000 tons, besides which the colonists raise 2000 tons of tobacco and 25,000 pipes of wine, including the well-known Constantia. The vineyards cover 30,000 acres, and contain 87 million vine-stocks, the average yield being 1 gallon of wine from 15 vine-stocks. Natal has 600,000 acres under tillage, a small portion of which is used for sugar-growing. How much sugar is produced cannot be ascertained, but the exportation has fallen 30 per cent. since 1885, and does not now exceed 7000 tons. The value of all farm products is approximately as follows :—

|                    | Cape, £   | Natal, £  | Total, £  |
|--------------------|-----------|-----------|-----------|
| Wool . . . . .     | 1,600,000 | 500,000   | 2,100,000 |
| Grain . . . . .    | 1,100,000 | 400,000   | 1,500,000 |
| Sundries . . . . . | 3,300,000 | 1,100,000 | 4,400,000 |
| Total . . . . .    | 6,000,000 | 2,000,000 | 8,000,000 |

The breed of sheep has been much improved, the average fleece being now 5 lbs., or 40 per cent. heavier than in 1865. Nevertheless the exportation of wool fluctuates exceedingly, viz. :—

|                   | Tons Shipped Yearly |
|-------------------|---------------------|
| 1881-83 . . . . . | 24,000              |
| 1891-93 . . . . . | 42,000              |
| 1894-95 . . . . . | 34,000              |

Angora hair and ostrich feathers likewise form valuable items of rural industry, the exportation showing as follows :—

| Year           | Lbs. Weight |          | Value, £ Sterling |          |
|----------------|-------------|----------|-------------------|----------|
|                | Hair        | Feathers | Hair              | Feathers |
| 1885 . . . . . | 5,700,000   | 250,000  | 220,000           | 350,000  |
| 1895 . . . . . | 11,500,000  | 590,000  | 730,000           | 530,000  |

Thus the aggregate value of these two items rose in ten years from £570,000 to £1,260,000, an increase of 120

per cent. The live stock of the two colonies stands thus approximately :—

|                  | Cape       | Natal   | Total      |            |
|------------------|------------|---------|------------|------------|
|                  |            |         | 1897       | 1889       |
| Sheep . . . . .  | 14,100,000 | 800,000 | 14,900,000 | 14,900,000 |
| Cattle . . . . . | 2,230,000  | 740,000 | 2,970,000  | 2,120,000  |
| Goats . . . . .  | 5,030,000  | 370,000 | 5,400,000  | 5,450,000  |
| Horses . . . . . | 400,000    | 50,000  | 450,000    | 350,000    |

Cape Colony has, moreover, 220,000 ostriches, and the average yield is nearly 3 pounds of feathers, worth 50 shillings, yearly per bird. The agricultural wealth of the two colonies is about 65 millions, of which 51 millions pertain to Cape Colony.

### ARGENTINA

Tillage has made great strides in the last twenty years, owing to the enormous influx of Italians, the cultivated area showing as follows :—

|                   | Acres   |            |
|-------------------|---------|------------|
|                   | 1874    | 1897       |
| Wheat . . . . .   | 270,000 | 5,200,000  |
| Maize . . . . .   | 250,000 | 2,700,000  |
| Alfa, &c. . . . . | 300,000 | 7,300,000  |
| Total . . . . .   | 820,000 | 15,200,000 |

The country, however, is less suited to tillage than grazing, the crops being light and, moreover, constantly exposed to drought and locusts. The wheat crop of the last four years showed as follows :—

| Year              | Tons      |             |           |
|-------------------|-----------|-------------|-----------|
|                   | Crop      | Consumption | Export    |
| 1892-93 . . . . . | 1,400,000 | 550,000     | 850,000   |
| 1893-94 . . . . . | 2,080,000 | 550,000     | 1,530,000 |
| 1894-95 . . . . . | 1,550,000 | 560,000     | 990,000   |
| 1895-96 . . . . . | 1,130,000 | 580,000     | 550,000   |
| 1896-97 . . . . . | 750,000   | 600,000     | 150,000   |
| Average . . . . . | 1,380,000 | 570,000     | 810,000   |

The average for five years gave a mean crop of 9 bushels to the acre, as compared with 10 in Australia and 13 in the United States. The crop for (December) 1897 was expected to produce nearly the same as that for 1893, which would leave 1,400,000 tons for exportation. Maize covers one-third of the area under grain, and averages 30 bushels to the acre, but is a most uncertain crop, the surplus for exportation in 1896 having been only 180,000 tons, whereas in the preceding year it reached 800,000 tons. Alfa is an artificial grass, like clover, used for fattening sheep or cattle, within closed fences, called *Invernadas*; this crop covers about 3 million acres, chiefly in Buenos Ayres and Cordoba. Sugar-planting was begun on an enlarged scale in 1880, the production reaching 60,000 tons in 1892, and 120,000 in 1896: two-thirds are used for home consumption, and 40,000 tons exported, the Government paying a bounty of £8 per ton on the latter. The production of wine has likewise progressed, under the favour of oppressive duties on foreign wines. Vineyards cover about 100,000 acres, and yield a vintage of 35 million gallons: an equal amount of arti-

ficial wines is manufactured at Buenos Ayres and Rosario from all manner of vegetable, and certain deleterious, ingredients, which (as physicians assert) increases the death-rate of those cities. The area under linseed varies exceedingly, the crop fluctuating between 100,000 and 300,000 tons, all of which is exported.

Pastoral farming has always constituted the real wealth of the republic, the Pampas offering plenty of room for countless flocks and herds: nevertheless this branch of industry shows little increase in the number of live stock, viz. :—

|                  | 1888       | 1895        |
|------------------|------------|-------------|
| Sheep . . . . .  | 70,450,000 | 74,400,000  |
| Cattle . . . . . | 22,870,000 | 21,700,000  |
| Horses . . . . . | 4,400,000  | 4,450,000   |
| Total . . . . .  | 97,720,000 | 100,550,000 |

Although the number shows an increase of only 3 per cent. in seven years, the farmers have done much for improving breeds, by importing blood-stock of every kind from England and elsewhere. In this manner the average fleece has risen in twenty years from 3 lbs. to 5 lbs., and the weight of sheep in equal ratio. Many of the best sheep-farms belong to Irish or Scotch settlers, the area, stock, and gross income of which may be classed thus :—

| Class            | Acres  | Sheep   | Income, £ Sterling |
|------------------|--------|---------|--------------------|
| Small . . . . .  | 3,000  | 6,000   | 600                |
| Medium . . . . . | 15,000 | 30,000  | 3,000              |
| Large . . . . .  | 50,000 | 100,000 | 10,000             |

Consul Cowper (1872) stated that the progress of Buenos Ayres was mainly due to the Irish sheep-farmers; they constitute three-fourths of all foreign settlers devoted to pastoral occupations. Cattle-farming is mostly in the hands of natives, an *estancia* being more or less as follows :—

| Class            | Acres   | Cattle | Horses | Income, £ |
|------------------|---------|--------|--------|-----------|
| Small . . . . .  | 30,000  | 5,000  | 1,000  | 3,000     |
| Medium . . . . . | 100,000 | 12,000 | 2,000  | 7,000     |
| Large . . . . .  | 400,000 | 50,000 | 6,000  | 25,000    |

The annual value of all farm products is about 48 millions sterling, viz. :—

|                    | Product, £ | Consumption, £ | Export, £  |
|--------------------|------------|----------------|------------|
| Grain . . . . .    | 15,000,000 | 9,200,000      | 5,800,000  |
| Wool . . . . .     | 8,000,000  | 100,000        | 7,900,000  |
| Meat . . . . .     | 8,400,000  | 5,000,000      | 3,400,000  |
| Hides, &c. . . . . | 6,700,000  | 2,500,000      | 4,200,000  |
| Sundries . . . . . | 9,900,000  | 7,900,000      | 2,000,000  |
| Total . . . . .    | 48,000,000 | 24,700,000     | 23,300,000 |

The farming product is equal to £12 per inhabitant, against £11 in the United States and £17 in Australia. The estimated value of lands, stock, &c., in 1890 was 198 millions sterling: the gross product, therefore, is about 25 per cent. on capital, against 18 per cent. in Australia and 19 in the United States.

The average weight and value of exports in three years ending 1896 were :—

|                            | Quantity  | Value, £   |
|----------------------------|-----------|------------|
| Wool, tons . . . . .       | 184,000   | 7,900,000  |
| Sheepskins, tons . . . . . | 36,000    | 800,000    |
| Hides, tons . . . . .      | 60,000    | 1,200,000  |
| Meat, " . . . . .          | 92,000    | 1,800,000  |
| Cattle, number . . . . .   | 320,000   | 1,200,000  |
| Sheep, " . . . . .         | 350,000   | 200,000    |
| Horses, " . . . . .        | 40,000    | 100,000    |
| Tallow, &c. . . . .        | ...       | 2,000,000  |
| Wheat, tons . . . . .      | 1,100,000 | 4,300,000  |
| Maize, " . . . . .         | 800,000   | 1,600,000  |
| Linseed, " . . . . .       | 210,000   | 1,300,000  |
| Hay, " . . . . .           | 80,000    | 100,000    |
| Total . . . . .            |           | 22,500,000 |

Tillage estimates for 1897 were as follows :—

|                      | Acres     |           |           |            |
|----------------------|-----------|-----------|-----------|------------|
|                      | Wheat     | Maize     | Sundries  | Total      |
| B. Ayres . . . . .   | 1,020,000 | 1,860,000 | 860,000   | 3,740,000  |
| Santa Fé . . . . .   | 3,200,000 | 300,000   | 900,000   | 4,400,000  |
| Entre Rios . . . . . | 600,000   | 100,000   | 200,000   | 900,000    |
| Cordoba, &c. . . . . | 1,100,000 | 400,000   | 4,660,000 | 6,160,000  |
| Total . . . . .      | 5,920,000 | 2,660,000 | 6,620,000 | 15,200,000 |

#### URUGUAY

The area under tillage is supposed to reach 1,200,000 acres, of which two-thirds are under grain, the crops averaging 120,000 tons of wheat and 80,000 of maize, and leaving a small surplus for exportation. Pastoral interests are of superior importance, but the number of live stock does not increase (owing to civil wars), viz. :—

|                    | 1887       | 1896       |
|--------------------|------------|------------|
| Sheep . . . . .    | 15,900,000 | 14,300,000 |
| Cattle . . . . .   | 6,120,000  | 5,250,000  |
| Horses . . . . .   | 410,000    | 400,000    |
| Total . . . . .    | 22,430,000 | 19,950,000 |
| Value, £ . . . . . | 16,800,000 | 15,400,000 |

The total value of farm products yearly is about 10 millions sterling, viz. :—

|                    | Product, £ | Consumption, £ | Export, £ |
|--------------------|------------|----------------|-----------|
| Wool . . . . .     | 2,200,000  | ...            | 2,200,000 |
| Meat . . . . .     | 3,800,000  | 1,200,000      | 2,600,000 |
| Hides, &c. . . . . | 1,800,000  | 300,000        | 1,500,000 |
| Grain, &c. . . . . | 2,200,000  | 1,500,000      | 700,000   |
| Total . . . . .    | 10,000,000 | 3,000,000      | 7,000,000 |

The official value of land and stock is £38,500,000, and allowing for sundries this gives a total farming capital of 42 millions sterling: the gross product, therefore, is about 24 per cent. on capital, as compared with 25 in Argentina and 19 in the United States.

INDIA

The productive area is much too small for the actual population, viz. :—

|                  | ooo omitted |                        | Acres<br>per<br>Inhab. |
|------------------|-------------|------------------------|------------------------|
|                  | Population  | Area, Acres Cultivated |                        |
| Bengal . . .     | 71,300      | 97,300                 | 54,700                 |
| Bombay . . .     | 18,900      | 80,100                 | 30,100                 |
| Madras . . .     | 35,600      | 90,500                 | 29,900                 |
| Assam . . .      | 5,500       | 31,400                 | 2,900                  |
| Punjab . . .     | 20,900      | 70,400                 | 27,000                 |
| Oude . . .       | 12,700      | 15,300                 | 9,400                  |
| Burmah . . .     | 7,600       | 106,100                | 11,100                 |
| N.W. Prov. . .   | 34,300      | 50,500                 | 27,400                 |
| Central, &c. . . | 14,400      | 76,400                 | 34,500                 |
| Total . . .      | 221,200     | 618,000                | 227,000                |
|                  |             |                        | 1.0                    |

The cultivated area is only as one acre per inhabitant, but might be increased 60 per cent., there being, as shown in survey, 137 million acres available for cultivation, viz. :—

|                     | Uncultivated | Available   |
|---------------------|--------------|-------------|
| Bengal . . .        | 42,600,000   | 37,500,000  |
| Madras . . .        | 60,600,000   | 6,700,000   |
| Punjab . . .        | 43,400,000   | 22,300,000  |
| Burmah . . .        | 95,000,000   | 33,000,000  |
| Assam, &c., &c. . . | 149,400,000  | 37,300,000  |
| Total . . .         | 391,000,000  | 136,800,000 |

The principal areas of crops in 1895 were as follows :—

|                      | Acres (ooo omitted) |         |        |        |
|----------------------|---------------------|---------|--------|--------|
|                      | Rice                | Grain   | Cotton | Tea    |
| Bengal . . .         | 39,000              | 13,100  | 200    | 4,200  |
| Bombay . . .         | 1,800               | 18,400  | 2,700  | 1,800  |
| Madras . . .         | 6,600               | 14,900  | 1,500  | 1,700  |
| Punjab . . .         | 900                 | 19,700  | 1,000  | 1,100  |
| N.W. Provinces . . . | 5,100               | 21,100  | 1,200  | 900    |
| Burmah . . .         | 0,400               | 1,100   | 200    | 400    |
| Central, &c. . .     | 9,500               | 24,000  | 2,900  | 3,800  |
| Total . . .          | 69,300              | 112,300 | 9,700  | 13,900 |

The total farming products are apparently of the annual value of nearly 400 millions sterling, of which one-seventh is exported, viz. :—

|                 | Tons (ooo omitted) |        | Value, Millions £ |        |
|-----------------|--------------------|--------|-------------------|--------|
|                 | Crop               | Export | Crop              | Export |
| Grain . . .     | 32,400             | 400    | 130               | 2.2    |
| Rice . . .      | 22,000             | 1,700  | 88                | 9.2    |
| Cotton . . .    | 800                | 240    | 20                | 7.5    |
| Jute . . .      | 1,100              | 650    | 10                | 7.1    |
| Oil-seeds . . . | 1,000              | 900    | 9                 | 8.2    |
| Opium . . .     | 60                 | 50     | 7                 | 6.1    |
| Tea . . .       | 70                 | 60     | 6                 | 5.5    |
| Coffee . . .    | 40                 | 15     | 4                 | 1.5    |
| Sugar . . .     | 120                | 60     | 1                 | 0.6    |
| Sundries . . .  | ...                | ...    | 115               | 8.1    |
| Total . . .     | ...                | ...    | 390               | 56.0   |

According to the census of 1891 the agricultural population amounted to 172 millions, from which it would appear that the farm products average 40 rupees or 46 shillings per head, say £10 a year for each adult male peasant.

CEYLON

One-eighth of the island is under crops, the whole area showing thus :—

|                      | Acres      |
|----------------------|------------|
| Rice . . .           | 750,000    |
| Tea, coffee, &c. . . | 1,290,000  |
| Pasture . . .        | 910,000    |
| Unproductive . . .   | 13,270,000 |
| Total . . .          | 16,200,000 |

Coffee-growing and chinchona have declined, and other products show a great increase, the exports having been as follows :—

|                    | 1873   | 1887    | 1895   |
|--------------------|--------|---------|--------|
| Coffee, tons . . . | 49,000 | 9,000   | 3,000  |
| Tea, " . . .       | ...    | 6,000   | 44,000 |
| Oil, " . . .       | 6,000  | 16,000  | 21,000 |
| Cocoa, " . . .     | ...    | 800     | 1,400  |
| Chinchona, £ . . . | ...    | 170,000 | 4,000  |

The aggregate value of the above exports was £4,400,000 in 1873, falling to £1,900,000 in 1887, and amounting to £3,500,000 in 1895. No less than 80 per cent. of the population is agricultural, the number of male adults so employed being 850,000.

JAVA

The *Statesman's Year-book* has the following official returns :—

|                    | 1890      | 1894      |
|--------------------|-----------|-----------|
| Rice, acres . . .  | 4,390,000 | 5,060,000 |
| Maize, " . . .     | 1,880,000 | 1,930,000 |
| Sundries, " . . .  | 2,070,000 | 2,380,000 |
| Total, acres . . . | 8,340,009 | 9,370,000 |

The principal crops were as follows :—

|                    | 1891    | 1894    |
|--------------------|---------|---------|
| Sugar, tons . . .  | 420,000 | 480,000 |
| Coffee, " . . .    | 51,000  | 58,000  |
| Chinchona, " . . . | 3,100   | 3,200   |
| Tea, " . . .       | 3,300   | 4,100   |
| Tobacco, " . . .   | 8,200   | 10,300  |

Agricultural exports of Java average 12 millions sterling, and are mostly sold in Holland, the Dutch Government having a profit of about 25 per cent.

JAPAN

The area under crops is one-seventh of the total, viz. :—

|                   | 1891       | 1895       |
|-------------------|------------|------------|
| Rice, acres . . . | 6,730,000  | 7,020,000  |
| Grain, " . . .    | 4,170,000  | 4,340,000  |
| Pasture, " . . .  | 33,600,000 | 33,600,000 |
| Waste, " . . .    | 34,900,000 | 34,440,000 |
| Total . . .       | 79,400,000 | 79,400,000 |

The principal crops were :—

|                      | 1891      | 1895      |
|----------------------|-----------|-----------|
| Rice, tons . . .     | 5,300,000 | 5,000,000 |
| Wheat, " . . .       | 300,000   | 500,000   |
| Barley, rye, " . . . | 1,020,000 | 1,900,000 |
| Sugar, " . . .       | 50,000    | 52,000    |

The value of tillage products sums up 45 millions sterling, or nearly £4 per acre. Live stock comprises 1,500,000 horses and 1,100,000 cattle. The production of raw silk averages 16 million lbs. yearly, worth 8 millions sterling.

#### BRAZIL

Although this country has the same area as the United States, the total extent of productive land does not exceed the area covered by the farms of the single State of Ohio, or about 18 million acres. The chief product is coffee, which has not declined since the emancipation of negroes (1888), as was expected, the crop showing thus:—

| Year       | Tons    | Year       | Tons    |
|------------|---------|------------|---------|
| 1880 . . . | 333,000 | 1892 . . . | 444,000 |
| 1885 . . . | 389,000 | 1897 . . . | 590,000 |

The value of the coffee-crop is about 36 millions sterling, most of it being exported to the United States. Sugar, cotton, tobacco, and Paraguayan tea are also largely exported, as well as maize and mandioca; these items making up about 14 millions sterling. Cattle-farming is almost confined to the southernmost State, Rio Grande do Sul, the *saladeros* of Pelotas killing 3000 head daily in the season. The sum total of tillage and pastoral industry in Brazil does not exceed 60 millions sterling, that is, about the same as Canada.

#### WEST INDIES, BRITISH

Sugar and bananas are the principal products, the cultivated area showing thus:—

|                   | Acres   |          |         |
|-------------------|---------|----------|---------|
|                   | Sugar   | Sundries | Total   |
| Jamaica . . .     | 30,000  | 150,000  | 180,000 |
| Trinidad . . .    | 60,000  | 140,000  | 200,000 |
| Barbadoes . . .   | 30,000  | 70,000   | 100,000 |
| Guiana . . .      | 70,000  | 10,000   | 80,000  |
| Antigua, &c. . .  | 50,000  | 150,000  | 200,000 |
| West Indies . . . | 240,000 | 520,000  | 760,000 |

The export of sugar has notably declined in quantity in the last fifteen years, and still more in value, viz:—

| Average       | Tons    | Value, £  | £ per Ton |
|---------------|---------|-----------|-----------|
| 1881-85 . . . | 290,000 | 4,730,000 | 16.3      |
| 1891-95 . . . | 265,000 | 3,430,000 | 13.0      |

The quantities shipped gave the following yearly averages:—

|                      | 1881-83 | 1887-89 | 1893-95 |
|----------------------|---------|---------|---------|
| Guiana, . . tons . . | 111,000 | 120,000 | 104,000 |
| Trinidad, . . .      | 51,000  | 57,000  | 49,000  |
| Barbadoes, . . .     | 47,000  | 59,000  | 49,000  |
| Jamaica, . . .       | 27,000  | 21,000  | 20,000  |
| Antigua, &c., . .    | 49,000  | 51,000  | 37,000  |
| West Indies . . .    | 285,000 | 308,000 | 259,000 |

The cultivation of fruit for the seaboard cities of the United States has increased very rapidly, the values exported from the single island of Jamaica showing:—

|                               | 1885-86 | 1891-96 |
|-------------------------------|---------|---------|
| Bananas, . . . £ sterling . . | 148,000 | 372,000 |
| Oranges and nuts, . . .       | 56,000  | 148,000 |
| Total, £ . . .                | 204,000 | 520,000 |

Not far from the West Indies are the Bermuda Islands, where small farms are very productive. The official

report for 1897 shows that one farmer gets £100 an acre by growing lilies. Farms range from 5 to 25 acres, the gross product averaging £40 per acre.

#### FREEJEE ISLANDS

In this little group there are 3000 white settlers, who have 40,000 acres under cultivation, one-half under sugar, of which they export 25,000 tons yearly, the exportation having doubled since 1886. Live stock comprises 20,000 cattle, sheep, and Angora goats.

#### CHILI

This is essentially an agricultural country, with 7 million acres under crops, the production of grain ranging from 800,000 to 900,000 tons, of which one-fourth is exported. Live stock is insufficient, the deficit of meat-supply being met by the importation of cattle and sheep across the Andes from Argentina.

#### ALGERIA

Notwithstanding the great efforts and liberality of the French Government this colony makes slow progress in agriculture: the production of grain in 1895 compares with 1886 as follows:—

|               | Acres     |           | Tons      |           |
|---------------|-----------|-----------|-----------|-----------|
|               | 1886      | 1895      | 1886      | 1895      |
| Wheat . . .   | 3,120,000 | 3,170,000 | 630,000   | 840,000   |
| Barley . . .  | 3,600,000 | 3,470,000 | 950,000   | 1,070,000 |
| Oats, &c. . . | 240,000   | 290,000   | 80,000    | 110,000   |
| Total . . .   | 6,960,000 | 6,930,000 | 1,660,000 | 2,020,000 |
| French . . .  | 1,060,000 | 1,090,000 | 290,000   | 430,000   |
| Native . . .  | 5,900,000 | 5,840,000 | 1,370,000 | 1,590,000 |
| Total . . .   | 6,960,000 | 6,930,000 | 1,660,000 | 2,020,000 |

Although the area is less, the weight of crop has increased more than 20 per cent., probably owing to improved mode of agriculture. The average yield per acre shows as follows:—

|                        | Bushels per Acre |      |
|------------------------|------------------|------|
|                        | 1886             | 1895 |
| Wheat . . . . .        | 8.0              | 10.6 |
| Barley . . . . .       | 10.5             | 12.3 |
| All grain . . . . .    | 9.5              | 11.6 |
| French farms . . . . . | 11.0             | 15.8 |
| Arab „ . . . . .       | 9.3              | 10.8 |

Vine-growing has progressed very satisfactorily, there being at present 30,000 vineyards, three-fifths belonging to French or other European settlers. The figures of this branch of industry in 1895 compare with 1886 as follows:—

|                | Acres   | Gallons    | Do. per Acre |
|----------------|---------|------------|--------------|
| 1886 . . . . . | 190,000 | 36,000,000 | 189          |
| 1895 . . . . . | 300,000 | 79,000,000 | 263          |

On the other hand farm stock shows a decline, viz:—

|                | Number (000 omitted) |       |        |       |
|----------------|----------------------|-------|--------|-------|
|                | Cattle               | Sheep | Horses | Goats |
| 1886 . . . . . | 1,190                | 9,360 | 310    | 4,670 |
| 1895 . . . . . | 1,130                | 7,700 | 350    | 3,370 |

Europeans own hardly 10, Arabs 90, per cent. of the live stock, which includes also 250,000 camels.

# TUNIS

The territory covers nearly 29 million acres, of which only one-fourth is under cultivation, viz. :—

|                      | Acres      |
|----------------------|------------|
| Grain . . . . .      | 2,300,000  |
| Olives, &c. . . . .  | 4,500,000  |
| Pasture, &c. . . . . | 22,000,000 |
| Total . . . . .      | 28,800,000 |

Products average about 400,000 tons of grain, 4,000,000 gallons of wine, and 2,000,000 gallons of olive oil. The value of tillage and pastoral products exported (mostly to France) amounts to £1,300,000 per annum. Live stock is comparatively trifling, 1,200,000 sheep, 680,000 goats, 230,000 cattle, 120,000 camels; the pasture lands could carry much more.

# CENTRAL AMERICA

The little republics of Guatemala, Costa Rica, Nicaragua, Salvador, and Honduras, have an aggregate of about 900,000 acres under crops, mostly maize and other grain. There are 200,000 acres under coffee, average crop 50,000 tons, Guatemala standing for two-thirds of the total. The sugar crop of these republics is about 60,000 tons. See Part I.

# CUBA

Before the revolution of 1896 there were 91,000 estates, covering altogether 2,800,000 acres, being an average of 30 acres each. The production of sugar, until the present revolution, was usually a million tons yearly, of which three-fourths went to the United States. The weight of tobacco and cigars exported averaged 120,000 tons. The total value of farm products ranged from 20 to 24 millions sterling, nine-tenths of the island being unpopulated and uncultivated, owing to the wretched system of government.

The adjacent island of Porto Rico has about 600,000 acres under cultivation, and exports coffee, sugar, and tobacco to the value of 3 millions sterling yearly.

# CANARY ISLANDS

Free trade was introduced in 1890, and the result has been a marvellous improvement in the condition of these islands, which were previously subject to constant misery and periodical famines. The total cultivated area hardly exceeds 500,000 acres, but the climate and soil are so favourable for early fruits and vegetables that the African steamers which touch weekly at Tenerife and Las Palmas convey cargoes of same to the London and other English markets. Farming is now so prosperous that land fetches high rents, and cannot be bought under £50 an acre.

# EGYPT

The cultivated area shows a slight increase since the country was taken by the British forces in 1883. It was 4,960,000 acres in 1880, and the returns for 1891 show 5,170,000, that is, an increase of 4 per cent. There are 1,140,000 acres under double cultivation, which explains why the acreage of crops in the following table exceeds the total cultivated area, viz. :—

|                       | 1888      | 1891      |
|-----------------------|-----------|-----------|
| Wheat . . . . .       | 1,290,000 | 1,250,000 |
| Other grain . . . . . | 3,205,000 | 2,960,000 |
| Cotton . . . . .      | 900,000   | 890,000   |
| Clover, &c. . . . .   | 980,000   | 1,230,000 |
| Total . . . . .       | 6,375,000 | 6,330,000 |

The value of crops was estimated in 1884 at 30 millions sterling, but at present hardly reaches 25 millions. See *Land*, and Part I., page 39.

# AGRICULTURAL COLLEGES

So much attention has been given of late years to agricultural science, that most nations have a number of institutions for the purpose.

*France*.—The Agronomic Institute of Paris, and 167 Agricultural Schools, receive from Government yearly grants amounting to £182,000 sterling.

*Germany*.—There are 31 Agricultural Colleges maintained by the State; one of these is Hohenheim, near Stuttgart, which receives £6000 a year. There are Agricultural Schools in every district of Bavaria, the State defraying 50 per cent. of their cost. In other parts of Germany there are similar institutions, which receive on an average £300 a year each per annum.

*Austria* (proper).—There were 65 Agricultural Schools in 1880, and the number has now risen to 118, of which Bohemia has 45. The annual expenditure is £105,000, the State contributing £45,000, the local authorities £30,000, and students the rest. The State also gives £5000 a year to travelling lecturers.

*Hungary*.—At Magyar-Ovar is the great Academy of Agriculture. There are also 4 Agricultural Colleges and 35 Schools, of which 20 are maintained by the Hungarian Treasury at an annual cost of £43,000. These schools turn out 1100 agricultural graduates or licentiates yearly.

*Switzerland*.—There are 16 Agricultural Schools, maintained at a cost of £12,600, the Cantons giving two-thirds, the Federal Treasury one-third.

*United States*.—There are 65 Agricultural Colleges, with 1280 professors and 17,600 students. About 3000 graduate yearly, the course being one of four years. Income £840,000 sterling, of which Congress gives £300,000, the local authorities £240,000. The buildings represent an outlay of £3,700,000 sterling, including £750,000 for the libraries and apparatus.

# ALCOHOL

The average production of liquors in five years ending 1895–96, and the equivalent of all in alcohol, were as follows :—

|                       | Millions of Gallons |       |         | All Red.<br>to<br>Alcohol |
|-----------------------|---------------------|-------|---------|---------------------------|
|                       | Wine                | Beer  | Spirits |                           |
| United Kingdom . . .  | ...                 | 1,180 | 47      | 78                        |
| France . . . . .      | 840                 | 194   | 99      | 143                       |
| Germany . . . . .     | 70                  | 1,230 | 136     | 130                       |
| Russia . . . . .      | 40                  | 90    | 154     | 85                        |
| Austria . . . . .     | 115                 | 376   | 102     | 80                        |
| Italy . . . . .       | 605                 | 2     | 8       | 65                        |
| Spain . . . . .       | 460                 | 21    | ...     | 47                        |
| Portugal . . . . .    | 70                  | ...   | ...     | 7                         |
| Scandinavia . . . . . | ...                 | 86    | 16      | 12                        |
| Holland . . . . .     | ...                 | 50    | 15      | 10                        |
| Belgium . . . . .     | ...                 | 260   | 13      | 18                        |
| Switzerland . . . . . | 30                  | 34    | 2       | 6                         |
| Various . . . . .     | 190                 | 2     | 2       | 20                        |
| Europe . . . . .      | 2,420               | 3,525 | 594     | 701                       |
| United States . . .   | 20                  | 865   | 72      | 77                        |
| Total . . . . .       | 2,440               | 4,390 | 666     | 778                       |

Consumption during the same five years was approximately thus :—

|                          | Million Gallons Yearly |       |         | All Red.<br>to<br>Alcohol |
|--------------------------|------------------------|-------|---------|---------------------------|
|                          | Wine                   | Beer  | Spirits |                           |
| United Kingdom . . . . . | 15                     | 1,160 | 39      | 73                        |
| France . . . . .         | 990                    | 196   | 71      | 143                       |
| Germany . . . . .        | 60                     | 1,230 | 99      | 111                       |
| Russia . . . . .         | 45                     | 50    | 125     | 71                        |
| Austria . . . . .        | 130                    | 376   | 97      | 78                        |
| Italy . . . . .          | 570                    | 3     | 8       | 61                        |
| Spain . . . . .          | 330                    | 21    | ...     | 34                        |
| Scandinavia . . . . .    | 2                      | 86    | 17      | 13                        |
| Portugal . . . . .       | 55                     | ...   | ...     | 6                         |
| Holland . . . . .        | 2                      | 50    | 9       | 7                         |
| Belgium . . . . .        | 6                      | 260   | 13      | 19                        |
| Switzerland . . . . .    | 45                     | 34    | 4       | 8                         |
| Various . . . . .        | 150                    | 4     | 5       | 18                        |
| Europe . . . . .         | 2,400                  | 3,510 | 487     | 612                       |
| United States . . . . .  | 20                     | 870   | 73      | 78                        |
| Total . . . . .          | 2,420                  | 4,360 | 560     | 720                       |

Consumption per inhabitant has been as follows :—

|                          | Gallons per Head |      |         | All Red.<br>to<br>Alcohol |
|--------------------------|------------------|------|---------|---------------------------|
|                          | Wine             | Beer | Spirits |                           |
| United Kingdom . . . . . | 0.4              | 30.0 | 1.0     | 1.90                      |
| France . . . . .         | 26.0             | 5.0  | 1.9     | 3.80                      |
| Germany . . . . .        | 1.2              | 24.0 | 1.9     | 2.20                      |
| Russia . . . . .         | 0.4              | 0.9  | 1.1     | 0.65                      |
| Austria . . . . .        | 3.1              | 9.0  | 2.3     | 1.80                      |
| Italy . . . . .          | 20.5             | 0.1  | 0.3     | 2.10                      |
| Spain . . . . .          | 18.0             | 1.4  | ...     | 1.86                      |
| Scandinavia . . . . .    | 0.2              | 9.5  | 2.0     | 1.50                      |
| Holland . . . . .        | 0.4              | 10.5 | 2.0     | 1.50                      |
| Belgium . . . . .        | 0.9              | 41.5 | 2.1     | 3.10                      |
| Switzerland . . . . .    | 15.0             | 11.5 | 1.3     | 2.60                      |
| United States . . . . .  | 0.3              | 12.8 | 1.1     | 1.15                      |

The above is exclusive of Temperance drinks, which according to Bannister, Government analyst, contain from 3 to 13 per cent. of alcohol.

### BEER

Consumption in the principal countries has been approximately as follows :—

|                          | Million Gallons |       | Gallons per Head |      |
|--------------------------|-----------------|-------|------------------|------|
|                          | 1885            | 1895  | 1885             | 1895 |
| United Kingdom . . . . . | 976             | 1,160 | 27.1             | 29.6 |
| Germany . . . . .        | 908             | 1,216 | 19.8             | 23.5 |
| Belgium . . . . .        | 209             | 271   | 35.6             | 42.2 |
| Austria . . . . .        | 279             | 410   | 7.1              | 9.5  |
| France . . . . .         | 183             | 197   | 4.6              | 5.1  |
| Scandinavia . . . . .    | 60              | 90    | 8.5              | 9.7  |
| Russia, &c. . . . .      | 148             | 196   | 1.0              | 1.1  |
| Europe . . . . .         | 2,763           | 3,540 | 7.5              | 9.0  |
| United States . . . . .  | 497             | 870   | 8.8              | 12.7 |
| Total . . . . .          | 3,260           | 4,410 | 7.8              | 9.8  |

A bushel of barley yields 15 gallons of beer in Great Britain, 25 in Germany. Five bushels of barley give 4 of malt.

### SPIRITS

Consumption in the principal countries was approximately thus :—

|                          | Million Gallons |      | Gallons per Head |      |
|--------------------------|-----------------|------|------------------|------|
|                          | 1885            | 1895 | 1885             | 1895 |
| United Kingdom . . . . . | 35              | 39   | 0.96             | 1.00 |
| Germany . . . . .        | 70              | 98   | 1.58             | 1.90 |
| France . . . . .         | 61              | 68   | 1.69             | 1.78 |
| Austria . . . . .        | 84              | 105  | 2.20             | 2.60 |
| Russia . . . . .         | 137             | 132  | 1.46             | 1.03 |
| Scandinavia . . . . .    | 17              | 17   | 2.10             | 1.90 |
| Belgium . . . . .        | 12              | 14   | 2.02             | 2.20 |
| Holland . . . . .        | 9               | 9    | 2.02             | 1.91 |
| Italy, &c. . . . .       | 16              | 18   | 0.25             | 0.25 |
| Europe . . . . .         | 444             | 500  | 1.22             | 1.30 |
| United States . . . . .  | 59              | 65   | 1.05             | 0.93 |
| Total . . . . .          | 503             | 565  | 1.20             | 1.25 |

### WINE

Production and consumption were approximately as follows :—

|                     | Millions of Gallons |       |             |       |
|---------------------|---------------------|-------|-------------|-------|
|                     | Production          |       | Consumption |       |
|                     | 1885                | 1895  | 1885        | 1895  |
| France . . . . .    | 690                 | 590   | 810         | 940   |
| Italy . . . . .     | 550                 | 530   | 500         | 460   |
| Spain . . . . .     | 510                 | 470   | 330         | 350   |
| Portugal . . . . .  | 110                 | 70    | 60          | 55    |
| Austria . . . . .   | 180                 | 140   | 160         | 190   |
| Germany . . . . .   | 82                  | 44    | 80          | 80    |
| Russia, &c. . . . . | 238                 | 276   | 270         | 395   |
| Europe . . . . .    | 2,360               | 2,120 | 2,210       | 2,340 |

The *Moniteur Vinicole* gives the production of wine since 1885 as follows :—

|                         | Millions of Gallons Yearly |         |            |
|-------------------------|----------------------------|---------|------------|
|                         | 1885-94                    | 1895-97 | Difference |
| France . . . . .        | 700                        | 762     | + 62       |
| Italy . . . . .         | 615                        | 527     | - 88       |
| Spain . . . . .         | 564                        | 420     | - 144      |
| Austria . . . . .       | 143                        | 94      | - 49       |
| Roumania . . . . .      | 41                         | 101     | + 60       |
| Portugal . . . . .      | 79                         | 62      | - 17       |
| Germany . . . . .       | 83                         | 65      | - 18       |
| Turkey . . . . .        | 44                         | 53      | + 9        |
| Bulgaria . . . . .      | 56                         | 26      | - 30       |
| Russia . . . . .        | 71                         | 64      | - 7        |
| Servia . . . . .        | 61                         | 21      | - 40       |
| Greece . . . . .        | 30                         | 36      | + 6        |
| Switzerland . . . . .   | 27                         | 29      | + 2        |
| Europe . . . . .        | 2,514                      | 2,260   | - 254      |
| Algeria . . . . .       | 70                         | 90      | + 20       |
| Argentina . . . . .     | 20                         | 33      | + 13       |
| Chile . . . . .         | 30                         | 44      | + 14       |
| South Africa . . . . .  | 3                          | 3       | -          |
| Brazil . . . . .        | 4                          | 9       | + 5        |
| Australia . . . . .     | 2                          | 3       | + 1        |
| United States . . . . . | 20                         | 20      | -          |
| Total . . . . .         | 2,663                      | 2,462   | - 201      |



The world produces at present 8 per cent. less wine than it did in the decade ending 1894. A vineyard has usually from 3000 to 5000 vine-stalks per acre, 20 vines producing as a rule one gallon of wine. In 1890 it was stated that 10,000 vines produced yearly the following quantity of wine :—

| In                      | Galls. | In                    | Galls. |
|-------------------------|--------|-----------------------|--------|
| Australia . . . . .     | 320    | Germany . . . . .     | 530    |
| United States . . . . . | 320    | Switzerland . . . . . | 930    |
| France . . . . .        | 400    | Cape Colony . . . . . | 2800   |

Cape Colony has 20,000 acres of vineyards containing 60 million stalks. See *Wine*, p. 597.

## UNITED KINGDOM

The quantity and value of liquor consumed in the United Kingdom in 1896 were :—

|                          | Millions of Gallons |         |       |            |
|--------------------------|---------------------|---------|-------|------------|
|                          | Beer                | Spirits | Wines | Cider, &c. |
| England . . . . .        | 1,044               | 27      | 13.4  | 14.0       |
| Scotland . . . . .       | 63                  | 8       | 1.4   | 0.5        |
| Ireland . . . . .        | 99                  | 5       | 1.0   | 0.5        |
| United Kingdom . . . . . | 1,206               | 40      | 15.8  | 15.0       |

Reducing all to alcohol, and taking the wholesale value (free of duty), the shares that correspond to the three kingdoms are as follows :—

|                      | Gallons Alcohol | Value, £   | Per Inhabitant |           |
|----------------------|-----------------|------------|----------------|-----------|
|                      |                 |            | Gallons        | Shillings |
| England . . . . .    | 62,500,000      | 67,000,000 | 2.0            | 43        |
| Scotland . . . . .   | 7,100,000       | 6,700,000  | 1.7            | 32        |
| Ireland . . . . .    | 7,200,000       | 7,300,000  | 1.6            | 32        |
| U. Kingdom . . . . . | 76,800,000      | 81,000,000 | 1.9            | 41        |

The quantities of alcohol and the money value of each kind of liquor were :—

|                    | Gallons Alcohol | Value, £   |
|--------------------|-----------------|------------|
| Beer . . . . .     | 54,300,000      | 60,300,000 |
| Spirits . . . . .  | 19,800,000      | 14,800,000 |
| Wines, &c. . . . . | 2,700,000       | 5,900,000  |
| Total . . . . .    | 76,800,000      | 81,000,000 |

The consumption of liquor in the United Kingdom has been as follows :—

|                   | Millions of Gallons |      |      |       |
|-------------------|---------------------|------|------|-------|
|                   | 1886                | 1876 | 1886 | 1896  |
| Beer . . . . .    | 890                 | 990  | 977  | 1,206 |
| Spirits . . . . . | 30                  | 42   | 34   | 40    |
| Wines . . . . .   | 13                  | 18   | 13   | 16    |

## Gallons per Head

|                              | 1886 | 1876 | 1886 | 1896 |
|------------------------------|------|------|------|------|
| Beer . . . . .               | 29.7 | 30.0 | 26.9 | 30.9 |
| Spirits . . . . .            | 1.0  | 1.3  | 0.9  | 1.0  |
| Wine . . . . .               | 0.4  | 0.5  | 0.4  | 0.4  |
| Equivalent alcohol . . . . . | 1.9  | 2.1  | 1.7  | 1.9  |

Reducing all to alcohol, the consumption per head is the same as it was 30 years ago.

## GERMANY

In 1895 were produced 66 million gallons of alcohol, from 2,100,000 tons of potatoes and 350,000 tons of grain; 54 million gallons were used for liquor, the rest for manufactures.

## UNITED STATES

The production of spirits and beer, and the amount paid for Inland Revenue (which includes both liquor and tobacco dues) in 1897 were :—

|                        | Spirits, Gallons | Beer, Barrels | In. Rev. £ Sterling |
|------------------------|------------------|---------------|---------------------|
| Illinois . . . . .     | 22,700,000       | 3,300,000     | 6,600,000           |
| New York . . . . .     | 3,800,000        | 9,500,000     | 3,800,000           |
| Kentucky . . . . .     | 6,800,000        | 400,000       | 3,300,000           |
| Ohio . . . . .         | 7,500,000        | 2,600,000     | 2,600,000           |
| Pennsylvania . . . . . | 1,200,000        | 3,900,000     | 2,400,000           |
| Indiana . . . . .      | 8,700,000        | 600,000       | 1,800,000           |
| Other States . . . . . | 13,600,000       | 14,200,000    | 10,000,000          |
| Union . . . . .        | 64,300,000       | 34,500,000    | 30,500,000          |

The amount levied on spirits and beer was £24,000,000 sterling, equal to a liquor tax of 80 pence per inhabitant.

## TAXES ON ALCOHOL

In the United Kingdom these taxes have risen as follows :—

|                | Beer, £    | Wine, Spirits, £ | Total, £   |
|----------------|------------|------------------|------------|
| 1866 . . . . . | 6,790,000  | 15,350,000       | 22,140,000 |
| 1876 . . . . . | 8,590,000  | 23,040,000       | 31,630,000 |
| 1885 . . . . . | 8,550,000  | 19,530,000       | 28,080,000 |
| 1896 . . . . . | 10,900,000 | 21,630,000       | 32,530,000 |

The duties on British spirits and on beer in the three kingdoms were in 1897 as follows :—

|                      | Spirits, £ | Beer, £    | Total, £   | Shillings p. Inhab. |
|----------------------|------------|------------|------------|---------------------|
| England . . . . .    | 6,450,000  | 9,790,000  | 16,240,000 | 11                  |
| Scotland . . . . .   | 6,130,000  | 600,000    | 6,730,000  | 32                  |
| Ireland . . . . .    | 4,230,000  | 930,000    | 5,160,000  | 23                  |
| U. Kingdom . . . . . | 16,810,000 | 11,320,000 | 28,130,000 | 14                  |

The above is exclusive of duties on wines and imported spirits, which if included would bring up the liquor duties of the United Kingdom to 16 shillings per inhabitant.

In France they were as follows :—

| Year           | Beer, £   | Wine, £   | Spirits, £ | Total, £   |
|----------------|-----------|-----------|------------|------------|
| 1885 . . . . . | 980,000   | 6,600,000 | 9,720,000  | 17,300,000 |
| 1896 . . . . . | 1,000,000 | 8,800,000 | 10,700,000 | 20,500,000 |

In Holland they were :—

| Year           | Beer, £ | Wine, £ | Spirits, £ | Total, £  |
|----------------|---------|---------|------------|-----------|
| 1886 . . . . . | 100,000 | 150,000 | 1,950,000  | 2,200,000 |
| 1896 . . . . . | 100,000 | 150,000 | 2,250,000  | 2,500,000 |

In Belgium they were :—

| Year           | Beer, £ | Wine, £ | Spirits, £ | Total, £  |
|----------------|---------|---------|------------|-----------|
| 1885 . . . . . | 600,000 | 200,000 | 1,400,000  | 2,200,000 |
| 1896 . . . . . | 800,000 | 300,000 | 1,740,000  | 2,840,000 |

In the United States in 1897 the tax on spirits was £17,000,000 or 66 pence per gallon, that on beer was £7,000,000 or 48 pence per barrel.

The taxes on liquor were :—

| Year | Beer, £   | Wine, £ | Spirits, £ | Total, £   |
|------|-----------|---------|------------|------------|
| 1888 | 5,000,000 | 800,000 | 15,000,000 | 20,800,000 |
| 1896 | 7,200,000 | 700,000 | 16,100,000 | 24,000,000 |

In Switzerland the tax on spirits produced :—

| Year           | Gallons   | Tax, £  |
|----------------|-----------|---------|
| 1891 . . . . . | 1,500,000 | 240,000 |
| 1895 . . . . . | 1,200,000 | 200,000 |

In Germany the liquor taxes in 1895 amounted to £11,900,000.

## ANIMALS

Two dogs can draw a sleigh carrying 250 lbs. a distance of 20 miles in 5 hours; eight will draw a sleigh of 3 persons at the rate of 5 miles an hour, and travel 60 miles a day. A reindeer will draw a sleigh 5 feet long and 2 feet wide, carrying one passenger, 110 miles in a day.

The highest recorded price for a dog is £1500, paid by Mr. Reick of New York for a dog called Sir Belvidere. The highest price for a horse has been £25,000, paid by the Czar for an Irish horse called Galtee More. See *Animals*, page 161, and *Dogs*, page 691.

## AQUEDUCTS

Since 1890 five great aqueducts have been constructed or enlarged, viz :—

|                      | Miles | Cost, £   | Gallons Daily |
|----------------------|-------|-----------|---------------|
| New York . . . . .   | 40    | 5,200,000 | ...           |
| Bombay . . . . .     | 65    | ...       | ...           |
| Liverpool . . . . .  | 68    | 2,500,000 | ...           |
| Manchester . . . . . | 100   | 4,500,000 | 100,000,000   |
| Glasgow . . . . .    | 35    | 3,000,000 | 50,000,000    |

See *Water*, page 588, and page 818.

## ARMY

### UNITED KINGDOM

The position of the British army in 1896, compared with 1888, showed thus :—

|                          | 1888    | 1896    |
|--------------------------|---------|---------|
| England . . . . .        | 83,000  | 76,000  |
| Scotland . . . . .       | 5,000   | 4,000   |
| Ireland . . . . .        | 30,000  | 26,000  |
| United Kingdom . . . . . | 118,000 | 106,000 |
| India . . . . .          | 72,000  | 78,000  |
| Egypt . . . . .          | 6,000   | 4,000   |
| Colonies . . . . .       | 25,000  | 34,000  |
| Total . . . . .          | 221,000 | 222,000 |

The whole military force of the British empire shows thus :—

|                                | 1888    | 1896    |
|--------------------------------|---------|---------|
| Regular army . . . . .         | 221,000 | 222,000 |
| Militia and reserves . . . . . | 174,000 | 210,000 |
| Volunteers . . . . .           | 222,000 | 232,000 |
| Indian troops . . . . .        | 145,000 | 145,000 |
| Colonial troops . . . . .      | 15,000  | 15,000  |
| Total . . . . .                | 777,000 | 824,000 |

The different arms in 1896 stood as follows :—

|                        | Regulars | Indians | Volunteers, &c. | Total   |
|------------------------|----------|---------|-----------------|---------|
| Infantry . . . . .     | 126,000  | 113,000 | 341,000         | 580,000 |
| Cavalry . . . . .      | 18,000   | 23,000  | 19,000          | 60,000  |
| Artillery . . . . .    | 31,000   | 5,000   | 70,000          | 106,000 |
| Engineers, &c. . . . . | 47,000   | 4,000   | 27,000          | 78,000  |
| Total . . . . .        | 222,000  | 145,000 | 457,000         | 824,000 |

There are 12,000 officers in the regular army: the nationality of the men, including petty officers, is :—

|                    | Number in 1896 | Percentage |      |
|--------------------|----------------|------------|------|
|                    |                | 1883       | 1896 |
| English . . . . .  | 163,000        | 70         | 78   |
| Scotch . . . . .   | 16,000         | 8          | 8    |
| Irish . . . . .    | 25,000         | 20         | 12   |
| Colonial . . . . . | 5,000          | 2          | 2    |
| Total . . . . .    | 20,000         | 100        | 100  |

Compared with population we find that England produces 5 soldiers per thousand inhabitants, Scotland 4, and Ireland 6. Between regulars and irregulars the British army amounts to 679,000 men, equal to 17 per thousand, or nearly 2 per cent. of the population. The cost of the army in 1897 was :—

|                               | £          |
|-------------------------------|------------|
| Effective service . . . . .   | 15,000,000 |
| Sundries and extras . . . . . | 6,000,000  |
| Total . . . . .               | 21,000,000 |

The effective army represents an annual cost of £70 per man, a higher ratio than in other European countries.

The age of the regular infantry is now much younger than before, viz :—

| Years              | 1846  | 1870  | 1897  |
|--------------------|-------|-------|-------|
| Under 20 . . . . . | 17.7  | 16.0  | 23.1  |
| 20-30 . . . . .    | 62.0  | 52.5  | 71.0  |
| 30-40 . . . . .    | 18.2  | 30.4  | 5.6   |
| Over 40 . . . . .  | 2.1   | 1.1   | 0.3   |
| Total . . . . .    | 100.0 | 100.0 | 100.0 |

### FRANCE

The peace footing in 1897 stood as follows :—

|                        | France  | Colonies | Total   |
|------------------------|---------|----------|---------|
| Infantry . . . . .     | 342,000 | 36,000   | 378,000 |
| Cavalry . . . . .      | 70,000  | 7,000    | 77,000  |
| Artillery . . . . .    | 81,000  | 7,000    | 88,000  |
| Engineers, &c. . . . . | 42,000  | 2,000    | 44,000  |
| Total . . . . .        | 535,000 | 52,000   | 587,000 |

If the gendarmerie were included, the total would reach 610,000 men. The first line of reserve counts 1,740,000 men, available in case of war. The second and third reserves, suitable for garrison duty, number two millions. Between the army and first reserve France is able to put nearly 2½ millions of men under arms, equal to 62 per thousand inhabitants, as compared with 17 per thousand in the United Kingdom. The cost of the War Office is £28,000,000, equal to £48 a man, against £70 for the British army.

## GERMANY

There are 21 army-corps, of which 12 bear Prussian titles. The peace footing in 1897 showed thus:—

|                        | Officers and Men | Horses |
|------------------------|------------------|--------|
| Infantry . . . . .     | 396,000          | ...    |
| Cavalry . . . . .      | 69,000           | 64,000 |
| Artillery . . . . .    | 86,000           | 29,000 |
| Engineers, &c. . . . . | 34,000           | 4,000  |
| Total . . . . .        | 585,000          | 97,000 |

Between the men under colours and the first line of reserve Germany can at any moment call out 3,000,000 effective combatants. The War Office expenditure in 1897 was £24,000,000, equal to £41 per man, against £48 in France.

## RUSSIA

Peace footing stands thus:—

|                        | Officers and Men |         |         | Number of Horses |
|------------------------|------------------|---------|---------|------------------|
|                        | Europe           | Siberia | Total   |                  |
| Infantry . . . . .     | 521,000          | 61,000  | 582,000 | 9,000            |
| Cavalry . . . . .      | 115,000          | 9,000   | 124,000 | 106,000          |
| Artillery . . . . .    | 105,000          | 4,000   | 109,000 | 28,000           |
| Engineers, &c. . . . . | 51,000           | 3,000   | 54,000  | 12,000           |
| Total . . . . .        | 792,000          | 77,000  | 869,000 | 155,000          |

War footing is shown as follows:—

|                        | Regulars  | Reserve   | Total     | Horses  |
|------------------------|-----------|-----------|-----------|---------|
| Infantry . . . . .     | 890,000   | 520,000   | 1,410,000 | 85,000  |
| Cavalry . . . . .      | 115,000   | 165,000   | 280,000   | 255,000 |
| Artillery . . . . .    | 150,000   | 110,000   | 260,000   | 210,000 |
| Engineers, &c. . . . . | 105,000   | 475,000   | 580,000   | 30,000  |
| Total . . . . .        | 1,260,000 | 1,270,000 | 2,530,000 | 580,000 |

The artillery has 1800 field-guns on peace footing, and 5260 in time of war. It may be doubted whether the actual number of men under the colours is the same as above given. At the siege of Plevna the difficulties of the Russian army were apparent. Probably the effective army numbers 600,000 men, and this could be doubled in the event of war.

Army expenditure in 1897 reached £28,500,000, equal to £33 per man, peace footing, as compared with £41 in Germany.

## AUSTRIA-HUNGARY

The army on peace and on war footing is shown thus:—

|                 | Officers | Men       | Horses  | Guns  |
|-----------------|----------|-----------|---------|-------|
| Peace . . . . . | 25,000   | 335,000   | 47,000  | 1,050 |
| War . . . . .   | 45,000   | 1,830,000 | 280,000 | 1,860 |

Peace footing in 1896 stood as follows:—

|                        | Officers and Men | Horses |
|------------------------|------------------|--------|
| Infantry . . . . .     | 234,000          | 1,000  |
| Cavalry . . . . .      | 54,000           | 43,000 |
| Artillery . . . . .    | 38,000           | 2,000  |
| Engineers, &c. . . . . | 34,000           | 1,000  |
| Total . . . . .        | 360,000          | 47,000 |

Army expenditure amounts to £15,000,000, equal to £41 per man, the same as in Germany. The War Office of Vienna spends £12,000,000 for the common defence of the monarchy, besides which the Austrian Diet spends £2,000,000, the Hungarian £1,000,000, for war purposes.

## ITALY

There are 12 army-corps, in all 840,000 men; but the number under the colours rarely exceeds 240,000.

|                        | Regulars | Reserve | Militia | Total     |
|------------------------|----------|---------|---------|-----------|
| Infantry . . . . .     | 160,000  | 450,000 | 340,000 | 950,000   |
| Cavalry . . . . .      | 25,000   | 20,000  | 55,000  | 100,000   |
| Artillery . . . . .    | 32,000   | 93,000  | 55,000  | 180,000   |
| Engineers, &c. . . . . | 23,000   | 37,000  | 40,000  | 100,000   |
| Total . . . . .        | 240,000  | 600,000 | 490,000 | 1,330,000 |

This total is equal to 43 per thousand of the population. Army expenditure amounts to £10,800,000, equal to £45 per man, against £41 in Germany.

## SPAIN

In normal times the peace and war footing are as follows:—

|                        | Peace   | War     |
|------------------------|---------|---------|
| Infantry . . . . .     | 80,000  | 140,000 |
| Cavalry . . . . .      | 15,000  | 20,000  |
| Artillery . . . . .    | 10,000  | 12,000  |
| Engineers, &c. . . . . | 5,000   | 12,000  |
| Total . . . . .        | 110,000 | 184,000 |

In 1897 Spain was said to have 150,000 men fighting the Cuban insurgents, besides 15,000 in the Philippine Islands, and a garrison in the Canaries. The expenditure on the army is usually £5,600,000, equal to £51 per man, against £41 in Germany.

## PORTUGAL

The army consists of 35,000 men, including officers, besides 9000 colonials, mostly natives. It is supposed that in case of war the force could be raised to 150,000 men, 23,000 horses, and 260 guns. This would be equal to 32 men per thousand inhabitants. The army costs £1,100,000 per annum, or £32 per man.

## SWEDEN AND NORWAY

The army of these kingdoms stands as follows:—

|                        | Sweden  | Norway | Total   |
|------------------------|---------|--------|---------|
| Infantry . . . . .     | 28,000  | 15,000 | 43,000  |
| Cavalry . . . . .      | 5,000   | 1,000  | 6,000   |
| Artillery . . . . .    | 4,000   | 1,000  | 5,000   |
| Engineers, &c. . . . . | 2,000   | 1,000  | 3,000   |
| Regulars . . . . .     | 39,000  | 18,000 | 57,000  |
| Reserve . . . . .      | 100,000 | 12,000 | 112,000 |
| War footing . . . . .  | 139,000 | 30,000 | 169,000 |

Expenditure in 1897 was £1,500,000 for Sweden and £500,000 for Norway; that is, £39 per man in the former, and £27 in the latter kingdom.

For other countries see Part I., page 72.

**Military Expenditure.**—The sums annually spent for military purposes compare with population and national earnings as follows:—

|                   | Army        | Navy       | Total       | Shillings<br>per<br>Inhab. |
|-------------------|-------------|------------|-------------|----------------------------|
|                   | £           | £          | £           |                            |
| U. Kingdom . . .  | 18,500,000  | 22,700,000 | 41,200,000  | 21                         |
| France . . .      | 25,200,000  | 11,400,000 | 36,600,000  | 19                         |
| Germany . . .     | 29,100,000  | 6,100,000  | 35,200,000  | 14                         |
| Russia . . .      | 30,600,000  | 8,000,000  | 38,600,000  | 7                          |
| Austria . . .     | 14,200,000  | 2,100,000  | 16,300,000  | 7                          |
| Italy . . .       | 9,400,000   | 4,100,000  | 13,500,000  | 9                          |
| Spain . . .       | 5,700,000   | 1,100,000  | 6,800,000   | 8                          |
| Portugal . . .    | 1,300,000   | 500,000    | 1,800,000   | 8                          |
| Sweden . . .      | 1,500,000   | 400,000    | 1,900,000   | 8                          |
| Norway . . .      | 600,000     | 200,000    | 800,000     | 8                          |
| Denmark . . .     | 600,000     | 300,000    | 900,000     | 8                          |
| Holland . . .     | 1,900,000   | 1,300,000  | 3,200,000   | 13                         |
| Belgium . . .     | 2,000,000   | ...        | 2,000,000   | 6                          |
| Switzerland . . . | 1,000,000   | ...        | 1,000,000   | 7                          |
| Roumania . . .    | 1,800,000   | ...        | 1,800,000   | 6                          |
| Servia . . .      | 600,000     | ...        | 600,000     | 5                          |
| Bulgaria . . .    | 900,000     | ...        | 900,000     | 5                          |
| Turkey . . .      | 7,300,000   | 700,000    | 8,000,000   | 27                         |
| Greece . . .      | 600,000     | 300,000    | 900,000     | 8                          |
| Europe . . .      | 152,800,000 | 59,200,000 | 212,000,000 | 11                         |
| U. States . . .   | 10,200,000  | 7,300,000  | 17,500,000  | 5                          |
| Japan . . .       | 5,000,000   | 1,600,000  | 6,600,000   | 3                          |
| Brazil . . .      | 1,300,000   | 700,000    | 2,000,000   | 3                          |
| Argentina . . .   | 1,300,000   | 800,000    | 2,100,000   | 10                         |
| Chile . . .       | 900,000     | 600,000    | 1,500,000   | 11                         |
| Mexico . . .      | 1,000,000   | 100,000    | 1,100,000   | 2                          |
| Total . . .       | 172,500,000 | 70,300,000 | 242,800,000 | 10                         |

### ARTESIAN WELLS

Besides those given at page 588 are those made in the United States to December 1892.

|                  | No. of<br>Wells | Average Cost, &c. |                 |                          |
|------------------|-----------------|-------------------|-----------------|--------------------------|
|                  |                 | Depth,<br>feet    | £ Ster-<br>ling | Gallons<br>per<br>Minute |
| California . . . | 3,240           | 248               | 88              | 164                      |
| Utah . . .       | 2,524           | 146               | 16              | 26                       |
| Texas, &c. . .   | 2,333           | 250               | 56              | 34                       |
| Total . . .      | 8,097           | 210               | 51              | 54                       |

A well giving 50 gallons a minute suffices to irrigate 5 acres of land. The deepest wells known are, according to Chambers:—

|                     |            |
|---------------------|------------|
| Buda-Pesth . . .    | 3,180 feet |
| St. Louis, U.S. . . | 3,840 ..   |

The well at Buda gives water of the temperature of 165° Fahr., or 2 degrees less than Carlsbad (see p. 567).

### ATHLETICS

There was a bicycle race at St. Albans, 16 entries, on October 13, 1894, which resulted as follows:—

| Rider        | Miles | Min. | Sec. | Rider      | Miles | Min. | Sec. |
|--------------|-------|------|------|------------|-------|------|------|
| Wright . . . | 5     | 13   | 32   | King . . . | 30    | 84   | 30   |
| " . . .      | 20    | 55   | 26   | " . . .    | 50    | 150  | 56   |

A race of 12 hours was won by Hunt, with the following results:—

| Hours | Miles | Hours | Miles | Hours | Miles |
|-------|-------|-------|-------|-------|-------|
| 2     | 47    | 6     | 134   | 10    | 217   |
| 4     | 91    | 8     | 176   | 12    | 260   |

He made 150 miles in 6 hours 44 minutes, and 200 miles in 9 hours 8 minutes. All the foregoing were the quickest runs on record, except King's run of 50 miles, this distance having been done by Knapp, in 1888, in 149 minutes 41 seconds.

On June 1, 1896, Stocks, at Hull, beat all previous records for short runs when he made the following:—

| Miles | Min. | Sec. | Miles | Min. | Sec. |
|-------|------|------|-------|------|------|
| 1     | 1    | 55   | 5     | 9    | 39   |
| 3     | 5    | 44   | 10    | 19   | 30   |

At Catford, England, on August 30, 1897, Walters rode 100 miles in 206 minutes, or 5 minutes less than the best run then on record.

In the last 10 years the record of jumps has been broken by the following:—

High running jump, 77.1 inches—M. Sweeney, New York, 1895.

High pole jump, 11 feet 9 inches—R. Dickenson, Kidderminster, 1891.

Standing broad jump, 12 feet 2 inches—J. Darby, Ashton, 1889.

The 20-mile foot race also has a new record, G. Crossland having done it in 1 hour 52 minutes, at London, 1894.

Cricket records show that the highest innings in England in 1896 fell to Dr. Grace, 301 runs. In the same year's record Prince Ranjitsinghi had an average score of 53, which was the highest, the average for 10 best batters during the year having been 45. The 10 highest bowlers averaged 17. See *Athletics*, p. 74.

## B

## BANKS

In August 1896 the banks of the world stood as follows:—

| Bank of             | £ Sterling (ooo omitted) |         |          |           |
|---------------------|--------------------------|---------|----------|-----------|
|                     | Issue                    | Bullion | Deposits | Discounts |
| England . . . .     | 27,400                   | 45,700  | 61,900   | 44,000    |
| France . . . . .    | 153,600                  | 125,700 | 22,600   | 42,000    |
| Germany . . . . .   | 62,900                   | 40,200  | 22,200   | 39,600    |
| Russia . . . . .    | 115,000                  | 97,600  | 24,700   | 16,500    |
| Austria Hungary .   | 55,400                   | 36,000  | 900      | 18,000    |
| Italy (3) . . . . . | 42,400                   | 20,600  | 12,600   | 13,800    |
| Spain . . . . .     | 41,400                   | 18,700  | 16,100   | 8,700     |
| Portugal . . . . .  | 13,000                   | 3,000   | 500      | 3,900     |
| Sweden . . . . .    | 7,000                    | 2,400   | 22,000   | 11,200    |
| Norway . . . . .    | 2,900                    | 1,400   | 400      | 1,800     |
| Denmark . . . . .   | 5,000                    | 3,700   | 600      | 1,200     |
| Holland . . . . .   | 17,600                   | 9,600   | 400      | 5,700     |
| Belgium . . . . .   | 18,900                   | 4,000   | 2,200    | 17,100    |
| Switzerland . . . . | 7,900                    | 4,000   | 31,500   | 6,700     |
| Roumania . . . . .  | 5,800                    | 2,600   | 600      | 1,800     |
| Servia . . . . .    | 1,000                    | 500     | 100      | 300       |
| Greece . . . . .    | 4,500                    | 100     | 3,800    | 600       |
| Ottoman . . . . .   | 600                      | 1,600   | 5,700    | 700       |
| Europe . . . . .    | 582,300                  | 417,400 | 228,800  | 233,600   |
| New York . . . . .  | 4,000                    | 15,300  | 106,200  | 98,400    |
| Total . . . . .     | 586,300                  | 432,700 | 335,000  | 332,000   |

The following table shows the issue of European banks, their bullion reserves, and the ratio of latter to former in March 1898:—

|                     | £ Sterling (ooo omitted) |         |         |         | Ratio of Bulln. |
|---------------------|--------------------------|---------|---------|---------|-----------------|
|                     | Issue                    | Gold    | Silver  | Total   |                 |
| England . . . . .   | 27,600                   | 32,600  | ...     | 32,600  | 118             |
| Scotland . . . . .  | 7,700                    | 5,000   | 800     | 5,800   | 76              |
| Ireland . . . . .   | 6,500                    | 2,600   | 400     | 3,000   | 47              |
| U. Kingdom . . . .  | 41,800                   | 40,200  | 1,200   | 41,400  | 99              |
| France . . . . .    | 153,300                  | 74,500  | 48,700  | 123,200 | 82              |
| Germany . . . . .   | 60,800                   | 36,500  | 16,400  | 52,900  | 87              |
| Russia . . . . .    | 91,800                   | 120,900 | 4,600   | 125,500 | 136             |
| Austria . . . . .   | 51,200                   | 30,800  | 10,500  | 41,300  | 80              |
| Italy . . . . .     | 41,600                   | 16,000  | 2,500   | 18,500  | 44              |
| Spain . . . . .     | 50,200                   | 9,600   | 10,900  | 20,500  | 41              |
| Portugal . . . . .  | 14,300                   | 1,100   | 1,900   | 3,000   | 21              |
| Sweden . . . . .    | 7,300                    | 2,100   | 800     | 2,900   | 40              |
| Norway . . . . .    | 3,100                    | 1,800   | ...     | 1,800   | 58              |
| Denmark . . . . .   | 4,400                    | 3,000   | ...     | 3,000   | 68              |
| Holland . . . . .   | 16,700                   | 2,800   | 7,000   | 9,800   | 58              |
| Belgium . . . . .   | 19,000                   | 3,600   | 600     | 4,200   | 22              |
| Switzerland . . . . | 8,000                    | 3,700   | 300     | 4,000   | 50              |
| Greece . . . . .    | 5,400                    | 100     | ...     | 100     | 2               |
| Roumania . . . . .  | 5,700                    | 2,200   | 200     | 2,400   | 42              |
| Servia . . . . .    | 900                      | 200     | 300     | 500     | 56              |
| Bulgaria . . . . .  | 100                      | 200     | 200     | 400     | 400             |
| Total . . . . .     | 575,600                  | 349,300 | 106,100 | 455,400 | 79              |

In 1896 the nominal value of the Russian currency was reduced from 38 pence per rouble to 25 pence; but if we suppose the rouble to have been always 25 pence, the

currency of Europe and the bullion reserves of banks will show as follows for seven years:—

|                | £ Sterling (ooo omitted) |       |        |       | Ratio of Bullion |
|----------------|--------------------------|-------|--------|-------|------------------|
|                | Issue                    | Gold  | Silver | Total |                  |
| 1892 . . . . . | 533.0                    | 248.3 | 99.8   | 348.1 | 65.2             |
| 1893 . . . . . | 551.0                    | 244.6 | 99.7   | 344.3 | 62.5             |
| 1894 . . . . . | 561.0                    | 278.0 | 104.1  | 382.1 | 68.1             |
| 1895 . . . . . | 583.0                    | 314.5 | 100.2  | 414.7 | 71.1             |
| 1896 . . . . . | 596.0                    | 314.4 | 100.5  | 414.9 | 69.7             |
| 1897 . . . . . | 563.1                    | 327.9 | 106.4  | 434.3 | 77.1             |
| 1898 . . . . . | 575.6                    | 349.3 | 106.1  | 455.4 | 79.1             |

The amount of paper money in Europe in December of the last three years was:—

|                     | Millions £ Sterling |       |       | Shillings per Inhabitant |
|---------------------|---------------------|-------|-------|--------------------------|
|                     | 1895                | 1896  | 1897  |                          |
| England . . . . .   | 26.3                | 26.7  | 28.3  | 18                       |
| Scotland . . . . .  | 7.3                 | 7.8   | 8.0   | 36                       |
| Ireland . . . . .   | 6.5                 | 6.8   | 6.8   | 30                       |
| United Kingdom . .  | 40.1                | 41.3  | 43.1  | 22                       |
| France . . . . .    | 145.9               | 153.6 | 152.5 | 80                       |
| Germany . . . . .   | 69.7                | 68.9  | 76.0  | 30                       |
| Russia . . . . .    | 115.0               | 112.0 | 107.0 | 20                       |
| Austria . . . . .   | 52.0                | 55.4  | 58.8  | 28                       |
| Italy . . . . .     | 43.4                | 42.8  | 43.1  | 27                       |
| Spain . . . . .     | 39.6                | 41.1  | 48.2  | 54                       |
| Portugal . . . . .  | 12.5                | 13.2  | 14.6  | 60                       |
| Sweden . . . . .    | 6.6                 | 7.2   | 7.9   | 32                       |
| Norway . . . . .    | 2.8                 | 2.9   | 3.3   | 31                       |
| Finland . . . . .   | 2.2                 | 2.6   | 2.9   | 25                       |
| Denmark . . . . .   | 3.9                 | 5.1   | 5.1   | 46                       |
| Holland . . . . .   | 17.3                | 16.9  | 17.8  | 75                       |
| Belgium . . . . .   | 18.0                | 18.8  | 19.5  | 62                       |
| Switzerland . . . . | 7.6                 | 7.9   | 8.7   | 58                       |
| Roumania . . . . .  | 5.2                 | 5.8   | 5.8   | 20                       |
| Servia . . . . .    | 1.0                 | 1.0   | 1.0   | 9                        |
| Greece . . . . .    | 4.5                 | 4.5   | 5.4   | 48                       |
| Total . . . . .     | 587.3               | 601.0 | 621.0 | 33                       |

The bullion reserves of European banks at the close of the last four years were:—

|                | Millions £ Sterling |        |       | Ratio to Currency |
|----------------|---------------------|--------|-------|-------------------|
|                | Gold                | Silver | Total |                   |
| 1894 . . . . . | 279                 | 104    | 383   | 68 per cent.      |
| 1895 . . . . . | 304                 | 89     | 393   | 67 " "            |
| 1896 . . . . . | 314                 | 100    | 414   | 69 " "            |
| 1897 . . . . . | 350                 | 102    | 452   | 73 " "            |

Gold reserve has risen 25 per cent. in three years, while silver reserve has declined 2 per cent. This shows that the world's supply of gold has been over-abundant.

The Bank of Russia has the largest issue in the world, and the largest bullion reserve except that of France. The latter holds 30 per cent. of the total amount of bullion or hard money held by the banks of Europe. If the reserves of the Banks of Germany and Austria

were added to that of the Bank of England, the aggregate would still be less than the bullion held by the Bank of France. The only banks whose bullion reserve exceeds their issue are the Bank of England, the Ottoman, and the New York Associated Banks. The average of bullion reserve to issue, taken for all banks collectively, is as 67 to 100, but there are several where the reserve is less than 50 per cent. of issue, viz. Italy, Spain, Portugal, Sweden, Norway, Belgium, Roumania, and Greece.

The position of European banks in 1896 compares with the same in 1889 as follows:—

|               | 1889        | 1896        | Increase     |
|---------------|-------------|-------------|--------------|
| Issue . . .   | 466,200,000 | 641,300,000 | 37 per cent. |
| Bullion . . . | 263,300,000 | 417,400,000 | 59 " "       |
| Discounts . . | 229,100,000 | 233,600,000 | 2 " "        |

Discounts remained almost stationary, while the stock of bullion rose 59 per cent. Bullion reserves of European and New York banks in 1897 reached 450 millions sterling, that is 350 millions gold and 100 silver. The following table, comprising only seven of the European State banks (to the exclusion of those of Italy, Spain, Portugal, Sweden, Norway, Denmark, Switzerland, Roumania, Servia, Greece, and Turkey), besides the New York Associated Banks and the United States Treasury, shows the reserves of gold in December of the last three years:—

| Bank of         | Gold Reserve, £ |             |             |
|-----------------|-----------------|-------------|-------------|
|                 | 1895            | 1896        | 1897        |
| England . . .   | 45,000,000      | 34,600,000  | 31,800,000  |
| France . . .    | 78,000,000      | 76,600,000  | 78,500,000  |
| Germany . . .   | 42,600,000      | 40,200,000  | 43,500,000  |
| Russia . . .    | 92,200,000      | 113,500,000 | 122,200,000 |
| Austria . . .   | 24,500,000      | 28,700,000  | 31,400,000  |
| Belgium . . .   | 4,100,000       | 4,200,000   | 4,200,000   |
| Holland . . .   | 3,500,000       | 2,600,000   | 2,600,000   |
| New York . . .  | 13,800,000      | 15,300,000  | 20,800,000  |
| Banks . . .     | 303,700,000     | 315,700,000 | 335,000,000 |
| U.S. Treasury . | 19,900,000      | 35,000,000  | 38,800,000  |
| Total . . .     | 323,600,000     | 350,700,000 | 373,800,000 |

This shows that in two years the gold reserves rose 50 millions sterling, or 15 per cent.

Rates of interest in the last twelve years were as follows:—

| Year        | London | Paris | Berlin | Brussels | Amsterdam | St. Petersburg | Vienna | Rome | Average |
|-------------|--------|-------|--------|----------|-----------|----------------|--------|------|---------|
| 1886 . . .  | 3.0    | 3.0   | 3.3    | 2.7      | 2.5       | ...            | 4.0    | ...  | 3.1     |
| 1887 . . .  | 3.3    | 3.0   | 3.4    | 3.1      | 2.5       | 5.1            | 4.1    | 5.5  | 3.7     |
| 1888 . . .  | 3.2    | 3.1   | 3.3    | 3.3      | 2.5       | 5.3            | 4.2    | 5.5  | 3.8     |
| 1889 . . .  | 3.5    | 3.1   | 3.7    | 3.5      | 2.5       | 5.8            | 4.2    | 5.2  | 3.9     |
| 1890 . . .  | 4.5    | 3.0   | 4.4    | 3.2      | 2.8       | 5.9            | 4.5    | 6.0  | 4.3     |
| 1891 . . .  | 3.3    | 3.0   | 3.8    | 3.0      | 3.1       | 4.9            | 4.4    | 5.8  | 3.9     |
| 1892 . . .  | 2.5    | 2.7   | 3.2    | 2.7      | 2.7       | 4.9            | 4.0    | 5.2  | 3.5     |
| 1893 . . .  | 3.0    | 2.5   | 4.1    | 2.8      | 3.8       | 4.7            | 4.2    | 5.2  | 3.8     |
| 1894 . . .  | 2.1    | 2.5   | 3.1    | 3.0      | 2.6       | 4.5            | 4.1    | 5.7  | 3.5     |
| 1895 . . .  | 2.0    | 2.2   | 3.2    | 2.6      | 2.5       | 5.0            | 4.3    | 5.0  | 3.4     |
| 1896 . . .  | 2.5    | 2.0   | 3.7    | 2.9      | 3.0       | 6.1            | 4.1    | 5.0  | 3.7     |
| 1897 . . .  | 2.8    | 2.0   | 3.8    | 3.0      | 3.1       | 5.9            | 4.0    | 5.0  | 3.7     |
| Average . . | 3.0    | 2.7   | 3.6    | 3.0      | 2.8       | 5.3            | 4.2    | 5.4  | 3.7     |

During the last three years the average rates were—at Madrid 4.8, at Lisbon 5.9, at Berne 3.7, and at Bucharest 5.1.

*Exchange.*—The rates of exchange were:—

| Year        | London on |         |          | N. York on London | Silver Pence per oz. |
|-------------|-----------|---------|----------|-------------------|----------------------|
|             | Paris     | Hamburg | Calcutta |                   |                      |
| 1890 . . .  | 25.47     | 20.66   | 18.6     | 4.82              | 47.7                 |
| 1891 . . .  | 25.48     | 20.60   | 17.4     | 4.83              | 45.1                 |
| 1892 . . .  | 25.34     | 20.51   | 15.5     | 4.85              | 39.7                 |
| 1893 . . .  | 25.39     | 20.60   | 15.1     | 4.84              | 35.0                 |
| 1894 . . .  | 25.34     | 20.55   | 13.8     | 4.86              | 28.9                 |
| 1895 . . .  | 25.35     | 20.58   | 13.2     | 4.88              | 29.8                 |
| 1896 . . .  | 25.27     | 20.59   | 14.6     | 4.85              | 30.7                 |
| 1897 . . .  | 25.31     | 20.57   | 15.2     | 4.84              | 27.0                 |
| Average . . | 25.37     | 20.58   | 15.4     | 4.85              | 35.6                 |

The lowest price recorded for silver was on August 31, 1897, namely, 24 pence per ounce, being as 1 to 35 compared with the value of gold, or 60 per cent. below par.

#### UNITED KINGDOM

The statistics for 1897 compare with those of 1890 as follows:—

|                  | Millions £ Sterling* |       |            |       |
|------------------|----------------------|-------|------------|-------|
|                  | England              |       | Scotland   |       |
|                  | 1890                 | 1897  | 1890       | 1897  |
| Capital paid . . | 53.8                 | 59.3  | 9.1        | 9.3   |
| Market value . . | 105.5                | 181.4 | 22.9       | 30.3  |
| Reserve fund . . | 27.8                 | 32.5  | 5.6        | 7.2   |
| Note issue . . . | 26.7                 | 29.4  | 6.4        | 7.4   |
| Deposits . . .   | 387.7                | 565.0 | 88.3       | 95.8  |
| Discounts . . .  | 283.8                | 376.2 | 58.0       | 64.8  |
| Assets . . .     | 517.1                | 707.9 | 113.4      | 124.9 |
|                  | Ireland              |       | U. Kingdom |       |
|                  | 1890                 | 1897  | 1890       | 1897  |
| Capital paid . . | 7.0                  | 7.1   | 69.9       | 75.7  |
| Market value . . | 17.7                 | 21.1  | 206.1      | 232.8 |
| Reserve fund . . | 3.1                  | 3.7   | 36.5       | 43.4  |
| Note issue . . . | 6.7                  | 5.8   | 39.8       | 42.6  |
| Deposits . . .   | 37.8                 | 45.6  | 513.8      | 706.4 |
| Discounts . . .  | 27.6                 | 35.0  | 375.4      | 476.0 |
| Assets . . .     | 54.8                 | 62.7  | 685.3      | 895.5 |

|                  | Colonial |       | Grand Total |         |
|------------------|----------|-------|-------------|---------|
|                  | 1890     | 1897  | 1890        | 1897    |
| Capital paid . . | 43.0     | 33.8  | 112.9       | 109.5   |
| Reserve fund . . | 19.1     | 9.1   | 55.6        | 52.5    |
| Deposits . . .   | 240.7    | 156.3 | 754.5       | 862.7   |
| Discounts . . .  | 303.1    | 164.4 | 678.5       | 640.4   |
| Assets . . .     | 387.0    | 238.5 | 1,072.3     | 1,134.0 |

If we take discounts as the gauge of banking business England will stand for 78½ per cent., Scotland 14 per cent., Ireland 7½ per cent. of the total for the United Kingdom. The paid-up capital (excluding Colonial) rose 8 per cent. in 7 years, market value of stock 13 per cent., deposits 37 per cent., discounts 26 per cent., and

\* Note.—This table reads thus: capital 53.8 signifies £53,800,000.

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assets 30 per cent. The deposits in banks of the United Kingdom increased 108 millions in 7 years, being an average of 15½ millions yearly.

The note issue has been as follows:—

| Year       | £ Sterling (ooo omitted) |          |         |            |
|------------|--------------------------|----------|---------|------------|
|            | England                  | Scotland | Ireland | U. Kingdom |
| 1890 . . . | 27,000                   | 7,100    | 7,300   | 41,400     |
| 1892 . . . | 27,500                   | 6,700    | 6,300   | 40,500     |
| 1894 . . . | 27,100                   | 6,900    | 6,500   | 40,500     |
| 1896 . . . | 27,600                   | 7,500    | 6,400   | 41,500     |

Bank of England returns at the close of each year showed as follows:—

| Year       | Issue, £   | Bullion, £ | Deposits, £ |
|------------|------------|------------|-------------|
| 1890 . . . | 24,700,000 | 21,800,000 | 35,400,000  |
| 1891 . . . | 25,500,000 | 23,200,000 | 34,800,000  |
| 1892 . . . | 26,000,000 | 25,000,000 | 34,400,000  |
| 1893 . . . | 25,800,000 | 25,900,000 | 34,200,000  |
| 1894 . . . | 25,500,000 | 35,300,000 | 41,600,000  |
| 1895 . . . | 26,100,000 | 42,500,000 | 56,400,000  |
| 1896 . . . | 26,700,000 | 35,900,000 | 50,600,000  |
| 1897 . . . | 27,400,000 | 28,400,000 | 49,600,000  |

## FRANCE

The progress of the Bank of France since 1880 is shown thus:—

|                          | Millions £ Sterling |      |      |
|--------------------------|---------------------|------|------|
|                          | 1880                | 1889 | 1897 |
| Discount . . . . .       | 348                 | 340  | 415  |
| Issue . . . . .          | 92                  | 115  | 151  |
| Gold reserve . . . . .   | 27                  | 53   | 80   |
| Silver reserve . . . . . | 54                  | 51   | 48   |

The head-office at Paris does half the business of the bank, which has branches all over France (see page 179). The discounts at Paris in 1897 comprised 5,700,000 bills, of which 1,870,000 were for sums less than £4 sterling. The maximum of bills in portfolio was £42,400,000 in January, the minimum £21,400,000 in August. Expenses in 1897 amounted to £640,000. The bank is the property of 28,200 shareholders, who hold between them 182,500 shares of £40 each, the market value of each share being at present £142 sterling. Thus the paid-up capital is £7,300,000, and the value of the shares £26,000,000, the average of stock held by each shareholder being £920.

## AUSTRALIA

The collective figures for the banks of the seven colonies sum up as follows:—

| Year           | £ Sterling (ooo omitted) |         |          |         |
|----------------|--------------------------|---------|----------|---------|
|                | Issue                    | Bullion | Deposits | Assets  |
| 1890 . . .     | 5,500                    | 20,200  | 111,100  | 168,500 |
| 1893 . . .     | 4,500                    | 22,100  | 101,300  | 158,700 |
| 1895 . . .     | 3,700                    | 25,200  | 99,200   | 146,500 |
| 1897 . . .     | 4,100                    | 24,600  | 101,600  | 144,100 |
| 1890-97, av. . | 4,400                    | 22,600  | 104,700  | 157,000 |

The returns for June 1897 showed as follows (ooo omitted):—

|                    | Issue | Bullion | Deposits | Assets  |
|--------------------|-------|---------|----------|---------|
| N. S. Wales . . .  | 1,200 | 6,500   | 30,300   | 45,500  |
| Victoria . . . .   | 1,000 | 7,400   | 30,600   | 45,700  |
| N. Zealand . . .   | 1,000 | 3,100   | 14,600   | 17,300  |
| Queensland . . .   | ...   | 2,100   | 11,800   | 18,500  |
| S. Australia . . . | 400   | 2,300   | 7,200    | 7,800   |
| W. Australia . .   | 400   | 2,400   | 4,100    | 6,100   |
| Tasmania . . . .   | 100   | 800     | 3,000    | 3,200   |
| Total . . . . .    | 4,100 | 24,600  | 101,600  | 144,100 |

## CANADA

Aggregate returns for the several provinces show as follows:—

| Year           | £ Sterling (ooo omitted) |         |          |        |
|----------------|--------------------------|---------|----------|--------|
|                | Issue                    | Bullion | Deposits | Assets |
| 1890 . . . . . | 6,600                    | 1,300   | 28,100   | 52,400 |
| 1893 . . . . . | 6,900                    | 1,300   | 36,500   | 62,600 |
| 1896 . . . . . | 6,400                    | 1,600   | 39,200   | 65,400 |

The returns for 1896, distinguishing Old Canada (Quebec and Ontario) from the provinces added to the Dominion, show as follow (ooo omitted):—

|                   | Issue | Bullion | Deposits | Assets |
|-------------------|-------|---------|----------|--------|
| Old Canada . . .  | 5,100 | 1,300   | 33,100   | 55,100 |
| Nova Scotia . . . | 800   | 200     | 4,400    | 7,400  |
| Other Provinces . | 500   | 100     | 1,700    | 2,900  |
| Dominion . . . .  | 6,400 | 1,600   | 39,200   | 65,400 |

Canadian banks have a paid-up capital of £13,000,000. Banking power is about 52 millions sterling, or £10 per inhabitant.

## SOUTH AFRICA

Collectively, the returns for Cape Colony and Natal showed thus:—

|                   | £ Sterling (ooo omitted). |         |          |        |
|-------------------|---------------------------|---------|----------|--------|
|                   | Issue                     | Bullion | Deposits | Assets |
| 1890 . . . . .    | 1,000                     | 3,000   | 7,900    | 9,300  |
| 1893 . . . . .    | 700                       | 2,000   | 7,100    | 9,500  |
| 1895 . . . . .    | 800                       | 3,800   | 10,600   | 10,700 |
| Average, '90-95 . | 700                       | 2,700   | 8,100    | 9,500  |

Banking power is about 12 millions sterling, equal to £5 per inhabitant.

## INDIA

The amount of paper money in circulation, and its value in sterling, were:—

| Year | Millions Rupees | £ Sterling | Year | Millions Rupees | £ Sterling |
|------|-----------------|------------|------|-----------------|------------|
| 1891 | 257             | 19,300,000 | 1894 | 304             | 20,300,000 |
| 1892 | 241             | 16,100,000 | 1895 | 307             | 20,500,000 |
| 1893 | 264             | 17,600,000 | 1896 | 259             | 17,300,000 |

## WEST INDIES

There are banks in Jamaica, Trinidad, and Barbadoes whose aggregate issue is about £800,000, and assets about 8 millions.

## UNITED STATES

In October 1890 there were 3540 National Banks, and in October 1896 there were 3676. The principal features are shown as follows :—

|                       | Millions \$ |       | Millions £ |       |
|-----------------------|-------------|-------|------------|-------|
|                       | 1890        | 1896  | 1890       | 1896  |
| Issue . . . . .       | 123         | 210   | 25.6       | 43.6  |
| Capital . . . . .     | 650         | 648   | 135.2      | 134.8 |
| Deposits . . . . .    | 1,759       | 1,799 | 366.0      | 374.4 |
| Sundries . . . . .    | 610         | 607   | 126.8      | 126.0 |
| Liabilities . . . . . | 3,142       | 3,264 | 653.6      | 678.8 |
| Bullion . . . . .     | 196         | 201   | 40.8       | 41.8  |
| U. S. notes . . . . . | 87          | 142   | 18.0       | 29.6  |
| Discounts . . . . .   | 1,970       | 1,893 | 410.0      | 394.0 |
| Sundries . . . . .    | 889         | 1,028 | 184.8      | 213.4 |
| Assets . . . . .      | 3,142       | 3,264 | 653.6      | 678.8 |

The capital and dividends of the above banks showed thus :—

| Year              | Millions \$ |            |      |
|-------------------|-------------|------------|------|
|                   | Capital     | Dividend * | Rate |
| 1891 . . . . .    | 660         | 50.8       | 7.7  |
| 1894 . . . . .    | 673         | 45.3       | 6.7  |
| 1896 . . . . .    | 653         | 45.5       | 7.0  |
| Average . . . . . | 668         | 48.0       | 7.2  |

The National Banks of New York city showed as follows :—

|                     | Millions \$ |      | Millions £ |      |
|---------------------|-------------|------|------------|------|
|                     | 1890        | 1896 | 1890       | 1896 |
| Discounts . . . . . | 297         | 314  | 62.0       | 65.2 |
| Deposits . . . . .  | 333         | 373  | 69.2       | 77.6 |
| Bullion . . . . .   | 79          | 50   | 16.4       | 10.4 |

The returns for all National Banks of the United States were :—

|                   | Millions \$ |          |               |
|-------------------|-------------|----------|---------------|
|                   | Discounts   | Deposits | Bullion, res. |
| 1891 . . . . .    | 1,989       | 1,759    | 184           |
| 1894 . . . . .    | 2,007       | 2,019    | 237           |
| 1896 . . . . .    | 1,893       | 1,799    | 201           |
| Average . . . . . | 1,953       | 1,860    | 209           |

National Bank discounts in the principal States in October 1896 were as follows :—

|                         | Millions \$ |       |       |
|-------------------------|-------------|-------|-------|
|                         | City        | Rural | Total |
| New York . . . . .      | 314         | 112   | 426   |
| Massachusetts . . . . . | 141         | 104   | 245   |
| Pennsylvania . . . . .  | 87          | 156   | 243   |
| Illinois . . . . .      | 82          | 44    | 126   |
| Other States . . . . .  | 176         | 677   | 853   |
| Total . . . . .         | 800         | 1,093 | 1,893 |

In the above table "city" counts only for the capital, such as New York, Boston, or Philadelphia, the banks of minor cities being classed under heading "rural."

\* Note.—Dividends 50.8 signifies \$50,800,000.

*Clearing-houses.*—The *monthly* returns in the United States for the principal cities during the years 1890-91 were as follows :—

|                    | Millions<br>£ Sterling |                        | Millions<br>£ Sterling |
|--------------------|------------------------|------------------------|------------------------|
| New York . . . . . | 621                    | Philade.phia . . . . . | 62                     |
| Boston . . . . .   | 85                     | St. Louis . . . . .    | 19                     |
| Chicago . . . . .  | 72                     | S. Francisco . . . . . | 15                     |

New York clearing-house returns since 1854 showed thus, in *monthly* averages :—

| Year           | Millions<br>£ Sterling | Year           | Millions<br>£ Sterling |
|----------------|------------------------|----------------|------------------------|
| 1854 . . . . . | 100                    | 1884 . . . . . | 588                    |
| 1864 . . . . . | 416                    | 1894 . . . . . | 420                    |
| 1874 . . . . . | 395                    | 1897 . . . . . | 545                    |

London clearing-house showed monthly averages thus :—

| Year           | Millions £ | Year           | Millions £ |
|----------------|------------|----------------|------------|
| 1839 . . . . . | 82         | 1884 . . . . . | 483        |
| 1869 . . . . . | 302        | 1894 . . . . . | 528        |
| 1875 . . . . . | 474        | 1896 . . . . . | 631        |

Provincial clearing-houses showed for 1896 and 1897 as follows :—

|                      | Millions £ Monthly |      |
|----------------------|--------------------|------|
|                      | 1896               | 1897 |
| Manchester . . . . . | 16.1               | 16.1 |
| Liverpool . . . . .  | 12.0               | 12.0 |
| Newcastle . . . . .  | 4.6                | 5.1  |
| Birmingham . . . . . | 4.2                | 4.8  |
| Bristol . . . . .    | 2.0                | 2.1  |

The monthly average of the clearing-house of Paris rose from 88 millions sterling in 1876 to 157 millions in 1886, and 294 millions in 1896.

## SAVINGS-BANKS

Those of the United Kingdom show as follows :—

| Year           | Amount held, £ (000 omitted) |          |         |            |
|----------------|------------------------------|----------|---------|------------|
|                | England                      | Scotland | Ireland | U. Kingdom |
| 1890 . . . . . | 94,500                       | 11,100   | 5,800   | 111,400    |
| 1892 . . . . . | 100,200                      | 11,800   | 6,200   | 118,200    |
| 1894 . . . . . | 112,100                      | 13,700   | 7,000   | 132,800    |
| 1897 . . . . . | 136,600                      | 18,800   | 9,000   | 164,400    |

| Year           | Number of Depositors (000 omitted) |          |         |            |
|----------------|------------------------------------|----------|---------|------------|
|                | England                            | Scotland | Ireland | U. Kingdom |
| 1890 . . . . . | 5,570                              | 540      | 250     | 6,360      |
| 1892 . . . . . | 6,090                              | 590      | 270     | 6,950      |
| 1894 . . . . . | 6,650                              | 620      | 310     | 7,580      |
| 1897 . . . . . | 7,640                              | 760      | 370     | 8,770      |

The average sum held by each depositor is £18 in England, £24 in Scotland, and £24 in Ireland. The number of depositors compares with population as follows :—In England, 246 ; in Scotland, 180, and in Ireland, 80 per thousand inhabitants.



The earliest statement of savings-banks on the European continent is that of Malchus, in 1837, viz. :—

|              | Banks | Deposits<br>£ |                 | Banks | Deposits<br>£ |
|--------------|-------|---------------|-----------------|-------|---------------|
| France . .   | 250   | 4,980,000     | Belgium . .     | 5     | 650,000       |
| Prussia . .  | 80    | 950,000       | Holland . .     | 50    | 280,000       |
| Austria . .  | 8     | 3,030,000     | Switzerland . . | 58    | 790,000       |
| Bavaria, &c. | 201   | 2,390,000     | Italy . . .     | 2     | 150,000       |

Making a total of 654 banks, with deposits amounting to £13,220,000. Returns from 1840 to 1889 will be found at page 86.

The latest returns compare with those of 1889 as follows :—

|                | Amount,<br>Millions £ |         | Depositors<br>in<br>1896 | Do. per<br>100<br>Inhab. |
|----------------|-----------------------|---------|--------------------------|--------------------------|
|                | 1889                  | 1896    |                          |                          |
| U. Kingdom .   | 107.3                 | 154.8   | 8,350,000                | 21                       |
| France . . .   | 111.8                 | 165.8   | 9,120,000                | 24                       |
| Germany . .    | 144.6                 | 212.5   | 7,222,000                | 14                       |
| Russia . . .   | 7.2                   | 37.7    | 1,890,000                | 2                        |
| Austria . .    | 122.6                 | 178.4   | 4,670,000                | 11                       |
| Italy . . . .  | 56.5                  | 72.2    | 4,520,000                | 15                       |
| Spain . . . .  | 2.0                   | 3.2     | 70,000                   | ...                      |
| Portugal . .   | ...                   | 0.5     | 10,000                   | ...                      |
| Scandinavia .  | 44.1                  | 64.9    | 2,980,000                | 32                       |
| Finland . . .  | ...                   | 1.9     | ...                      | ...                      |
| Holland . . .  | 6.0                   | 9.5     | 840,000                  | 18                       |
| Belgium . . .  | 10.4                  | 18.1    | 1,150,000                | 19                       |
| Switzerland .  | 23.7                  | 35.8    | 1,190,000                | 40                       |
| Europe . . .   | 636.2                 | 955.3   | 42,010,000               | 13                       |
| U. States . .  | 284.0                 | 446.0   | 5,065,000                | 7                        |
| Canada . . .   | 10.7                  | 12.2    | 240,000                  | 5                        |
| Australia . .  | 15.5                  | 26.1    | 890,000                  | 22                       |
| India . . . .  | 6.0                   | 7.0     | 680,000                  | ...                      |
| W. Indies, &c. | 2.6                   | 4.2     | 175,000                  | 5                        |
| Japan . . . .  | ...                   | 3.0     | 1,220,000                | 3                        |
| Brazil . . . . | ...                   | 4.2     | ...                      | ...                      |
| The World . .  | 955.0                 | 1,458.0 | 50,280,000               | ...                      |

From the above figures it would appear that people who use savings-banks, mostly the working classes, have added 503 millions sterling to their accumulations in 7 years, or about 72 millions per annum.

*Australia.*—During the last six years the number of depositors has risen 30 per cent., the amount of deposits 49 per cent., viz. :—

|                   | Depositors |         | Amount, £  |            |
|-------------------|------------|---------|------------|------------|
|                   | 1891       | 1897    | 1891       | 1897       |
| New S. Wales .    | 158,000    | 214,000 | 5,340,000  | 8,520,000  |
| Victoria . . .    | 301,000    | 345,000 | 5,720,000  | 7,520,000  |
| New Zealand .     | 127,000    | 175,000 | 3,410,000  | 5,070,000  |
| South Australia . | 79,000     | 105,000 | 2,220,000  | 3,020,000  |
| Queensland . .    | 46,000     | 63,000  | 1,660,000  | 2,570,000  |
| West Australia .  | 4,000      | 26,000  | 50,000     | 860,000    |
| Tasmania . . .    | 27,000     | 33,000  | 550,000    | 700,000    |
| Total . . . .     | 742,000    | 962,000 | 18,950,000 | 28,260,000 |

No less than 22 per cent. of the population are depositors in Savings-Banks, the ratio in Victoria rising to 30 per cent., and falling in Queensland to 13 per cent. The average amount held by each depositor is £30, the ratio being as much as £40 in N.S. Wales, and only £21 in Tasmania.

*Canada.*—In 1894 there were 673 Post-Office savings-banks, with 115,000 depositors, who held £4,800,000 sterling.

*United States.*—The returns for 1896 show 988 savings-banks, against 638 in 1886 :—

|                   | Millions \$ |       | Millions £ |      |
|-------------------|-------------|-------|------------|------|
|                   | 1886        | 1896  | 1886       | 1896 |
| Deposits . . .    | 1,142       | 1,907 | 237        | 397  |
| Capital, &c. . .  | 119         | 236   | 25         | 49   |
| Liabilities . . . | 1,261       | 2,143 | 262        | 446  |
| Loans . . . .     | 128         | 255   | 27         | 53   |
| Mortgages . .     | 418         | 800   | 87         | 167  |
| U.S. bonds . .    | 197         | 149   | 41         | 31   |
| Railway „ . .     | 64          | 135   | 13         | 28   |
| State „ . . .     | 241         | 578   | 50         | 120  |
| Sundries . . .    | 213         | 226   | 44         | 47   |
| Assets . . . .    | 1,261       | 2,143 | 262        | 446  |

The various sections of the Union in 1896 showed as follows :—

| States          | Depositors | Millions \$ | \$ per Inhabitant |
|-----------------|------------|-------------|-------------------|
| New England . . | 2,210,000  | 803         | 150               |
| Middle . . . .  | 2,294,000  | 855         | 53                |
| Southern . . .  | 52,000     | 9           | ...               |
| Prairie . . . . | 322,000    | 104         | 4                 |
| Pacific . . . . | 187,000    | 136         | 31                |
| Union . . . .   | 5,065,000  | 1,907       | 27                |

The average amount held by each depositor was \$380, equal to £79 sterling. The principal states stood thus :—

| States           | Depositors | Millions \$ | \$ per Inhabitant |
|------------------|------------|-------------|-------------------|
| New York . . .   | 1,696,000  | 692         | 103               |
| Massachusetts .  | 1,302,000  | 439         | 176               |
| Connecticut . .  | 347,000    | 143         | 180               |
| California . . . | 160,000    | 132         | 88                |
| Pennsylvania . . | 283,000    | 74          | 12                |
| Other states . . | 1,277,000  | 427         | 8                 |
| Union . . . .    | 5,065,000  | 1,907       | 27                |

The increase in seven years is shown as follows :—

| Year           | Depositors | Millions \$ | \$ per Inhabitant |
|----------------|------------|-------------|-------------------|
| 1880 . . . .   | 4,022,000  | 1,363       | 22                |
| 1896 . . . .   | 5,065,000  | 1,907       | 27                |
| Increase . . . | 1,043,000  | 544         | 5                 |

*India.*—The progress of savings-banks down to 1894 (latest returns) is shown thus :—

| Year         | Depositors | Rupees, Millions | Equivalent, £ |
|--------------|------------|------------------|---------------|
| 1881 . . . . | 115,000    | 32.7             | 2,720,000     |
| 1890 . . . . | 475,000    | 80.6             | 6,040,000     |
| 1896 . . . . | 717,000    | 111.2            | 7,400,000     |

The average amount of each deposit has declined from £24 to £10.

Ceylon shows deposits amounting to 3,200,000 rupees, or £200,000.

*Mauritius*.—There has been an increase of depositors in the past ten years, but the amount is stationary, viz. :—

|                    | 1885    | 1895    |
|--------------------|---------|---------|
| Depositors . . . . | 18,500  | 23,300  |
| Amount, £ . . . .  | 315,000 | 318,000 |

The average deposit has fallen from £17 to £14.

*South Africa*.—The progress made in ten years is shown as follows :—

|                 | Depositors |        | Amount, £ |           |
|-----------------|------------|--------|-----------|-----------|
|                 | 1885       | 1895   | 1885      | 1895      |
| Cape Colony . . | 17,600     | 50,200 | 520,000   | 1,700,000 |
| Natal . . . .   | 3,100      | 7,000  | 50,000    | 170,000   |
| Total . . . .   | 20,700     | 57,200 | 570,000   | 1,870,000 |

The average amount to each depositor is £27, as compared with £30 in Australia.

#### Various British Colonies.

|                  | Depositors |        | Amount, £ |           |
|------------------|------------|--------|-----------|-----------|
|                  | 1885       | 1895   | 1885      | 1895      |
| Malta . . . .    | 4,800      | 6,100  | 340,000   | 470,000   |
| Gibraltar . . .  | 1,100      | 3,600  | 20,000    | 180,000   |
| Newfoundland .   | 4,300      | 6,400  | 360,000   | 560,000   |
| British Guiana . | 13,000     | 19,900 | 190,000   | 260,000   |
| W. India Islands | 28,300     | 56,600 | 570,000   | 960,000   |
| Total . . . .    | 51,500     | 92,600 | 1,480,000 | 2,450,000 |

The collective average for these colonies is £26 to each depositor, against £29 in 1885.

## BANKRUPTCY

The returns for England and Wales show thus :—

| Year         | Number | Liabilities, £ | Average, £ | Assets, £ |
|--------------|--------|----------------|------------|-----------|
| 1885 . . . . | 4,354  | 9,060,000      | 2,100      | 3,100,000 |
| 1890 . . . . | 4,044  | 6,180,000      | 1,500      | 2,240,000 |
| 1897 . . . . | 4,098  | 5,770,000      | 1,400      | 2,800,000 |

The number of bankruptcies gazetted in England in ten years, 1885-94, was as follows :—

| Trades           | Number | Ratio |
|------------------|--------|-------|
| Grocers . . . .  | 3,202  | 7.0   |
| Publicans . . .  | 3,063  | 6.7   |
| Farmers . . . .  | 2,519  | 5.4   |
| Builders . . . . | 2,449  | 5.3   |
| Shoemakers . . . | 1,476  | 3.2   |
| Bakers . . . .   | 1,146  | 2.5   |
| Butchers . . . . | 1,132  | 2.5   |
| Various . . . .  | 30,845 | 67.4  |
| Total . . . .    | 45,832 | 100.0 |

## UNITED STATES

In 1897 the number and amount of failures were :—

| States           | Number | Liabilities, £ | Assets, £  | Ratio of Assets |
|------------------|--------|----------------|------------|-----------------|
| New England . .  | 1,722  | 5,600,000      | 3,700,000  | 66 p.c.         |
| Middle . . . .   | 3,723  | 10,500,000     | 5,800,000  | 55 "            |
| Southern . . . . | 2,799  | 5,000,000      | 3,500,000  | 70 "            |
| Prairie . . . .  | 3,682  | 9,200,000      | 7,900,000  | 86 "            |
| Pacific . . . .  | 1,425  | 1,700,000      | 900,000    | 53 "            |
| Union . . . .    | 13,351 | 32,000,000     | 21,800,000 | 68 "            |

The failures of recent years compare as follows :—

| Year            | Number | Liabilities, £ | Assets, £  | Ratio of Assets |
|-----------------|--------|----------------|------------|-----------------|
| 1893 . . . .    | 15,242 | 72,200,000     | 57,000,000 | 80 p.c.         |
| 1894 . . . .    | 13,885 | 36,000,000     | 25,200,000 | 70 "            |
| 1895 . . . .    | 13,197 | 36,000,000     | 25,200,000 | 70 "            |
| 1896 . . . .    | 15,088 | 47,000,000     | 32,500,000 | 69 "            |
| 1897 . . . .    | 13,351 | 32,000,000     | 21,800,000 | 68 "            |
| Average . . . . | 14,152 | 44,600,000     | 32,200,000 | 72 "            |

The figures for liabilities and assets in 1895 were the same as in the preceding year.

## FRANCE

The number of failures and amount of liabilities were :—

| Year         | Number | Liabilities, £ | Average, £ |
|--------------|--------|----------------|------------|
| 1870 . . . . | 3,987  | 5,550,000      | 1,400      |
| 1875 . . . . | 5,361  | 9,840,000      | 1,810      |
| 1880 . . . . | 6,295  | 9,500,000      | 1,510      |
| 1885 . . . . | 8,024  | 14,200,000     | 1,770      |
| 1890 . . . . | 14,004 | 26,900,000     | 1,920      |
| 1894 . . . . | 12,794 | 21,900,000     | 1,710      |

In 1893 and 1894 the ratios of assets to liabilities showed thus :—

| Year         | Liabilities, £ | Assets, £  | Ratio   |
|--------------|----------------|------------|---------|
| 1893 . . . . | 17,800,000     | 6,300,000  | 35 p.c. |
| 1894 . . . . | 21,900,000     | 11,900,000 | 54 "    |

In the liquidation of 1894 there were 95 estates wound up whose assets sufficed to pay all creditors in full.

## AUSTRIA

Official returns from 1880 to 1893 show as follows :—

| Year         | Bankruptcies | Liabilities, £ | Average, £ |
|--------------|--------------|----------------|------------|
| 1880 . . . . | 972          | 2,630,000      | 2,710      |
| 1885 . . . . | 1,083        | 1,550,000      | 1,430      |
| 1890 . . . . | 1,089        | 2,150,000      | 1,980      |
| 1892 . . . . | 1,073        | 1,540,000      | 1,440      |

## GERMANY

Nothing is published further than the number of failures, viz. :—

| Year         | Number | Year         | Number |
|--------------|--------|--------------|--------|
| 1881 . . . . | 5,252  | 1890 . . . . | 5,936  |
| 1885 . . . . | 4,627  | 1894 . . . . | 7,411  |

## AUSTRALIA

The returns of bankruptcy for 1894 show thus:—

|                           | Number | Liabilities, £ | Assets, £ |
|---------------------------|--------|----------------|-----------|
| New South Wales . . . . . | 1,465  | 1,850,000      | 995,000   |
| Victoria . . . . .        | 1,067  | 5,240,000      | 2,100,000 |
| New Zealand . . . . .     | 626    | 500,000        | 400,000   |
| Queensland . . . . .      | 254    | 190,000        | 40,000    |
| South Australia . . . . . | 80     | 120,000        | 100,000   |
| Tasmania . . . . .        | 168    | 50,000         | 25,000    |
| West Australia . . . . .  | 32     | 20,000         | 40,000    |
| Total . . . . .           | 3,692  | 7,970,000      | 3,700,000 |

Assets were estimated at 46 per cent. of liabilities, as compared with 72 per cent. in the United States.

## CANADA

Liabilities of bankrupts in 1896 reached £3,250,000 against £2,250,000 in 1886. The estimates for 1896 were:—

|                           | Number | Liabilities, £ | Assets, £ |
|---------------------------|--------|----------------|-----------|
| Ontario . . . . .         | 1,072  | 1,200,000      | 860,000   |
| Quebec . . . . .          | 718    | 1,720,000      | 1,250,000 |
| Other Provinces . . . . . | 328    | 510,000        | 420,000   |
| Total . . . . .           | 2,118  | 3,430,000      | 2,530,000 |

## BARLEY

The area and production of this grain are shown thus:—

|                         | Acres      | Tons       | Bushels | Per In-<br>per Acce | Per In-<br>per habitant |
|-------------------------|------------|------------|---------|---------------------|-------------------------|
| United Kingdom          | 2,200,000  | 1,800,000  | 33      | 1.8                 |                         |
| France . . . . .        | 2,200,000  | 1,100,000  | 20      | 1.2                 |                         |
| Germany . . . . .       | 4,200,000  | 2,600,000  | 25      | 2.0                 |                         |
| Russia . . . . .        | 16,800,000 | 5,900,000  | 14      | 2.2                 |                         |
| Austria . . . . .       | 5,700,000  | 2,800,000  | 19      | 2.5                 |                         |
| Spain . . . . .         | 4,000,000  | 1,500,000  | 15      | 3.3                 |                         |
| Danub. States . . . . . | 3,200,000  | 1,200,000  | 15      | 4.4                 |                         |
| Scandinavia . . . . .   | 1,400,000  | 950,000    | 28      | 4.0                 |                         |
| Italy, &c. . . . .      | 2,000,000  | 600,000    | 12      | ...                 |                         |
| Europe . . . . .        | 41,700,000 | 18,450,000 | 18      | 2.0                 |                         |
| United States . . . . . | 3,000,000  | 2,200,000  | 29      | 1.2                 |                         |
| Canada . . . . .        | 900,000    | 450,000    | 20      | 3.6                 |                         |
| Total . . . . .         | 45,600,000 | 21,100,000 | 19      | 1.9                 |                         |

## BATTLES

Besides the list at page 89 there were the following:—

| Date. | Place           | Won by    | Force  | Lost by   | Force   |
|-------|-----------------|-----------|--------|-----------|---------|
| B.C.  |                 |           |        |           |         |
| 334   | Arbela . .      | Alexander | 35,000 | Persians  | 950,000 |
| 31    | Actium . .      | Augustus  | 92,000 | Anthony   | 112,000 |
| A.D.  |                 |           |        |           |         |
| 1513  | Flodden . .     | English   | 32,000 | Scotch .  | 30,000  |
| 1704  | Blenheim . .    | "         | 52,000 | French .  | 56,000  |
| 1745  | Fontenoy . .    | French    | 60,000 | English   | 60,000  |
| 1800  | Hohenlinden . . | "         | 70,000 | Austrians | 60,000  |

## BEER

See *Alcohol*, page 533, also page 89.

## BEES

Maraldi says that an ordinary hive has 18,000 bees, but forest hives in Russia range from 60,000 to 110,000. In France 1600 bees weigh a pound, but the wild bees of Russia are so light that 5000 go to a pound. Hives in Europe produce from 20 to 50 lb. of honey yearly. A bee sucks 219,000 flowers for every ounce of honey. See Part I., page 50.

## BIRTHS

The following table shows the number of births in each country in 1896, the birth-rate to population, the ratio of illegitimate births in 1000, and the number of births to women of 15 to 50 years of age.

|                            | No. of Births | Rate per 1000 Inhabitants | Illegitimate Per 1000 | Births to 1000 Women (15-50) |
|----------------------------|---------------|---------------------------|-----------------------|------------------------------|
| England . . . . .          | 917,000       | 29.9                      | 42                    | 121                          |
| Scotland . . . . .         | 129,000       | 30.8                      | 72                    | 121                          |
| Ireland . . . . .          | 108,000       | 23.7                      | 26                    | 92                           |
| U. Kingdom . . . . .       | 1,154,000     | 29.2                      | 44                    | 117                          |
| France . . . . .           | 866,000       | 22.7                      | 88                    | 89                           |
| Germany . . . . .          | 1,942,000     | 37.3                      | 91                    | 157                          |
| Russia . . . . .           | 4,916,000     | 47.1                      | 31                    | ...                          |
| Austria . . . . .          | 975,000       | 39.0                      | 145                   | 161                          |
| Hungary . . . . .          | 761,000       | 41.1                      | 85                    | 176                          |
| Italy . . . . .            | 1,096,000     | 35.1                      | 64                    | 154                          |
| Sweden . . . . .           | 135,000       | 27.5                      | 107                   | 117                          |
| Norway . . . . .           | 63,000        | 30.0                      | 71                    | 131                          |
| Denmark . . . . .          | 70,000        | 30.4                      | 101                   | 131                          |
| Holland . . . . .          | 160,000       | 32.0                      | 29                    | 148                          |
| Belgium . . . . .          | 189,000       | 29.0                      | 87                    | 128                          |
| Switzerland . . . . .      | 92,000        | 30.7                      | 45                    | 123                          |
| Portugal . . . . .         | 158,000       | 31.2                      | 123                   | ...                          |
| Roumania . . . . .         | 232,000       | 40.0                      | 14                    | ...                          |
| Servia . . . . .           | 97,000        | 42.2                      | ...                   | ...                          |
| Bulgaria . . . . .         | 128,000       | 38.4                      | ...                   | ...                          |
| Europe . . . . .           | 13,034,000    | 35.2                      | 55                    | ...                          |
| U. States (1880) . . . . . | 1,577,000     | 31.5 *                    | ...                   | 128                          |
| Canada . . . . .           | 125,000       | 25.0                      | 15                    | 101                          |
| Australia . . . . .        | 124,000       | 29.4                      | 51                    | 130                          |

The birth-rates of Russia, Servia, and Hungary are the highest in Europe, those of France and Ireland the lowest. The ratio of illegitimacy is highest in Austria and Portugal, lowest in Roumania, Ireland, and Holland.

The number of legitimate births, compared with the number of marriages, gives the following results:—

## Births to 10 Marriages

|                          |                       |                       |
|--------------------------|-----------------------|-----------------------|
| France . . . . . 27      | Sweden . . . . . 42   | Norway . . . . . 44   |
| England . . . . . 36     | Portugal . . . . . 42 | Italy . . . . . 46    |
| Belgium . . . . . 36     | Europe . . . . . 43   | Ireland . . . . . 46  |
| Switzerland . . . . . 37 | Germany . . . . . 43  | Hungary . . . . . 47  |
| Denmark . . . . . 38     | Holland . . . . . 43  | Roumania . . . . . 49 |
| Scotland . . . . . 40    | Austria . . . . . 44  | Russia . . . . . 65   |

It may be that the early age of marrying in Russia accounts for such large families, although Dr. Ogle asserts

\* The census report was evidently incomplete, as Dr. Billings shows: the birth-rate was really 35.0.

that a woman marrying at 25 is likely to have more children than one who marries at 20.

The number of illegitimate births in 1896, compared with that of women of 15 to 50 years of age in the various countries, is shown thus:—

|                   | Women      | Illeg. Births | Per 10,000 Women |
|-------------------|------------|---------------|------------------|
| England . . . .   | 7,622,000  | 38,700        | 50               |
| Scotland . . . .  | 1,068,000  | 9,300         | 87               |
| Ireland . . . .   | 1,174,000  | 2,800         | 24               |
| U. Kingdom . . .  | 9,864,000  | 50,800        | 52               |
| France . . . . .  | 9,701,000  | 76,300        | 79               |
| Germany . . . . . | 12,380,000 | 93,400        | 75               |
| Austria . . . . . | 6,071,000  | 141,600       | 239              |
| Hungary . . . . . | 4,321,000  | 65,400        | 151              |
| Italy . . . . .   | 7,160,000  | 70,300        | 98               |
| Switzerland . . . | 746,000    | 4,000         | 53               |
| Sweden . . . . .  | 1,155,000  | 14,400        | 125              |
| Norway . . . . .  | 489,000    | 4,500         | 92               |
| Denmark . . . . . | 534,000    | 7,100         | 133              |
| Holland . . . . . | 1,084,000  | 4,600         | 42               |
| Belgium . . . . . | 1,483,000  | 16,500        | 111              |

The highest ratios are in Austria and Hungary, the lowest in Ireland.

The following table shows the numbers and ratios of still births:—

|                   | Still Births |         | Per 1000 Births |      |
|-------------------|--------------|---------|-----------------|------|
|                   | 1885         | 1895    | 1885            | 1895 |
| France . . . . .  | 44,000       | 41,600  | 50              | 50   |
| Germany . . . . . | 68,700       | 64,400  | 41              | 33   |
| Austria . . . . . | 24,500       | 27,300  | 29              | 30   |
| Hungary . . . . . | 13,100       | 17,700  | 18              | 24   |
| Italy . . . . .   | 39,300       | 45,900  | 36              | 43   |
| Sweden . . . . .  | 4,010        | 3,460   | 31              | 26   |
| Norway . . . . .  | 1,840        | 1,720   | 28              | 29   |
| Denmark . . . . . | 2,050        | 1,730   | 31              | 26   |
| Holland . . . . . | 7,790        | 7,610   | 52              | 49   |
| Belgium . . . . . | 8,520        | 8,630   | 50              | 45   |
| Switzerland . . . | 3,230        | 3,210   | 40              | 40   |
| Roumania . . . .  | 2,200        | 2,640   | ...             | ...  |
| Japan . . . . .   | 58,400       | 117,200 | 55              | 95   |

The above shows an ascending ratio in 5 countries, and a descending in 5 others, the former being especially noticeable in Japan.

The number and ratio of illegitimate births in 1890 and 1896 are shown thus:—

|                   | Illegitimate Births |         | Per 1000 Births |      |
|-------------------|---------------------|---------|-----------------|------|
|                   | 1890                | 1896    | 1890            | 1896 |
| U. Kingdom . . .  | 50,400              | 50,800  | 46              | 44   |
| France . . . . .  | 71,100              | 76,300  | 85              | 88   |
| Germany . . . . . | 165,700             | 176,300 | 94              | 91   |
| Austria . . . . . | 128,700             | 141,600 | 148             | 145  |
| Hungary . . . . . | 60,000              | 65,400  | 86              | 85   |
| Italy . . . . .   | 78,800              | 70,300  | 73              | 64   |
| Scandinavia . . . | 24,700              | 26,000  | 95              | 97   |
| Switzerland . . . | 4,100               | 4,000   | 52              | 45   |
| Holland . . . . . | 4,760               | 4,600   | 32              | 29   |
| Belgium . . . . . | 15,250              | 16,500  | 86              | 87   |

There is a decline of illegitimacy in all countries except France, Belgium, and Scandinavia.

Illegitimate births are more numerous in cities than in

rural districts; returns for the following cities in 1888-89 showed:—

*Illegitimates in 1000 Births*

|                     |                     |                     |
|---------------------|---------------------|---------------------|
| Rotterdam . . . 70  | Berlin . . . . 154  | Leipzig . . . . 211 |
| Naples . . . . . 86 | Christiania . 162   | St. Petersburg 236  |
| Hague . . . . . 99  | Liege . . . . . 174 | Paris . . . . . 268 |
| Palermo . . . . 101 | Bucharest . . 175   | Copenhagen . 279    |
| Cologne . . . . 124 | Breslau . . . . 186 | Buda-Pesth . 299    |
| Antwerp . . . . 129 | Venice . . . . 189  | Moscow . . . 300    |
| Frankfort . . . 132 | Rome . . . . . 194  | Stockholm . 396     |
| Turin . . . . . 132 | Milan . . . . . 204 | Prague . . . 439    |
| Hamburg . . . . 138 | Dresden . . . 208   | Munich . . . 439    |
| Ghent . . . . . 144 | Trieste . . . . 211 | Vienna . . . 449    |

The following table shows the rates of births and deaths per thousand inhabitants in the last 12 years as compared with 20 years down to 1880, in various countries:—

|                   | Births  |         | Deaths  |         | Nat. Increase |         |
|-------------------|---------|---------|---------|---------|---------------|---------|
|                   | 1861-80 | 1885-96 | 1861-80 | 1885-96 | 1861-80       | 1885-96 |
| England . . . . . | 35.4    | 31.1    | 22.0    | 18.7    | 13.4          | 12.7    |
| France . . . . .  | 25.8    | 22.8    | 24.0    | 22.0    | 1.8           | 0.8     |
| Prussia . . . . . | 39.1    | 37.4    | 27.1    | 23.6    | 12.0          | 13.8    |
| Scandinavia . . . | 31.4    | 29.4    | 19.0    | 17.3    | 12.4          | 12.1    |
| Austria . . . . . | 38.9    | 37.7    | 30.8    | 28.3    | 8.1           | 9.4     |
| Hungary . . . . . | 42.6    | 42.7    | 39.4    | 31.8    | 3.2           | 10.9    |
| Italy . . . . .   | 37.2    | 37.0    | 29.9    | 26.4    | 7.3           | 10.6    |
| Holland . . . . . | 36.3    | 33.3    | 24.6    | 19.9    | 11.7          | 13.4    |
| Belgium . . . . . | 31.9    | 29.4    | 22.7    | 20.3    | 9.2           | 9.1     |
| Mean . . . . .    | 35.4    | 33.1    | 26.6    | 22.9    | 8.8           | 10.2    |

The mean birth-rate of Europe has declined 6 per cent. from what it was 30 years ago, but at the same time the death-rate has declined 14 per cent., so that it comes to pass that population is now increasing more rapidly. Thus the surplus of births over deaths 30 years ago was 8.8 per thousand inhabitants, and at present it is 10.2, equal to an improvement of 16 per cent. This decline of birth-rate and death-rate is progressive, as will be seen if we divide the last period into two of 6 years each, viz.:—

|                    | Births  |         | Deaths  |         | Nat. Increase |         |
|--------------------|---------|---------|---------|---------|---------------|---------|
|                    | 1885-90 | 1891-96 | 1885-90 | 1891-96 | 1885-90       | 1891-96 |
| England . . . . .  | 31.7    | 30.4    | 18.9    | 18.5    | 12.8          | 11.9    |
| Scotland . . . . . | 31.6    | 30.7    | 18.9    | 18.7    | 12.7          | 12.0    |
| Ireland . . . . .  | 22.8    | 22.9    | 18.0    | 18.1    | 4.8           | 4.8     |
| U. Kingdom . . .   | 30.5    | 29.6    | 18.8    | 18.4    | 11.7          | 11.2    |
| France . . . . .   | 23.3    | 22.4    | 21.9    | 22.1    | 1.4           | 0.3     |
| Prussia . . . . .  | 37.5    | 37.3    | 24.3    | 22.9    | 13.2          | 14.4    |
| Scandinavia . . .  | 30.0    | 28.8    | 17.2    | 17.3    | 12.8          | 11.5    |
| Austria . . . . .  | 37.7    | 37.7    | 29.0    | 27.6    | 8.7           | 10.1    |
| Hungary . . . . .  | 43.8    | 41.6    | 32.3    | 31.4    | 11.6          | 10.2    |
| Italy . . . . .    | 37.8    | 36.2    | 27.3    | 25.5    | 10.5          | 10.7    |
| Holland . . . . .  | 33.7    | 33.0    | 20.6    | 19.2    | 13.1          | 13.8    |
| Belgium . . . . .  | 29.7    | 29.2    | 20.7    | 19.9    | 9.0           | 9.3     |
| Mean . . . . .     | 33.8    | 32.9    | 23.6    | 22.7    | 10.2          | 10.2    |

The natality or annual offspring to be expected from 100 husbands according to age is:—

| Age             | Nat. p. c. | Age           | Nat. p. c. | Age           | Nat. p. c. |
|-----------------|------------|---------------|------------|---------------|------------|
| 23-25 . . . . . | 33         | 35-37 . . . . | 23         | 47-49 . . . . | 7          |
| 26-28 . . . . . | 35         | 38-40 . . . . | 19         | 50-51 . . . . | 5          |
| 29-31 . . . . . | 32         | 41-43 . . . . | 15         | 52-54 . . . . | 3          |
| 32-34 . . . . . | 28         | 44-46 . . . . | 11         | 55-60 . . . . | 2          |

The following table of natality by Körösi shows the ratio of births that may be expected yearly to 100 wives according to age :—

| Mother's Age    | Sweden | Norway | Alsace | Brunswick | Berlin | Buda-Pesth | Edinburgh | Average |
|-----------------|--------|--------|--------|-----------|--------|------------|-----------|---------|
| 15-19 . . . . . | 52     | 41     | 47     | 58        | 50     | 43         | 50        | 49      |
| 20-24 . . . . . | 45     | 58     | 56     | 45        | 46     | 36         | 42        | 47      |
| 25-29 . . . . . | 38     | 43     | 46     | 35        | 34     | 29         | 35        | 37      |
| 30-34 . . . . . | 31     | 36     | 39     | 27        | 23     | 21         | 27        | 29      |
| 35-39 . . . . . | 25     | 30     | 28     | 20        | 15     | 15         | 20        | 22      |
| 40-44 . . . . . | 14     | 18     | ...    | 8         | 6      | 6          | 8         | 10      |
| 45-49 . . . . . | 2      | 3      | ...    | 1         | 1      | 1          | 1         | 1       |

The most productive age for mothers is from 15 to 24, for fathers from 23 to 31: of 100 mothers, 48 of the said age will have children yearly; of 100 fathers, only 34. The reason that these numbers are not equal is because parents of those ages are not equal; for example, the number of fathers over 40 is much greater than that of mothers. The reproductive age with men may be said to cease at 60, although at 65 the chance of paternity is 3 in 1000, and it is 2 in 1000 at 69. Bertillon shows that birth-rate is much higher among the poor than the rich, and that 1000 women between 15 and 50 years of age will have the following number of children yearly :—

| Quarters               | Births Yearly per 1000 Women |        |        |        |         |
|------------------------|------------------------------|--------|--------|--------|---------|
|                        | Paris                        | London | Berlin | Vienna | Average |
| Rich . . . . .         | 44                           | 55     | 55     | 89     | 61      |
| Comfortable . . . . .  | 68                           | 107    | 105    | 154    | 108     |
| Poor . . . . .         | 102                          | 143    | 143    | 182    | 142     |
| General rate . . . . . | 80                           | 109    | 102    | 153    | 111     |

The annals of Berlin from 1826 to 1896 record the following multiple births :—

147,000 births of twins.  
7,733 " of 3 children.  
106 " of 4 children.  
3 " of 5 children.

(See page 93, where a case of 6 children at a birth is mentioned, in 1888.)

From the evidence of demographic tables it would appear that multiple births average as follows :—

Twins . . . . . 1,280 in 100,000 births.  
Triplets . . . . . 16 in " "  
4 or more children . . . . . 2 in a million births.

Twins and triplets are most frequent in Bavaria. Twins are less frequent in Spain, triplets in England, than in other countries (see page 93).

In Paris the returns for 4 years ending December 1895 gave the ratios of twins as to sex thus :—

| Sex                 | Mother's Age |       |         |
|---------------------|--------------|-------|---------|
|                     | 18-25        | 26-35 | Over 35 |
| 2 males . . . . .   | 348          | 343   | 348     |
| 2 females . . . . . | 382          | 302   | 320     |
| Mixed . . . . .     | 270          | 355   | 332     |
|                     | 1,000        | 1,000 | 1,000   |

In St. Petersburg the number of twins to 1000 births was :—

| Mother's Age    |    | Mother's Age    |    |
|-----------------|----|-----------------|----|
| 16-20 . . . . . | 6  | 31-40 . . . . . | 22 |
| 20-30 . . . . . | 12 | 41-50 . . . . . | 17 |

The general ratio all round was 14 twin births to 1000 births.

In Canada 100,000 births give 850 twin births and 29 births of triplets, twins being less, triplets more, frequent than in Europe.

The sexes of children born in 1895 were :—

|                            | Number  |         | Ratio |         |
|----------------------------|---------|---------|-------|---------|
|                            | Males   | Females | Males | Females |
| England . . . . .          | 469,000 | 453,000 | 1,034 | 1,000   |
| Scotland . . . . .         | 64,900  | 61,600  | 1,054 | 1,000   |
| Ireland . . . . .          | 54,500  | 51,600  | 1,058 | 1,000   |
| U. Kingdom . . . . .       | 588,400 | 566,200 | 1,039 | 1,000   |
| Germany . . . . .          | 999,000 | 943,000 | 1,064 | 1,000   |
| Italy . . . . .            | 561,000 | 531,000 | 1,060 | 1,000   |
| Canada . . . . .           | 64,000  | 61,000  | 1,050 | 1,000   |
| Australia . . . . .        | 63,400  | 60,200  | 1,054 | 1,000   |
| U. States (1880) . . . . . | 807,000 | 770,000 | 1,048 | 1,000   |

### UNITED KINGDOM

The following table shows the births and deaths and the natural increase from surplus of births in the United Kingdom in 1897 :—

|                      | ooo omitted |        |          | Per 1000 Pop. |        |          |
|----------------------|-------------|--------|----------|---------------|--------|----------|
|                      | Births      | Deaths | Increase | Births        | Deaths | Increase |
| England . . . . .    | 921         | 541    | 380      | 29.7          | 17.5   | 12.2     |
| Scotland . . . . .   | 129         | 79     | 50       | 30.6          | 18.7   | 11.9     |
| Ireland . . . . .    | 107         | 84     | 23       | 23.5          | 18.5   | 5.0      |
| U. Kingdom . . . . . | 1,157       | 704    | 453      | 29.0          | 17.7   | 11.3     |

The following table shows the population, birth and death rates of the largest cities in England :—

|                      | Population (1897) | Per 1000 Inhabitants |        |          |
|----------------------|-------------------|----------------------|--------|----------|
|                      |                   | Births               | Deaths | Increase |
| London . . . . .     | 4,463,000         | 30.7                 | 19.0   | 11.7     |
| Liverpool . . . . .  | 633,000           | 35.3                 | 24.4   | 10.9     |
| Manchester . . . . . | 534,000           | 33.3                 | 23.1   | 10.2     |
| Birmingham . . . . . | 506,000           | 33.3                 | 21.6   | 11.7     |
| Leeds . . . . .      | 409,000           | 31.6                 | 19.9   | 11.7     |
| Sheffield . . . . .  | 352,000           | 34.4                 | 21.2   | 13.2     |
| Bristol . . . . .    | 232,000           | 27.8                 | 17.2   | 10.6     |

A statement was published in 1891 on an average of five years, showing the birth-rates and death-rates of London and of the Peabody Buildings, to 31st December 1890, with the natural increase of population, as follows :—

|                   | Per 10,000 Inhabitants |        |          |
|-------------------|------------------------|--------|----------|
|                   | Births                 | Deaths | Increase |
| London . . . . .  | 308                    | 191    | 117      |
| Peabody . . . . . | 402                    | 188    | 214      |

The surplus of births over deaths in the Peabody Buildings was almost in twice the ratio of London.

## FRANCE

Turquand shows that the fecundity of men and women in France (1892-95) is as follows, men being taken from 18 years of age, women from 15 years upwards :—

| Age                   | Children Yearly to 1000 |       | Number of |          |
|-----------------------|-------------------------|-------|-----------|----------|
|                       | Husbands                | Wives | Wives     | Children |
| Under 24 . . . . .    | 318                     | 299   | 705,000   | 210,500  |
| 25-34 . . . . .       | 259                     | 213   | 1,931,100 | 410,400  |
| 35-44 . . . . .       | 247                     | 81    | 1,864,000 | 152,000  |
| 45-50 . . . . .       | 46                      | 8     | 832,100   | 6,300    |
| Over 50 . . . . .     | 7                       | ...   | 2,324,500 | 900      |
| Of all ages . . . . . | 102                     | 102   | 7,656,700 | 780,100  |

The above regards only married persons, the ages of widows and unmarried girls having children being as follows :—

| Age               | Unmarried Women | Children | In 10,000 Women |
|-------------------|-----------------|----------|-----------------|
| 0-20 . . . . .    | 1,928,900       | 14,592   | 75              |
| 20-24 . . . . .   | 1,066,000       | 27,370   | 257             |
| 25-34 . . . . .   | 854,500         | 24,980   | 292             |
| 35-44 . . . . .   | 612,000         | 5,596    | 91              |
| Over 44 . . . . . | 3,533,470       | 1,272    | 4               |
| Total . . . . .   | 7,994,870       | 73,810   | 92              |

Thus 10,000 married women of all ages will have 1020 children yearly, and the same number of unmarried will have 92. If we take only women under 44 years the yearly birth-rate will be as follows :—

|                     | Women     | Births  | Per 10,000 |
|---------------------|-----------|---------|------------|
| Married . . . . .   | 4,500,000 | 773,000 | 172        |
| Unmarried . . . . . | 4,462,000 | 73,800  | 17         |

## GERMANY

Official returns for sixteen years (1875-90) show that birth-rate differs remarkably according to the religion of the parents, Roman Catholics being much above par, and mixed marriages no less below it. The table also gives the ratio of still births to each religion, viz :—

| Parents                            | Children to 100 Families | Still Births in 10,000 Births |
|------------------------------------|--------------------------|-------------------------------|
| Roman Catholic . . . . .           | 524                      | 356                           |
| Evangelical . . . . .              | 435                      | 405                           |
| R. Cath. and Evangelical . . . . . | 332                      | 335                           |
| Jewish . . . . .                   | 421                      | 329                           |
| Jewish and Evangelical . . . . .   | 168                      | 337                           |

## HUNGARY

Körösi shows that 1000 married couples will have the following number of children yearly :—

## Children Yearly to 1000 Wives

| Father's Age    | Mother's Age |     |     |
|-----------------|--------------|-----|-----|
|                 | 25-          | 30- | 35- |
| 25-29 . . . . . | 356          | 250 | 212 |
| 30-34 . . . . . | 312          | 236 | 199 |
| 35-39 . . . . . | 275          | 218 | 194 |
| 40-50 . . . . . | 275          | 153 | 125 |

## Mother's Age

## Father's Age

|                 | 25- | 35- | 45- |
|-----------------|-----|-----|-----|
| 20-24 . . . . . | 430 | 313 | 160 |
| 25-29 . . . . . | 308 | 273 | 185 |
| 30-34 . . . . . | 335 | 277 | 144 |
| 35-39 . . . . . | ... | 189 | 118 |

The maximum age of fecundity is as follows :—

| For Men |      | For Women |         |
|---------|------|-----------|---------|
| Husband | Wife | Wife      | Husband |
| 25      | 19   | 18        | 25      |
| 35      | 21   | 25        | 28      |
| 40      | 24   | 30        | 30      |
| 45      | 29   | 35        | 29      |

## CANADA

The number of all births compared to marriages in 1895 was :—

|                           | Marriages | Births  | Ratio of Births |
|---------------------------|-----------|---------|-----------------|
| Ontario . . . . .         | 13,990    | 41,630  | 3.0             |
| Quebec . . . . .          | 10,170    | 58,650  | 5.8             |
| Other Provinces . . . . . | 3,910     | 13,160  | 3.4             |
| Total . . . . .           | 28,070    | 113,440 | 4.1             |

The above, however, does not include Nova Scotia or the North-West Territories, for which there are no returns. As illegitimate births constitute 1½ per cent., the ratio of lawful births to a marriage is found to be 4.0, the above table including bastards.

## AUSTRALIA

The following table shows the birth-rate of the colonies, the ratio of males born to 100 females, and the ratio of illegitimacy :—

|                           | Births per 1000 Pop. | Male to 100 Fem. Births | Illegitimate per Cent. |
|---------------------------|----------------------|-------------------------|------------------------|
| New South Wales . . . . . | 32.8                 | 105                     | 5.7                    |
| Victoria . . . . .        | 31.0                 | 106                     | 5.0                    |
| New Zealand . . . . .     | 27.7                 | 105                     | 3.2                    |
| Queensland . . . . .      | 34.1                 | 104                     | 4.8                    |
| South Australia . . . . . | 31.5                 | 106                     | 2.5                    |
| Tasmania . . . . .        | 32.2                 | 103                     | 4.2                    |
| West Australia . . . . .  | 31.2                 | 101                     | 4.3                    |
| Total . . . . .           | 31.3                 | 105                     | 4.8                    |

## UNITED STATES

The section on Births for the census of 1890 is not yet published. The figures for 1880 showed as follows, the column of Women indicating those between 15 and 50 years of age, to compare the number of births :—

|                    | Number (ooo omitted) |        |       |                       | Births<br>to<br>1000<br>Women |
|--------------------|----------------------|--------|-------|-----------------------|-------------------------------|
|                    | Births               |        |       | Number<br>of<br>Women |                               |
|                    | Male                 | Female | Total |                       |                               |
| White . . . . .    | 372                  | 352    | 724   | 5,696                 | 127                           |
| Coloured . . . . . | 120                  | 120    | 240   | 1,469                 | 164                           |
| Doubtful . . . . . | 315                  | 298    | 613   | 5,208                 | 118                           |
| Total . . . . .    | 807                  | 770    | 1,577 | 12,373                | 127                           |

The sexes of coloured children were equal, but those of white or doubtful classification showed male births ½ per cent. in excess of female, as occurs also in Europe.

The birth-rate to the above three sections of population was as follows :—

|                | Population | Births    | Per 1000 |
|----------------|------------|-----------|----------|
| Whites . . .   | 22,599,000 | 724,000   | 32.0     |
| Coloured . . . | 6,233,000  | 240,000   | 38.6     |
| Doubtful . . . | 21,324,000 | 613,000   | 28.7     |
| Total . . .    | 50,156,000 | 1,577,000 | 31.4     |

The ratio of women of child-bearing age to the above classes was :—

|                | Population | Women      | Per 1000 |
|----------------|------------|------------|----------|
| Whites . . .   | 22,599,000 | 5,696,000  | 252      |
| Coloured . . . | 6,233,000  | 1,469,000  | 236      |
| Doubtful . . . | 21,324,000 | 5,208,000  | 244      |
| Total . . .    | 50,156,000 | 12,373,000 | 247      |

The highest and lowest birth-rates were as follows :—

*Highest*

| State          | Per 1000 Pop. | Per 1000 Women |
|----------------|---------------|----------------|
| Arkansas . . . | 42.7          | 190            |
| Utah . . .     | 41.9          | 199            |
| Texas . . .    | 41.3          | 187            |

*Lowest*

|                   | Per 1000 Pop. | Per 1000 Women |
|-------------------|---------------|----------------|
| New Hampshire . . | 19.1          | 72             |
| Arizona . . .     | 19.3          | 114            |
| Maine . . .       | 20.9          | 81             |

**CABS**

The number of cabs and omnibuses in various cities in 1890 was :—

|                  | Number |        | Per 10,000 Pop. |        |
|------------------|--------|--------|-----------------|--------|
|                  | Cabs   | Busses | Cabs            | Busses |
| London . . .     | 11,300 | 2,210  | 27              | 5      |
| Paris . . .      | 11,700 | 840    | 48              | 2      |
| Berlin . . .     | 5,700  | 240    | 40              | 2      |
| Vienna . . .     | 2,200  | 620    | 17              | 5      |
| Buda-Pesth . . . | 1,000  | 100    | 20              | 2      |
| Bordeaux . . .   | 1,200  | 140    | 48              | 5      |
| Rome . . .       | 2,400  | 130    | 53              | 3      |
| Naples . . .     | 2,900  | 110    | 55              | 2      |
| Genoa . . .      | 300    | 220    | 14              | 10     |
| Florence . . .   | 900    | 70     | 45              | 3      |

The above 10 cities show an average of 37 cabs and 4 busses to every 10,000 souls. London is below the average in cabs, but above it in busses. See *Tramways*, page 814, also *Cabs*, page 100.

The Omnibus Company of Paris has 16,000 horses and 1,100 busses or tramcars, some of the latter being horse-cars, others drawn by locomotives (tramways 105 miles long), the development of this Company having been as follows :—

|            | Carriages | Horses | Passengers, Millions | Tax Paid, £ | Dividend, Francs |
|------------|-----------|--------|----------------------|-------------|------------------|
| 1865 . . . | 732       | 8,230  | 107                  | 88,000      | 60               |
| 1875 . . . | 736       | 9,760  | 123                  | 102,000     | 50               |
| 1885 . . . | 896       | 12,980 | 191                  | 148,000     | 55               |
| 1896 . . . | 1,091     | 16,330 | 246                  | 194,000     | 45               |

**BOUNTIES**

See page 494.

**BULLION**

The following table shows the average annual imports and exports of bullion in ten years to December 1895 :—

|                   | Imported, £ per An. |             | Exported, £ |             |
|-------------------|---------------------|-------------|-------------|-------------|
|                   | 1886-90             | 1891-95     | 1886-90     | 1891-95     |
| U. Kingdom        | 24,400,000          | 38,800,000  | 22,200,000  | 31,800,000  |
| France . . .      | 16,600,000          | 22,600,000  | 15,800,000  | 14,000,000  |
| Germany . . .     | 5,600,000           | 11,200,000  | 5,600,000   | 7,200,000   |
| Russia . . .      | 2,600,000           | 12,000,000  | 3,800,000   | 1,090,000   |
| Austria . . .     | 2,000,000           | 6,200,000   | 500,000     | 1,600,000   |
| Italy . . .       | 2,500,000           | 2,100,000   | 2,900,000   | 2,200,000   |
| Spain . . .       | 1,100,000           | 1,900,000   | 200,000     | 900,000     |
| Portugal . . .    | 2,500,000           | 1,000,000   | 800,000     | 2,600,000   |
| Scandinavia . . . | 600,000             | 400,000     | 200,000     | 100,000     |
| Holland . . .     | 1,700,000           | 3,600,000   | 1,400,000   | 2,200,000   |
| Belgium . . .     | 4,600,000           | 6,400,000   | 4,000,000   | 6,000,000   |
| Switzerland . . . | 2,600,000           | 2,900,000   | 1,400,000   | 1,800,000   |
| Europe . . .      | 66,800,000          | 109,100,000 | 58,800,000  | 71,400,000  |
| U. States . . .   | 9,200,000           | 12,200,000  | 12,600,000  | 24,200,000  |
| Span. Amer. . .   | 5,200,000           | 2,400,000   | 12,800,000  | 11,800,000  |
| China . . .       | 4,000,000           | 4,500,000   | 4,000,000   | 3,800,000   |
| Japan . . .       | 1,400,000           | 2,100,000   | 1,500,000   | 1,900,000   |
| Egypt . . .       | 2,400,000           | 3,300,000   | 2,400,000   | 2,300,000   |
| India . . .       | 17,200,000          | 17,000,000  | 4,200,000   | 8,000,000   |
| Various . . .     | 1,800,000           | 1,400,000   | 10,700,000  | 28,400,000  |
| Total . . .       | 107,000,000         | 152,000,000 | 107,000,000 | 152,000,000 |

See *Gold and Silver*, pages 308 and 741.

**C**

The statement for 1896 was as follows :—

|                | Cars  | Horses | Passengers  | Miles Run  |
|----------------|-------|--------|-------------|------------|
| Busses . . .   | 670   | 10,550 | 135,400,000 | 14,400,000 |
| Tramcars . . . | 410   | 5,750  | 110,700,000 | 8,800,000  |
| Total . . .    | 1,080 | 16,300 | 246,100,000 | 23,200,000 |

|                | Daily Average |        | Receipts, Pence per |           |
|----------------|---------------|--------|---------------------|-----------|
|                | Passengers    | Miles  | Mile                | Passenger |
| Busses . . .   | 370,000       | 40,000 | 16.7                | 1.78      |
| Tramcars . . . | 301,000       | 25,000 | 20.5                | 1.66      |
| Total . . .    | 671,000       | 65,000 | 18.2                | 1.73      |

Bus passengers were 57 per cent. inside, 43 out ; tram-cars carried 55 per cent. inside, 45 out. Busses had 10 passengers, tramcars 12, per mile run. Each horse on active service ran 10 miles daily, carried 100 passengers, and earned 178 pence. Gross receipts, £1,760,000, say £4800 daily.

**CANALS**

Exclusive of the Manchester Ship Canal, those of the United Kingdom show the following traffic :—

|                    | Worked by |            |            |
|--------------------|-----------|------------|------------|
|                    | Railways  | Companies  | Total      |
| Tons carried . . . | 8,030,000 | 28,270,000 | 36,300,000 |
| Receipts, £ . . .  | 500,000   | 1,540,000  | 2,040,000  |
| Expenses, £ . . .  | 370,000   | 950,000    | 1,320,000  |
| Profit, £ . . .    | 130,000   | 590,000    | 720,000    |

|                | Miles in Traffic by |           |       |
|----------------|---------------------|-----------|-------|
|                | Railways            | Companies | Total |
| England . . .  | 1,024               | 2,026     | 3,050 |
| Scotland . . . | 84                  | 69        | 153   |
| Ireland . . .  | 96                  | 513       | 609   |
| Total . .      | 1,204               | 2,608     | 3,812 |

The above includes 1070 miles of canals no longer used, but nominally belonging to Companies. The mileage traffic returns for canals owned by Railways and Companies show :—

|                     | Railway Canals | Company Canals | Total |
|---------------------|----------------|----------------|-------|
| Tons per mile . . . | 670            | 1,080          | 950   |
| Receipts, £ . . .   | 420            | 600            | 535   |
| Expenses, £ . . .   | 300            | 360            | 350   |
| Profit, £ . . .     | 120            | 240            | 185   |

|                            | England | Scotland | Ireland |
|----------------------------|---------|----------|---------|
| Receipts, £ per mile . . . | 625     | 460      | 160     |
| Expenses . . . . .         | 400     | 280      | 120     |
| Profit . . . . .           | 225     | 180      | 40      |

The Manchester Ship Canal, opened in 1894, is 36 miles long, 26 feet deep, and 120 wide, having cost £15,400,000, or £425,000 per mile; traffic returns showed 2,100,000 tons in 1897, an increase of 13 per cent. over 1896, and 53 per cent. over 1895. This canal cost per mile more than twice as much as the Suez Canal.

*Suez Canal.*—Traffic returns for 1896 compare with those of previous years thus :—

| Year         | Ships | Tons       | Average Tonnage | Fees, £   |
|--------------|-------|------------|-----------------|-----------|
| 1886 . . . . | 3,100 | 8,180,000  | 2,640           | 2,260,000 |
| 1891 . . . . | 4,207 | 12,220,000 | 2,500           | 3,340,000 |
| 1897 . . . . | 2,986 | 11,120,000 | 3,720           | 2,840,000 |

Net profits in 1896 amounted to £1,690,000, equal to 7 per cent. on capital.

The various flags of vessels passing through in 1886 and in 1896 showed thus :—

|               | Tonnage   |            | Percentage of Increase | Ratio in 1896 |
|---------------|-----------|------------|------------------------|---------------|
|               | 1886      | 1896       |                        |               |
| British . . . | 6,260,000 | 8,060,000  | 29                     | 67.0          |
| German . . .  | 320,000   | 1,120,000  | 250                    | 9.3           |
| French . . .  | 700,000   | 820,000    | 17                     | 6.8           |
| Italian . . . | 190,000   | 590,000    | 210                    | 4.9           |
| Dutch . . .   | 310,000   | 520,000    | 70                     | 4.3           |
| Various . . . | 400,000   | 930,000    | 132                    | 7.7           |
| Total . . .   | 8,180,000 | 12,040,000 | 47                     | 100.0         |

The preponderance of British shipping in the Suez Canal traffic is declining, having fallen from 76½ per cent. of the total in 1886 to 67 per cent. in 1896. At the same time it will be observed that the increase of tonnage in the 10 years was 3,860,000, and of this the British increase amounted to 1,800,000 tons, or nearly half the total. The average size of ships (gross tonnage) passing through the canal in 1896 was :—

| Flag          | Tons  | Flag          | Tons  |
|---------------|-------|---------------|-------|
| British . . . | 3,730 | Italian . . . | 2,600 |
| German . . .  | 3,480 | Dutch . . .   | 2,600 |
| French . . .  | 3,760 | Various . . . | 3,340 |

For further particulars about this canal see page 102.

## GERMANY

*Germany.*—According to statements published in 1878 and 1886, the navigable rivers had a length of 15,000 miles, canals 1320 miles, but the *Statesman's Year-Book* (1898) publishes an official statement as follows :—

| Draft                | Miles  |        |       |
|----------------------|--------|--------|-------|
|                      | Rivers | Canals | Total |
| Under 5 feet . . . . | 6,170  | 1,304  | 7,474 |
| Over „ . . . .       | 1,030  | 150    | 1,180 |
| Total . .            | 7,200  | 1,454  | 8,654 |

The Kiel Canal, from the German Ocean to the Baltic, is 61 miles long, 30 feet deep, and 213 wide; it was opened, after eight years of work, in June 1895, having cost £7,800,000, equal to £128,000 per mile. Traffic returns for 1897 show that 16,960 vessels passed through in the year, paying £51,000, or an average of £3 each. Working expenses amounted to £100,000, or double the receipts. This canal shortens the route to the Baltic by 44 hours for vessels from Hamburg, and 32 from London.

## FRANCE

Canal and river traffic in 1896 compare with previous years in tons carried 100 miles as follows :—

| Year         | Tons by    |            |            |
|--------------|------------|------------|------------|
|              | Canal      | River      | Total      |
| 1870 . . . . | 5,500,000  | 3,400,000  | 8,900,000  |
| 1880 . . . . | 6,800,000  | 5,500,000  | 12,300,000 |
| 1892 . . . . | 12,800,000 | 9,400,000  | 22,200,000 |
| 1896 . . . . | 15,200,000 | 10,600,000 | 25,800,000 |

The above, of course, does not express the actual number of tons carried, but the number which results from giving 100 miles to each ton. The tonnage carried one mile to each mile of canal and river at the above dates was :—

| Year         | Canal   | River   | Total   |
|--------------|---------|---------|---------|
| 1870 . . . . | 192,000 | 81,000  | 273,000 |
| 1880 . . . . | 249,000 | 132,000 | 381,000 |
| 1892 . . . . | 423,000 | 214,000 | 637,000 |
| 1896 . . . . | 502,000 | 263,000 | 765,000 |

Traffic has doubled since 1880, and trebled since 1870. The length of canals and navigable rivers used for traffic varies every year. In 1896 it was :—

|                       | In Use | Unused | Total |
|-----------------------|--------|--------|-------|
| Canals, miles . . . . | 3,030  | 50     | 3,080 |
| Rivers, „ . . . .     | 4,030  | 1,390  | 5,420 |
| Total miles . . . .   | 7,060  | 1,440  | 8,500 |

It is proposed to make a ship canal from Bordeaux to the Mediterranean, 330 miles long and 70 feet wide: estimated cost £22,400,000, say £68,000 per mile. The canals are State property, and the traffic is carried on by 16,000 boats, which give employment to 41,000 men and women. In 1896 agricultural products formed 3,500,000 tons, and building materials 8,700,000 tons of merchandise carried.



## AUSTRIA

The goods traffic on Danube and Elbe by steamer was as follows:—

| On              | Tons Carried |           |           |
|-----------------|--------------|-----------|-----------|
|                 | 1891         | 1893      | 1895      |
| Danube . . . .  | 1,980,000    | 2,180,000 | 1,960,000 |
| Elbe . . . . .  | 650,000      | 550,000   | 640,000   |
| Total . . . . . | 2,630,000    | 2,730,000 | 2,600,000 |

## RUSSIA

There are 2200 steamboats and 345,000 vessels and rafts on the inland waters of Russia in Europe, carrying 24 million tons of merchandise, valued at 28 millions sterling. The length of navigable rivers and canals is 47,500 miles, and traffic returns show thus:—

|                    | Tons       |            |
|--------------------|------------|------------|
|                    | 1890       | 1894       |
| Timber . . . . .   | 7,820,000  | 9,210,000  |
| Grain . . . . .    | 2,230,000  | 3,680,000  |
| Naphtha . . . . .  | 710,000    | 2,020,000  |
| Sundries . . . . . | 5,900,000  | 8,420,000  |
| Total . . . . .    | 16,660,000 | 23,300,000 |

## UNITED STATES

The coast and internal water traffic at last census were reported as follows for 1889:—

| Line               | Vessels | Tonnage   | Tons Carried | Passengers  |
|--------------------|---------|-----------|--------------|-------------|
| Mississippi        | 7,453   | 3,390,000 | 29,400,000   | 10,900,000  |
| Lakes . . . . .    | 2,784   | 930,000   | 53,400,000   | 2,300,000   |
| Pfc. coast         | 1,842   | 440,000   | 8,800,000    | 4,000,000   |
| Atlantic . . . . . | 13,466  | 2,860,000 | 80,700,000   | 152,700,000 |
| Total . . . . .    | 25,545  | 7,620,000 | 172,300,000  | 169,900,000 |

The above is exclusive of canals, of which there are 270 miles in active use:—

| State                  | Miles | Cost, £    | Tons Carried | Fees, £ |
|------------------------|-------|------------|--------------|---------|
| New York . . . . .     | 650   | 15,400,000 | 6,800,000    | 190,000 |
| Pennsylvania . . . . . | 465   | 6,600,000  | 1,400,000    | 500,000 |
| Ohio . . . . .         | 660   | 3,000,000  | 1,100,000    | 20,000  |
| New Jersey . . . . .   | 170   | 2,300,000  | 1,700,000    | 70,000  |
| Various . . . . .      | 325   | 4,100,000  | 2,200,000    | 120,000 |
| Total . . . . .        | 2,270 | 31,400,000 | 13,200,000   | 900,000 |

Besides the above there are 2200 miles of abandoned canals, which represent a sum of £13,000,000 spent in their construction. There is, moreover, a short canal made in 1855 to connect Lakes Huron and Superior, of which the traffic returns show as follows:—

|                    | Tons      |            |
|--------------------|-----------|------------|
|                    | 1885      | 1895       |
| Grain . . . . .    | 570,000   | 2,480,000  |
| Coal . . . . .     | 890,000   | 2,570,000  |
| Iron ore . . . . . | 1,240,000 | 8,060,000  |
| Sundries . . . . . | 560,000   | 1,950,000  |
| Total . . . . .    | 3,260,000 | 15,060,000 |

The value of merchandise in 1894 reached £30,100,000, an average of 45 shillings per ton.

## CANADA

There is an unbroken length of 2260 miles of canalised river and canals from the Straits of Belleisle on the Atlantic to Port Arthur at the head of Lake Superior, which lake is 602 feet over sea-level. The whole system was originally intended for 9 feet draught, but is now available for vessels drawing 12 feet, and as high as Montreal for 27 feet draught, that is 980 miles from the sea. The canals have a total length of 70 miles, besides which there are forty miles of the St. Lawrence river between Montreal and Quebec dredged as a deep-water channel. These works have cost £13,400,000, of which £9,200,000 since the Dominion was established, in 1867. Traffic returns for 1885 and 1895 compare thus:—

|                        | Welland Canal |           | All       |           |
|------------------------|---------------|-----------|-----------|-----------|
|                        | 1885          | 1895      | 1885      | 1895      |
| Tonnage . . . . .      | 680,000       | 1,070,000 | 3,230,000 | 3,870,000 |
| Tons carried . . . . . | 780,000       | 870,000   | 2,670,000 | 2,740,000 |
| Passengers . . . . .   | 4,000         | 34,000    | 70,000    | 154,000   |
| Tolls, £ . . . . .     | 30,000        | 29,000    | 300,000   | 265,000   |

The goods carried in 1895 were of the following kinds:—

|                         | Tons    |              |           |
|-------------------------|---------|--------------|-----------|
|                         | Welland | Other Canals | Total     |
| Timber . . . . .        | 120,000 | 950,000      | 1,070,000 |
| Farm products . . . . . | 490,000 | 350,000      | 840,000   |
| Merchandise . . . . .   | 260,000 | 570,000      | 830,000   |
| Total . . . . .         | 870,000 | 1,870,000    | 2,740,000 |

The net revenue which the Government receives from the canals averages £70,000 a year, which is about the half of 1 per cent., say £5 per thousand, on the cost of their construction.

## GREECE

The Corinth Canal, 4 miles long, 72 feet wide, and 27 feet deep, was opened to traffic in 1893. It shortens the route from Marseilles to Constantinople by 95 miles, and from Trieste to Athens by 185 miles.

## CAPITAL

New capital called up in 1897 in Europe was:—

|                            | Millions £ Sterling * |           |       |
|----------------------------|-----------------------|-----------|-------|
|                            | Loans                 | Companies | Total |
| United Kingdom . . . . .   | 21.8                  | 114.2     | 136.0 |
| France . . . . .           | 0.6                   | 15.2      | 15.8  |
| Germany . . . . .          | 18.3                  | 76.0      | 94.3  |
| Russia . . . . .           | 4.8                   | 25.2      | 30.0  |
| Austria . . . . .          | 6.7                   | 4.2       | 10.9  |
| Italy . . . . .            | 0.1                   | 1.9       | 2.0   |
| Spain . . . . .            | 7.4                   | 1.6       | 9.0   |
| Scandinavia . . . . .      | 4.0                   | 0.3       | 4.3   |
| Holland . . . . .          | 0.6                   | 5.6       | 6.2   |
| Belgium . . . . .          | 3.1                   | 2.9       | 6.0   |
| Switzerland . . . . .      | 3.4                   | 2.1       | 5.5   |
| Turkey, &c. . . . .        | 1.9                   | 1.3       | 3.2   |
| Europe . . . . .           | 72.7                  | 250.5     | 323.2 |
| Average, 1881-85 . . . . . | 73.6                  | 121.0     | 194.6 |
| „ 1871-82 . . . . .        | 157.0                 | 206.0     | 363.0 |

For details before 1882 see Part I., page 106.

\* Note.—The table reads thus: Loans 21.8 signifies £21,800,000.

## GREAT BRITAIN

The amount of British capital invested abroad in 1893 was estimated (Dict. Polit. Econ.) as follows:—

| Loans         | Ml. £ | Railways  | Ml. £ | Sundries   | Ml. £ |
|---------------|-------|-----------|-------|------------|-------|
| Foreign       | 525   | U. States | 120   | Banks      | 50    |
| Colonial      | 225   | Colonial  | 140   | Lands      | 100   |
| Municipal do. | 20    | Various   | 128   | Mines, &c. | 390   |
| Total         | 770   | Total     | 388   | Total      | 540   |

This makes a total of 1698 millions, which compares with previous estimates thus:—

| Year | Millions £ |                 |
|------|------------|-----------------|
|      | Amount     | Annual Increase |
| 1862 | 144        | ...             |
| 1872 | 600        | 45.6            |
| 1882 | 875        | 27.5            |
| 1893 | 1,698      | 74.8            |

The amount of British capital invested abroad in 1893 was equal to 15 per cent. of the total wealth of the United Kingdom.

The registered paid-up capital of joint-stock companies in the United Kingdom was:—

|                | Millions £ Sterling |      |       |
|----------------|---------------------|------|-------|
|                | 1884                | 1890 | 1896  |
| England        | 428                 | 706  | 1,036 |
| Scotland       | 36                  | 52   | 83    |
| Ireland        | 12                  | 17   | 27    |
| United Kingdom | 476                 | 775  | 1,146 |

The average amount of capital (paid-up) to each company was as follows:—

|                    | 1884   | 1890   | 1896   |
|--------------------|--------|--------|--------|
| England, £         | 56,000 | 61,000 | 56,000 |
| Scotland, ..       | 50,000 | 47,000 | 46,000 |
| Ireland, ..        | 31,000 | 28,000 | 31,000 |
| United Kingdom, .. | 54,000 | 58,100 | 54,000 |

The paid-up joint-stock capital of the three kingdoms has more than doubled in twelve years. The average to each company is unchanged, except a fall in Scotland.

The new capital actually called up in Great Britain was:—

| Year     | Millions Sterling | Per Annum |
|----------|-------------------|-----------|
| 1879-85  | 581               | 83        |
| 1886-89  | 507               | 127       |
| 1890-97  | 643               | 80        |
| 19 years | 1,731             | 91        |

In 1897 the new capital nominally created was £157,300,000, but the amount actually paid up was only £81,700,000, or 52 per cent. of the former sum. The nominal new capital may be summed up thus:—

|                | £          |                  | £          |
|----------------|------------|------------------|------------|
| Foreign loans  | 10,600,000 | Breweries        | 18,000,000 |
| Colonial ..    | 14,100,000 | Factories        | 15,400,000 |
| Foreign rails  | 5,500,000  | Municipal loans  | 7,700,000  |
| Colonial ..    | 4,400,000  | Railways         | 7,500,000  |
| Foreign mines  | 4,900,000  | Cycle companies  | 7,200,000  |
| Colonial ..    | 8,100,000  | Stores           | 9,000,000  |
| For. companies | 10,100,000 | Hotels, gas, &c. | 34,800,000 |
| Foreign        | 57,700,000 | British          | 99,600,000 |

The *Bankers' Magazine* (1898) gave the aggregate value of 325 descriptions of investments at the close of each year as follows:—

| Year | Millions £ |
|------|------------|
| 1891 | 2,777      |
| 1894 | 2,882      |
| 1896 | 3,198      |
| 1897 | 3,276      |

The par value of the above stocks was 2869 millions: the increase of value since 1894 was 394 millions, say 131 millions yearly.

## FRANCE

In 1895 Neymarck set down the floating capital of France as follows:—

|                | Millions £ | Holders    | £ per Holder |
|----------------|------------|------------|--------------|
| French stock   | 1,120      | 2,080,000  | 540          |
| Bank of France | 20         | 28,500     | 700          |
| Railway shares | 800        | 700,000    | 1,140        |
| Credit Foncier | 10         | 40,500     | 250          |
| Bank deposits  | 60         | 300,000    | 200          |
| Savings banks  | 155        | 8,600,000  | 18           |
| Total          | 2,165      | 11,749,000 | 180          |

Another estimate makes the floating capital 2400 millions sterling; Government stocks 1040, municipal stocks 200, railway scrip 800, factories and companies 200, banks and insurance 200, millions sterling. The following table shows the number and amount of securities lodged with the Bank of France for collection of coupons:—

| Year | Depositors, No. | Securities, Millions £ | Govt. Stocks, Dividend, £ |
|------|-----------------|------------------------|---------------------------|
| 1860 | 15,360          | 32                     | 400,000                   |
| 1869 | 23,486          | 52                     | 900,000                   |
| 1880 | 21,567          | 63                     | 1,200,000                 |
| 1895 | 45,500          | 131                    | 2,600,000                 |

The average market value of Bank of France stock belonging to each shareholder, and the interest gained in dividends on such stock, was as follows:—

| Period  | Stock, £ | Interest |
|---------|----------|----------|
| 1856-60 | 2,600    | 4.0      |
| 1876-80 | 2,550    | 3.7      |
| 1891-95 | 2,880    | 3.4      |

Notwithstanding the declining interest, the average stock to each holder is increasing.

According to Neymarck, the emissions of new capital in Europe in 22 years, ending December 1892, were as follows:—

|         | Millions £ | France took |
|---------|------------|-------------|
| 1871-85 | 4,020      | 824         |
| 1886-92 | 2,020      | 280         |
| Total   | 6,040      | 1,104       |

French capital invested in foreign countries in 1893 was as follows:—

| In      | Millions £ |           |       |
|---------|------------|-----------|-------|
|         | Loans      | Companies | Total |
| Russia  | 200        | ...       | 200   |
| Spain   | 40         | 70        | 110   |
| Austria | 50         | 56        | 106   |
| Italy   | 38         | 14        | 52    |
| Total   | 328        | 140       | 468   |

French capitalists draw dividends amounting to 160 millions sterling per annum, of which, as Neymarck computes, about 31 per cent. comes from investments in foreign countries, 38 per cent. from joint-stock companies in France, and the rest from French State or municipal securities. In 1887 the joint-stock companies in France paid income-tax on a capital of 1360 millions: adding to this the amount of French Rentes or stock (1100 millions sterling), the floating capital would reach 2460 millions sterling.

## ITALY

In 1897 the Italian Government paid coupons on Italian stock held in foreign countries representing the following capital value:—

| In                | Coupons, £ | Capital, £  |
|-------------------|------------|-------------|
| England . . . . . | 600,000    | 12,600,000  |
| France . . . . .  | 4,200,000  | 88,200,000  |
| Germany . . . . . | 2,300,000  | 48,300,000  |
| Total . . . . .   | 7,100,000  | 149,100,000 |

## BELGIUM

The amount of floating capital in Belgium in March 1898 was as follows:—

|                          | Millns. £ |                    | Millns. £ |
|--------------------------|-----------|--------------------|-----------|
| Belgian stocks . . . . . | 143.2     | Railways . . . . . | 12.5      |
| Foreign „ . . . . .      | 12.4      | Tramways . . . . . | 9.0       |
| Debentures . . . . .     | 40.8      | Mines . . . . .    | 27.2      |
| Banks . . . . .          | 21.0      | Sundries . . . . . | 17.4      |

making a total of 284 millions sterling, which is an increase of 12 millions in 1897.

## SUMMARY

In 1897 *L'Economiste* estimated the amounts held in stocks and shares in various countries as follows, between national and foreign:—

|                          | Millns. £ |                    | Millns. £ |
|--------------------------|-----------|--------------------|-----------|
| United Kingdom . . . . . | 2,922     | Italy . . . . .    | 281       |
| France . . . . .         | 1,280     | Holland . . . . .  | 218       |
| Germany . . . . .        | 1,472     | Belgium . . . . .  | 99        |
| Russia . . . . .         | 406       | Denmark . . . . .  | 43        |
| Austria . . . . .        | 392       | Roumania . . . . . | 19        |

This makes a total for Europe alone of 7132 millions sterling, of which the United Kingdom holds 45 per cent.

M. Georges Martin, of the Paris Statistical Society, sums up the different kinds of investments, such as loans, railway stocks, banks, mines, and other joint-stock enterprises held in certain countries and belonging to other countries, as follows:—

| Securities              | Held in |            |         |         |         |             |         |
|-------------------------|---------|------------|---------|---------|---------|-------------|---------|
|                         | France  | G. Britain | Germany | Belgium | Holland | Switzerland | Various |
| French . . . . .        | ...     | 24         | ...     | 37      | 4       | 10          | ...     |
| German . . . . .        | ...     | 8          | ...     | 15      | 5       | 9           | 5       |
| Spanish . . . . .       | 44      | 29         | 4       | 25      | 5       | 12          | ...     |
| Austrian . . . . .      | 25      | 10         | 183     | 24      | 39      | 15          | 2       |
| Russian . . . . .       | 17      | 30         | 79      | 31      | 69      | 4           | ...     |
| Brazilian . . . . .     | 8       | 81         | 5       | 12      | 8       | 5           | ...     |
| Argentine . . . . .     | 14      | 123        | 9       | 37      | 3       | 7           | ...     |
| Canadian . . . . .      | 8       | 140        | ...     | ...     | 10      | 2           | ...     |
| Australian . . . . .    | ...     | 230        | ...     | ...     | ...     | ...         | ...     |
| United States . . . . . | 3       | 341        | 94      | 2       | 128     | 9           | ...     |
| Turkish . . . . .       | 14      | 26         | 15      | 4       | 7       | 4           | 8       |
| Indian . . . . .        | ...     | 103        | ...     | ...     | ...     | ...         | ...     |
| Italian . . . . .       | 16      | 20         | 35      | 40      | 10      | 36          | 6       |
| Egyptian . . . . .      | 20      | 20         | 6       | ...     | ...     | ...         | ...     |
| Mexican . . . . .       | 4       | 26         | ...     | ...     | ...     | ...         | 4       |
| Various . . . . .       | 161     | 402        | 161     | 85      | 98      | 30          | ...     |
| Total . . . . .         | 334     | 1,613      | 591     | 312     | 386     | 143         | 25      |
| Public loans . . . . .  | 113     | 365        | 214     | 114     | 112     | 33          | 13      |
| Companies . . . . .     | 221     | 1,248      | 377     | 198     | 274     | 110         | 12      |

Great Britain stands for nearly half the total, and as our investments abroad appear to exceed 1700 millions sterling, it may be roughly estimated that the above stocks represent altogether 3400 millions which the creditor countries have lent outside their own frontiers for investment.

## CATTLE

The following table shows the number of live stock and value:—

|                             | Horses     | Cattle      | Sheep       | Pigs       | Goats      | Value, Millions £ |
|-----------------------------|------------|-------------|-------------|------------|------------|-------------------|
| United Kingdom . . . . .    | 2,070,000  | 11,000,000  | 30,570,000  | 3,680,000  | 600,000    | 202               |
| France . . . . .            | 3,030,000  | 13,300,000  | 21,200,000  | 6,400,000  | 1,500,000  | 232               |
| Germany . . . . .           | 3,800,000  | 17,600,000  | 13,600,000  | 12,200,000 | 3,100,000  | 303               |
| Russia . . . . .            | 21,700,000 | 27,600,000  | 48,200,000  | 10,700,000 | 1,300,000  | 350               |
| Austria . . . . .           | 3,600,000  | 14,200,000  | 14,400,000  | 9,100,000  | 1,400,000  | 161               |
| Italy . . . . .             | 1,200,000  | 5,000,000   | 6,900,000   | 1,800,000  | 1,800,000  | 92                |
| Spain . . . . .             | 900,000    | 2,100,000   | 16,500,000  | 1,900,000  | 2,800,000  | 46                |
| Portugal . . . . .          | 150,000    | 600,000     | 3,000,000   | 1,000,000  | 900,000    | 11                |
| Sweien and Norway . . . . . | 650,000    | 3,500,000   | 2,700,000   | 800,000    | 400,000    | 41                |
| Denmark . . . . .           | 400,000    | 1,700,000   | 1,330,000   | 800,000    | ...        | 26                |
| Holland . . . . .           | 300,000    | 1,500,000   | 700,000     | 1,100,000  | 200,000    | 28                |
| Belgium . . . . .           | 300,000    | 1,400,000   | 400,000     | 700,000    | 200,000    | 22                |
| Switzerland . . . . .       | 100,000    | 1,200,000   | 300,000     | 420,000    | 400,000    | 18                |
| Danubian States . . . . .   | 900,000    | 3,600,000   | 13,000,000  | 2,300,000  | 4,200,000  | 42                |
| Greece . . . . .            | 100,000    | 400,000     | 2,900,000   | ...        | 2,500,000  | 5                 |
| Europe . . . . .            | 39,200,000 | 104,700,000 | 175,700,000 | 52,900,000 | 21,300,000 | 1,579             |
| United States . . . . .     | 16,600,000 | 46,500,000  | 36,800,000  | 40,600,000 | ...        | 344               |
| Canada . . . . .            | 1,400,000  | 4,200,000   | 3,500,000   | 1,800,000  | ...        | 43                |
| Australia . . . . .         | 1,900,000  | 12,700,000  | 110,500,000 | 1,000,000  | ...        | 120               |
| Argentina . . . . .         | 4,400,000  | 22,900,000  | 80,200,000  | 300,000    | ...        | 51                |
| South Africa . . . . .      | 400,000    | 2,700,000   | 17,800,000  | 300,000    | 6,200,000  | 23                |
| Algeria . . . . .           | 400,000    | 1,100,000   | 7,900,000   | ...        | 3,500,000  | 21                |
| Uruguay . . . . .           | 400,000    | 5,200,000   | 14,300,000  | 100,000    | ...        | 15                |
| Total . . . . .             | 64,700,000 | 200,000,000 | 446,700,000 | 97,000,000 | 31,000,000 | 2,196             |

The value of live stock in the United States fell from 451 millions sterling in 1894 to 344 millions in 1897, the number of head in the same interval (big and little) having declined from 162 millions to 140 millions, a fall of 13½ per cent. in 3 years.

The live stock of each country compared with population shows as follows :—

|               | Per 100 Inhabitants |      |       |      | Value, £ per Inhab. |
|---------------|---------------------|------|-------|------|---------------------|
|               | Horses              | Cows | Sheep | Pigs |                     |
| U. Kingdom    | 5                   | 27   | 78    | 10   | 5.1                 |
| France . .    | 8                   | 33   | 55    | 15   | 6.0                 |
| Germany . .   | 7                   | 34   | 34    | 23   | 5.7                 |
| Russia . .    | 20                  | 27   | 48    | 10   | 3.0                 |
| Austria . .   | 9                   | 34   | 38    | 22   | 3.8                 |
| Italy . .     | 4                   | 16   | 28    | 6    | 3.0                 |
| Spain . .     | 5                   | 12   | 105   | 11   | 2.7                 |
| Denmark . .   | 20                  | 85   | 65    | 40   | 11.5                |
| Sweden . .    | 10                  | 50   | 28    | 15   | 6.0                 |
| Holland . .   | 6                   | 32   | 18    | 23   | 6.0                 |
| Belgium . .   | 5                   | 24   | 10    | 11   | 3.4                 |
| Switzerland . | 3                   | 40   | 22    | 12   | 6.0                 |
| Europe . .    | 10                  | 28   | 52    | 15   | 4.2                 |
| U. States . . | 23                  | 65   | 51    | 56   | 4.8                 |
| Canada . .    | 28                  | 84   | 70    | 34   | 8.6                 |
| Australia . . | 45                  | 320  | 2,900 | 25   | 27.0                |
| Argentina . . | 110                 | 570  | 4,050 | 7    | 13.0                |

In the above table horses include mules, and goats are counted with sheep.

#### UNITED STATES

The live stock suffers frequent changes, being now less numerous than 10 years ago, viz. :—

| Year       | Number (000 omitted) |        |        |        |
|------------|----------------------|--------|--------|--------|
|            | Horses               | Cattle | Sheep  | Pigs   |
| 1876 . . . | 11,100               | 27,900 | 35,900 | 25,700 |
| 1880 . . . | 12,900               | 33,200 | 40,800 | 34,100 |
| 1886 . . . | 14,100               | 45,500 | 48,300 | 46,100 |
| 1890 . . . | 16,500               | 52,800 | 44,300 | 51,600 |
| 1897 . . . | 16,600               | 46,500 | 36,800 | 40,600 |

If we reduce all live stock to a common denominator as cattle (six sheep or pigs counting as one), the number compares with population at the above dates thus :—

|            | Cattle     | Population | Cattle per 100 Inhabit. |
|------------|------------|------------|-------------------------|
| 1876 . . . | 49,300,000 | 43,100,000 | 114                     |
| 1880 . . . | 58,600,000 | 50,200,000 | 117                     |
| 1886 . . . | 75,300,000 | 57,400,000 | 131                     |
| 1890 . . . | 85,300,000 | 62,600,000 | 136                     |
| 1897 . . . | 75,900,000 | 72,800,000 | 104                     |

The ratio of cattle to population has fallen nearly 23 per cent. since 1890, but is not much below the level of 20 years ago, when population was 40 per cent. less than at present. The area devoted to pasture could easily carry 150 million head of cattle, that is double the actual amount of stock, and as we have already seen an increase of 30 per cent. in 6 years, from 1880 to 1886, it is quite possible that the number may rise to 100 million

head in the early years of the 20th century. In 1894 the richest States in live stock were :—

|                | Number (000 omitted) |        |        |        |
|----------------|----------------------|--------|--------|--------|
|                | Cattle               | Horses | Sheep  | Pigs   |
| Texas . . .    | 7,400                | 1,440  | 3,810  | 2,560  |
| Iowa . . .     | 4,010                | 1,410  | 780    | 6,000  |
| Missouri . .   | 2,630                | 1,200  | 1,000  | 3,710  |
| Kansas . . .   | 2,650                | 1,050  | 320    | 2,250  |
| Illinois . . . | 2,550                | 1,410  | 1,030  | 3,420  |
| Nebraska . .   | 2,150                | 760    | 280    | 2,090  |
| New York . .   | 2,280                | 710    | 1,390  | 660    |
| Ohio . . .     | 1,580                | 880    | 3,770  | 2,350  |
| Indiana . . .  | 1,570                | 820    | 970    | 1,820  |
| Pennsylvania . | 1,680                | 690    | 1,470  | 1,030  |
| Ten States . . | 28,540               | 10,430 | 14,820 | 25,890 |

These ten States possessed 55 per cent. of the cattle, 56 of the horses, 33 of the sheep, and 60 per cent. of the pigs, of the Union; that is to say, more than half the total live stock. Their farm area, tillage, and pasture covered 280 million acres, or 15 per cent. of the total area of the Union (excluding Alaska).

The following table shows the number of horses, cattle, sheep, and pigs to every thousand acres of farm area :—

|                 | Horses | Cattle | Sheep | Pigs |
|-----------------|--------|--------|-------|------|
| New England . . | 20     | 65     | 35    | 15   |
| Middle . . .    | 33     | 84     | 53    | 43   |
| South . . .     | 18     | 58     | 30    | 66   |
| West . . .      | 36     | 93     | 90    | 80   |
| Union . . .     | 28     | 78     | 62    | 69   |

In the foregoing tables no account is taken of the unoccupied area. Supposing that one-half of such area consists of mountains, deserts, or swamps, there is still a residue of 650 million acres available for pasture. Reducing all stock to horned cattle, and allowing 3 acres per head, the United States could carry as follows, on actual farms and unoccupied lands :—

|                 | On Farms    | Unoccupied  | Total       |
|-----------------|-------------|-------------|-------------|
| New England . . | 5,400,000   | 4,000,000   | 9,400,000   |
| Middle . . .    | 11,300,000  | 4,000,000   | 15,300,000  |
| South . . .     | 62,700,000  | 46,000,000  | 108,700,000 |
| West . . .      | 67,600,000  | 163,000,000 | 230,600,000 |
| Total . . .     | 147,000,000 | 217,000,000 | 364,000,000 |

It may, therefore, be reasonably anticipated that the United States will at no distant day possess three times the present amount of live stock, equivalent altogether to 228 million head of large cattle, and distributed approximately thus :—

|                 | Number (000 omitted) |         |         |         |
|-----------------|----------------------|---------|---------|---------|
|                 | Horses               | Cattle  | Sheep   | Pigs    |
| New England . . | 1,100                | 3,700   | 2,800   | 3,000   |
| Middle . . .    | 1,700                | 6,300   | 4,600   | 5,100   |
| South . . .     | 12,200               | 43,000  | 33,000  | 37,400  |
| West . . .      | 27,000               | 95,000  | 69,600  | 74,500  |
| Union . . .     | 42,000               | 148,000 | 110,000 | 120,000 |

## AUSTRALIA

Live stock has been as follows :—

|             | Horses    | Cattle     | Sheep       |
|-------------|-----------|------------|-------------|
| 861 . . . . | 460,000   | 4,040,000  | 23,700,000  |
| 871 . . . . | 780,000   | 4,710,000  | 49,800,000  |
| 881 . . . . | 1,250,000 | 8,710,000  | 78,100,000  |
| 891 . . . . | 1,790,000 | 11,860,000 | 124,500,000 |
| 896 . . . . | 1,920,000 | 12,700,000 | 110,500,000 |

In 1896 the several colonies stood thus :—

|                      | Horses    | Cattle     | Sheep       |
|----------------------|-----------|------------|-------------|
| New South Wales . .  | 510,000   | 2,230,000  | 48,300,000  |
| Queensland . . . .   | 450,000   | 6,510,000  | 19,600,000  |
| New Zealand . . . .  | 250,000   | 1,140,000  | 19,100,000  |
| Victoria . . . . .   | 430,000   | 1,830,000  | 13,200,000  |
| South Australia . .  | 190,000   | 640,000    | 6,400,000   |
| West Australia . . . | 60,000    | 200,000    | 2,300,000   |
| Tasmania . . . . .   | 30,000    | 160,000    | 1,600,000   |
| Total . . . . .      | 1,920,000 | 12,710,000 | 110,500,000 |

For other countries see *Agriculture*.

## CEMETERIES

The area of cemeteries attached to the principal cities of Europe compared with population gives the following results :—

| Square Yards per 100 Inhabitants |     |                    |     |
|----------------------------------|-----|--------------------|-----|
| London . . . . .                 | 71  | Dresden . . . . .  | 155 |
| Paris . . . . .                  | 140 | Bordeaux . . . . . | 125 |
| Vienna . . . . .                 | 108 | Brussels . . . . . | 270 |
| Buda-Pesth . . . . .             | 360 | Rome . . . . .     | 155 |
| Hamburg . . . . .                | 206 | Naples . . . . .   | 47  |
| Leipzig . . . . .                | 136 | Milan . . . . .    | 95  |
|                                  |     | Turin . . . . .    | 75  |
|                                  |     | Genoa . . . . .    | 90  |
|                                  |     | Florence . . . . . | 90  |
|                                  |     | Venice . . . . .   | 130 |
|                                  |     | Bologna . . . . .  | 285 |
|                                  |     | Palermo . . . . .  | 146 |

This gives an average of 150 sq. yards to 100 inhabitants, say 1½ yards each. London, Vienna, and some Italian cities are much below the average. See *Cemeteries* in Part I., p. 100.

## CHARITIES

The number of charitable institutions in London rose from 1024 in 1889 to 1153 in 1897, expenditure showing as follows :—

|                       | 1889      | 1897      | Increase, £ |
|-----------------------|-----------|-----------|-------------|
| Hospitals, . . . . .  | 650,000   | 830,000   | 180,000     |
| Bible Missions, . . . | 1,980,000 | 2,490,000 | 510,000     |
| Asylums, . . . . .    | 2,050,000 | 2,320,000 | 270,000     |
| Total . . . . .       | 4,680,000 | 5,640,000 | 960,000     |

The sum for Bible missions in 1897 included £1,430,000 for converting infidels, and £1,060,000 spent in the United Kingdom. Charitable bequests in the United Kingdom in 1894 amounted to £3,000,000, or three times as much as in 1889.

## ITALY

There are 21,866 charitable institutions, holding endowments to the value of £75,900,000, with a gross income of £5,400,000, of which more than 50 per cent. goes in administration, the balance spent on the poor

amounting to £2,660,000. The endowments are held thus :—

|                         | £          |
|-------------------------|------------|
| Italian consols . . . . | 18,300,000 |
| Landed estates . . . .  | 24,900,000 |
| House property . . . .  | 10,700,000 |
| Sundries . . . . .      | 22,000,000 |
| Total . . . . .         | 75,900,000 |

For mode of distribution of charities see page 113. The legacies left for charitable purposes were :—

| Years            | No. of Legacies | Amount<br>£ Sterling | Average Yearly |         |
|------------------|-----------------|----------------------|----------------|---------|
|                  |                 |                      | Legacies       | £       |
| 1881-85 . . . .  | 4,817           | 3,600,000            | 963            | 720,000 |
| 1886-90 . . . .  | 5,900           | 3,400,000            | 1,180          | 680,000 |
| 1891-97 . . . .  | 9,444           | 4,100,000            | 1,350          | 580,000 |
| 17 years . . . . | 20,251          | 11,100,000           | 1,190          | 660,000 |

## FRANCE

The amount of charitable donations by legacy in France to religious institutions, hospitals, schools, &c., was as follows :—

| Years           | Religious<br>£ | Hospitals<br>£ | Schools, &c<br>£ | Total<br>£ |
|-----------------|----------------|----------------|------------------|------------|
| 1836-55 . . . . | 880,000        | 3,320,000      | 1,360,000        | 5,560,000  |
| 1856-65 . . . . | 1,720,000      | 2,920,000      | 1,120,000        | 5,760,000  |
| 1871-80 . . . . | 3,560,000      | 4,640,000      | 2,440,000        | 10,640,000 |
| 1881-90 . . . . | 2,200,000      | 6,400,000      | 3,560,000        | 12,160,000 |
| 1891-93 . . . . | 800,000        | 2,040,000      | 1,240,000        | 4,080,000  |
| 53 yrs. . . . . | 9,160,000      | 19,320,000     | 9,720,000        | 38,200,000 |

The records from 1866-70 have been lost. The average number of donors and the amounts given yearly were :—

| Years           | Annual Average |           |            | Pence<br>per<br>Inhab. |
|-----------------|----------------|-----------|------------|------------------------|
|                 | Donors         | Amount, £ | Average, £ |                        |
| 1856-65 . . . . | 3,309          | 576,000   | 174        | 3.8                    |
| 1871-80 . . . . | 4,006          | 1,064,000 | 266        | 6.9                    |
| 1881-90 . . . . | 3,315          | 1,216,000 | 366        | 7.7                    |
| 1891-93 . . . . | 3,708          | 1,360,000 | 367        | 8.6                    |

Donations were made in the following form :—

|                     | 1871-80<br>£ | 1881-90<br>£ | 20 Years<br>£ | Average<br>£ |
|---------------------|--------------|--------------|---------------|--------------|
| Real estate . . . . | 3,560,000    | 2,560,000    | 6,120,000     | 306,000      |
| Money . . . . .     | 5,640,000    | 7,400,000    | 13,040,000    | 652,000      |
| Stocks . . . . .    | 1,080,000    | 1,440,000    | 2,520,000     | 126,000      |
| Shares . . . . .    | 360,000      | 760,000      | 1,120,000     | 56,000       |
| Total . . . . .     | 10,640,000   | 12,160,000   | 22,800,000    | 1,140,000    |

## BELGIUM

The amount of charitable legacies was :—

| Year           | £ Sterling | Pence per<br>Inhab. |
|----------------|------------|---------------------|
| 1887 . . . . . | 105,000    | 4                   |
| 1894 . . . . . | 126,000    | 5                   |

For particulars respecting other countries, see page 114.

## CHEESE

See *Dairy*, page 683, also page 114.

## CHURCHES

## UNITED STATES

The census of 1890 gave the following :—

|                      | Churches | Pews       | Clergy  | Communi-<br>cants |
|----------------------|----------|------------|---------|-------------------|
| R. Catholics . .     | 8,816    | 3,375,000  | 9,196   | 6,258,000         |
| Methodists . .       | 46,138   | 12,863,000 | 30,000  | 4,590,000         |
| Baptists . . .       | 36,671   | 11,568,000 | 25,646  | 3,712,000         |
| Presbyterians . .    | 12,469   | 4,040,000  | 10,448  | 1,278,000         |
| Lutherans . . .      | 6,701    | 2,206,000  | 4,591   | 1,231,000         |
| Christ-Disciples .   | 5,324    | 1,610,000  | 3,773   | 641,000           |
| Episcopalians . .    | 5,103    | 1,360,000  | 4,244   | 540,000           |
| Congregationalists . | 4,736    | 1,553,000  | 5,058   | 512,000           |
| Evangelicals . .     | 2,737    | 760,000    | 1,960   | 357,000           |
| Jews . . . . .       | 301      | 139,000    | 200     | 130,000           |
| Quakers . . . .      | 995      | 302,000    | 1,277   | 107,000           |
| Various . . . . .    | 12,529   | 3,789,000  | 14,647  | 1,257,000         |
| Total . . . . .      | 142,520  | 43,565,000 | 111,040 | 20,613,000        |

The value of church property increased in 20 years as follows :—

|                    | £ Sterling |             |            |
|--------------------|------------|-------------|------------|
|                    | 1870       | 1890        | Increase   |
| Methodists . . .   | 14,100,000 | 27,400,000  | 13,300,000 |
| R. Catholics . .   | 12,200,000 | 24,600,000  | 12,400,000 |
| Presbyterians . .  | 10,600,000 | 19,700,000  | 9,100,000  |
| Episcopalians . .  | 7,200,000  | 17,200,000  | 10,000,000 |
| Baptists . . . .   | 8,400,000  | 17,100,000  | 8,700,000  |
| Congregationalists | 5,100,000  | 9,000,000   | 3,900,000  |
| Lutherans . . . .  | 1,200,000  | 7,300,000   | 6,100,000  |
| Christ-Disciples . | 1,200,000  | 2,500,000   | 1,300,000  |
| Evangelicals, &c.  | 10,800,000 | 16,600,000  | 5,800,000  |
| Total . . . . .    | 70,800,000 | 141,400,000 | 70,600,000 |

The value of church property compared with population thus :—

| States           | Amount, £   | Population | £ per Head |
|------------------|-------------|------------|------------|
| N. England . . . | 18,200,000  | 4,690,000  | 3.9        |
| Middle . . . . . | 58,300,000  | 14,110,000 | 4.2        |
| South . . . . .  | 18,100,000  | 18,280,000 | 1.0        |
| West . . . . .   | 46,800,000  | 25,540,000 | 1.8        |
| Union . . . . .  | 141,400,000 | 62,620,000 | 2.3        |

In 1870 the average to the whole population was only £1.8 (or 36 shillings) per inhabitant, the ratio in 1890 being 46 shillings.

## CANADA

The number of churches and laity is shown thus :—

|                   | Laity     | Churches  |       |
|-------------------|-----------|-----------|-------|
|                   | 1881      | 1891      | 1891  |
| R. Catholics . .  | 1,790,000 | 1,990,000 | 1,492 |
| Methodists . . .  | 740,000   | 850,000   | 3,038 |
| Presbyterians . . | 675,000   | 755,000   | 1,356 |
| Ch. of England .  | 575,000   | 645,000   | 1,259 |
| Baptists . . . .  | 295,000   | 305,000   | 936   |
| Various . . . . . | 145,000   | 195,000   | 571   |
| Total . . . . .   | 4,220,000 | 4,740,000 | 8,652 |

The laity are found to be distributed thus :—

|                   | Quebec    | Ontario   | Other Provs. | Total     |
|-------------------|-----------|-----------|--------------|-----------|
| R. Catholics . .  | 1,292,000 | 358,000   | 340,000      | 1,990,000 |
| Methodists . . .  | 40,000    | 655,000   | 155,000      | 850,000   |
| Presbyterians . . | 52,000    | 453,000   | 250,000      | 755,000   |
| Ch. of England .  | 75,000    | 385,000   | 185,000      | 645,000   |
| Baptists . . . .  | 8,000     | 106,000   | 191,000      | 305,000   |
| Various . . . . . | 14,000    | 104,000   | 77,000       | 195,000   |
| Total . . . . .   | 1,481,000 | 2,061,000 | 1,198,000    | 4,740,000 |

## AUSTRALIA

The census of 1891 showed the increase of congregations since 1871 thus :—

|                        | 1871      | 1891      | Increase  |
|------------------------|-----------|-----------|-----------|
| Church of England . .  | 752,000   | 1,485,000 | 733,000   |
| Roman Catholics . . .  | 444,000   | 801,000   | 357,000   |
| Presbyterians . . . .  | 263,000   | 493,000   | 230,000   |
| Methodists . . . . .   | 203,000   | 434,000   | 231,000   |
| Baptists . . . . .     | 38,000    | 87,000    | 49,000    |
| Congregationalists . . | 45,000    | 79,000    | 34,000    |
| Lutherans, &c. . . .   | 137,000   | 341,000   | 204,000   |
| Total . . . . .        | 1,882,000 | 3,720,000 | 1,838,000 |

See *Religion*, page 799, and page 513.

## CITIES

See *Population*, page 788, and *Local Finance*, page 764.

## COAL

Production has increased 70 per cent. since 1880, viz. :—

|                       | Millions of Tons |      |      |
|-----------------------|------------------|------|------|
|                       | 1880             | 1889 | 1897 |
| Great Britain . . . . | 147              | 177  | 202  |
| United States . . . . | 70               | 142  | 176  |
| Germany . . . . .     | 59               | 85   | 120  |
| Austria . . . . .     | 16               | 24   | 34   |
| France . . . . .      | 19               | 25   | 29   |
| Belgium . . . . .     | 17               | 20   | 22   |
| Various . . . . .     | 11               | 13   | 27   |
| Total . . . . .       | 340              | 485  | 610  |

The chief countries importing coal were as follows :—

|                        | Tons       |            |
|------------------------|------------|------------|
|                        | 1885       | 1895       |
| France . . . . .       | 9,900,000  | 10,200,000 |
| Holland . . . . .      | 3,600,000  | 4,400,000  |
| Italy . . . . .        | 3,000,000  | 4,300,000  |
| Scandinavia . . . .    | 2,900,000  | 4,200,000  |
| Canada . . . . .       | 2,100,000  | 3,400,000  |
| Russia . . . . .       | 1,800,000  | 2,200,000  |
| Spain and Portugal . . | 1,700,000  | 2,300,000  |
| Switzerland . . . .    | 800,000    | 1,400,000  |
| The East . . . . .     | 1,200,000  | 2,600,000  |
| Total . . . . .        | 27,000,000 | 35,000,000 |

Factory engines usually consume 2 lbs. of coal per horse-power per hour; that is, a 10-horse engine 30 tons yearly. Coke is produced from coal, three tons of the latter giving two of the former.

In 1897 Great Britain produced 202 millions tons, and exported 37 millions. Exports of coal from Great Britain were as follows :—

| Year         | Tons       | Value, £   | Shillings per Ton |
|--------------|------------|------------|-------------------|
| 1870 . . . . | 11,700,000 | 5,600,000  | 9.6               |
| 1880 . . . . | 18,700,000 | 8,400,000  | 9.0               |
| 1890 . . . . | 30,100,000 | 19,000,000 | 12.6              |
| 1896 . . . . | 34,300,000 | 15,200,000 | 9.0               |

According to a statement published in 1895, the output and number of miners during the previous year were as follows :—

|                       | Tons Coal   | Miners    | Tons per Man |
|-----------------------|-------------|-----------|--------------|
| Great Britain . . . . | 188,000,000 | 666,000   | 282          |
| United States . . . . | 152,000,000 | 363,000   | 420          |
| Germany . . . .       | 77,000,000  | 300,000   | 257          |
| France . . . .        | 27,000,000  | 132,000   | 205          |
| Belgium . . . .       | 21,000,000  | 117,000   | 180          |
| Austria . . . .       | 10,000,000  | 50,000    | 200          |
| Canada . . . .        | 4,000,000   | 10,000    | 400          |
| India . . . .         | 4,000,000   | 43,000    | 90           |
| Japan . . . .         | 4,000,000   | 30,000    | 130          |
| Total . . . .         | 487,000,000 | 1,711,000 | 283          |

It will be observed that this table omits Russia, Spain, and Australia, the aggregate of whose production would be 16 million tons, bringing up the total production in 1894 to 501 million tons. The above table takes no account of "brown coal," or lignite, in Germany and Austria, although it is usually counted as coal.

The annual consumption of coal is as follows :—

|                            | Tons        | Cwts. per Inhabitant |
|----------------------------|-------------|----------------------|
| United Kingdom . . . .     | 165,000,000 | 82                   |
| United States . . . .      | 177,000,000 | 48                   |
| Germany . . . .            | 104,000,000 | 40                   |
| Belgium . . . .            | 17,000,000  | 54                   |
| France . . . .             | 39,000,000  | 20                   |
| Holland . . . .            | 4,700,000   | 20                   |
| Canada . . . .             | 5,200,000   | 20                   |
| Australia . . . .          | 4,200,000   | 19                   |
| Italy . . . .              | 4,600,000   | 3                    |
| Scandinavia . . . .        | 4,400,000   | 10                   |
| Austria . . . .            | 30,300,000  | 14                   |
| Russia . . . .             | 11,100,000  | 2                    |
| Spain and Portugal . . . . | 4,100,000   | 4                    |
| Switzerland . . . .        | 1,400,000   | 9                    |
| Other nations . . . .      | 38,000,000  | ...                  |
| Total . . . .              | 610,000,000 | ...                  |

Consumption in Europe in 1897 averaged 22 cwts. per inhabitant, against 18 in 1888 (see page 120).

#### GREAT BRITAIN

Production and export have been as follows :—

|              | Tons Raised | Value, £   | Tons Exported | Value, £   |
|--------------|-------------|------------|---------------|------------|
| 1886 . . . . | 157,500,000 | 38,200,000 | 23,300,000    | 9,800,000  |
| 1890 . . . . | 181,600,000 | 74,900,000 | 39,100,000    | 19,000,000 |
| 1896 . . . . | 195,400,000 | 57,200,000 | 34,300,000    | 15,200,000 |

The average output per coal-miner in 1896 was 282 tons, being equal to 22 cwt. daily for each working day (256 days). The value at pit's mouth was 86 pence per ton, or 20 per cent. less than at port of shipment. England produces 76 per cent., Wales 13, Scotland 11 per cent. of the total. For Royalties, &c., see *Mining*, page 774.

#### UNITED STATES

Production has progressed as follows :—

|                      | Tons Raised |             |             |
|----------------------|-------------|-------------|-------------|
|                      | 1880        | 1890        | 1896        |
| Pennsylvania . . . . | 46,700,000  | 79,300,000  | 92,800,000  |
| Illinois . . . .     | 6,100,000   | 13,700,000  | 17,700,000  |
| Virginia . . . .     | 1,800,000   | 7,300,000   | 12,600,000  |
| Ohio . . . .         | 5,900,000   | 10,300,000  | 11,500,000  |
| Alabama . . . .      | 300,000     | 3,700,000   | 5,100,000   |
| Maryland . . . .     | 2,200,000   | 3,000,000   | 3,700,000   |
| Iowa . . . .         | 1,400,000   | 3,600,000   | 3,500,000   |
| Indiana . . . .      | 1,400,000   | 3,000,000   | 3,500,000   |
| Kentucky . . . .     | 900,000     | 2,400,000   | 3,000,000   |
| Other states . . . . | 3,800,000   | 14,600,000  | 18,000,000  |
| Total . . . .        | 70,500,000  | 140,900,000 | 171,400,000 |
| Anthracite . . . .   | 28,600,000  | 41,500,000  | 48,600,000  |
| Bituminous . . . .   | 41,900,000  | 99,400,000  | 122,800,000 |

Anthracite is found only in Pennsylvania. The value of the two kinds of coal is shown thus for 1896 :—

|                    | Tons        | £ Sterling | Shillings per Ton |
|--------------------|-------------|------------|-------------------|
| Anthracite . . . . | 48,600,000  | 17,000,000 | 7.0               |
| Bituminous . . . . | 122,800,000 | 23,900,000 | 3.9               |
| Total . . . .      | 171,400,000 | 40,900,000 | 4.8               |

The increase in coal production has been much more rapid than in Great Britain, viz. :—

| Year         | Tons Raised |             | Value, £   |            |
|--------------|-------------|-------------|------------|------------|
|              | G. Britain  | U. States   | G. Britain | U. States  |
| 1870 . . . . | 110,000,000 | 33,000,000  | 27,600,000 | 20,600,000 |
| 1896 . . . . | 195,400,000 | 171,400,000 | 57,200,000 | 40,800,000 |

Thus in 26 years British coal has increased 78 per cent., American 420 per cent. Moreover in 1870 American coal was 2½ times as dear as British, whereas now the latter is dearer than American, viz. :—

|                  | Value, Pence per Ton |      |
|------------------|----------------------|------|
|                  | 1870                 | 1896 |
| British . . . .  | 60                   | 70   |
| American . . . . | 150                  | 57   |

In 26 years British coal has risen 17 per cent. in price, American fallen 62 per cent.

The following table shows the production and value, as also the consumption per inhabitant, at various dates :—

| Year         | Tons Raised | Value, £   | Pence per Ton | Cwts. per In. ab. |
|--------------|-------------|------------|---------------|-------------------|
| 1870 . . . . | 32,900,000  | 20,600,000 | 150           | 17.5              |
| 1880 . . . . | 70,500,000  | 19,700,000 | 67            | 28.0              |
| 1890 . . . . | 140,900,000 | 30,200,000 | 51            | 45.0              |
| 1897 . . . . | 176,000,000 | 41,200,000 | 57            | 48.0              |

Improved machinery enables mine-owners to sell coal now at 38 per cent. of the price that ruled in 1870, and as a consequence the consumption per inhabitant has nearly trebled. The value of the coal (at pit's mouth) which is now consumed per inhabitant is 137 pence, as compared with 131 pence in 1870 for one-third of the quantity.

## GERMANY

The production of coal and lignite, and the imports and exports, are shown as follows:—

|                  | Tons       |            |             |
|------------------|------------|------------|-------------|
|                  | 1876       | 1886       | 1896        |
| Coal raised . .  | 38,500,000 | 58,100,000 | 85,700,000  |
| Lignite raised . | 11,100,000 | 15,600,000 | 26,800,000  |
| Coal imported .  | 2,100,000  | 2,600,000  | 5,500,000   |
| Total . . . .    | 51,700,000 | 76,300,000 | 118,000,000 |
| Exported . . .   | 5,300,000  | 8,700,000  | 13,800,000  |
| Consumption .    | 46,400,000 | 67,600,000 | 104,200,000 |

Germany consumes two tons per inhabitant. There are 341,000 coal-miners, who average 330 tons each. The value of coal and lignite raised was as follows:—

| Year         | Coal, £    | Lignite, £ | Total, £   |
|--------------|------------|------------|------------|
| 1876 . . . . | 13,200,000 | 1,900,000  | 15,100,000 |
| 1886 . . . . | 15,000,000 | 2,000,000  | 17,000,000 |
| 1896 . . . . | 29,600,000 | 3,000,000  | 32,600,000 |

The production in 1895 was equal to £88 per miner

## FRANCE

The product of the collieries was as follows:—

| Year         | Tons       | Value, £   | Pence per Ton |
|--------------|------------|------------|---------------|
| 1880 . . . . | 19,400,000 | 9,860,000  | 122           |
| 1890 . . . . | 26,100,000 | 12,460,000 | 114           |
| 1896 . . . . | 29,200,000 | 12,600,000 | 103           |

France imports 10 million tons, bringing up consumption to 38 millions, or a ton per inhabitant.

## RUSSIA

The consumption of coal has been as follows:—

| Year         | Tons      |           |            |
|--------------|-----------|-----------|------------|
|              | Native    | Imported  | Total      |
| 1876 . . . . | 2,050,000 | 1,450,000 | 3,500,000  |
| 1887 . . . . | 4,450,000 | 1,550,000 | 6,000,000  |
| 1896 . . . . | 9,100,000 | 2,300,000 | 11,400,000 |

The output of coal in Russia averages 140 tons yearly per miner.

## AUSTRIA

The production and consumption of coal and lignite in 1895 were as follows:—

|               | Tons       |           |            | Value, £  |
|---------------|------------|-----------|------------|-----------|
|               | Austria    | Hungary   | Total      |           |
| Coal . . . .  | 9,700,000  | 1,100,000 | 10,800,000 | 3,300,000 |
| Lignite . . . | 18,300,000 | 4,000,000 | 22,300,000 | 3,800,000 |
| Coal imptd. . | 5,000,000  | ...       | 5,000,000  | 2,800,000 |
| Total . . . . | 33,000,000 | 5,100,000 | 38,100,000 | 9,900,000 |
| Exported . .  | 7,800,000  | ...       | 7,800,000  | 2,400,000 |
| Consumption   | 25,200,000 | 5,100,000 | 30,300,000 | 7,500,000 |

Production and consumption in the Austrian Empire have been as follows:—

| Year         | Production Tons | Consumption Tons | Cwts. per Inhab. |
|--------------|-----------------|------------------|------------------|
| 1880 . . . . | 16,100,000      | 14,500,000       | 7.6              |
| 1889 . . . . | 24,000,000      | 22,000,000       | 10.6             |
| 1895 . . . . | 33,100,000      | 30,300,000       | 14.1             |

Austria-Hungary stands sixth among European nations in the consumption of coal per inhabitant.

## ITALY

There are 28 coal-mines, employing 2360 miners, who raise 300,000 tons yearly, being an average of 127 tons each. Consumption has been as follows:—

| Year         | Tons    |           |           | Cwts. per Inhab. |
|--------------|---------|-----------|-----------|------------------|
|              | Native  | Imported  | Total     |                  |
| 1875 . . . . | 120,000 | 1,060,000 | 1,180,000 | 0.9              |
| 1885 . . . . | 190,000 | 3,000,000 | 3,190,000 | 2.2              |
| 1895 . . . . | 300,000 | 4,300,000 | 4,600,000 | 3.0              |

The consumption per head is lower than in other countries, except Russia.

## SPAIN

The coalfields are estimated by Zehden to contain 13,000 millions of tons, which is equal to 65 years' output of the coalfields of Great Britain; they are, however, little worked, employing only 16,200 miners. Consumption has been as follows:—

|              | Tons      |           |           | Cwts. per Inhabitant |
|--------------|-----------|-----------|-----------|----------------------|
|              | Native    | Imported  | Total     |                      |
| 1886 . . . . | 800,000   | 1,410,000 | 2,210,000 | 2.6                  |
| 1892 . . . . | 1,460,000 | 1,870,000 | 3,330,000 | 3.6                  |
| 1896 . . . . | 1,900,000 | 1,900,000 | 3,800,000 | 4.0                  |

The output of the mines gives an average of 110,000 tons per miner.

## SCANDINAVIA

The only coalfield is in Sweden, which gives usually 200,000 tons a year. Consumption in the three kingdoms is as follows:—

|               | Tons      |           | Cwts. per Inhab. |      |
|---------------|-----------|-----------|------------------|------|
|               | 1885      | 1896      | 1885             | 1896 |
| Sweden . . .  | 1,650,000 | 2,200,000 | 7                | 9    |
| Norway . . .  | 600,000   | 1,050,000 | 6                | 10   |
| Denmark . . . | 850,000   | 1,150,000 | 8                | 11   |
| Total . . . . | 3,100,000 | 4,400,000 | 7                | 10   |

## HOLLAND

There is but one coalfield, which belongs to the State, producing 100,000 tons yearly, worth £30,000 sterling. Consumption depends chiefly on imports, viz:—

|              | Tons Imported | Cwts. per Inhabitant |
|--------------|---------------|----------------------|
| 1875 . . . . | 2,150,000     | 11                   |
| 1885 . . . . | 3,560,000     | 16                   |
| 1896 . . . . | 4,700,000     | 20                   |

The consumption per inhabitant is almost the same as in France.



## BELGIUM

A report published in 1894 showed that in the preceding year the production was 19,400,000 tons, raised at a cost of £7,260,000, and sold for £7,550,000, which left a profit of £290,000, or 3½d. per ton. The weight and value were as follows:—

| Year       | Tons       | Value, £   | Pence per Ton |
|------------|------------|------------|---------------|
| 1880 . . . | 16,900,000 | 6,800,000  | 96            |
| 1890 . . . | 20,400,000 | 10,800,000 | 127           |
| 1896 . . . | 21,300,000 | 8,100,000  | 90            |

There are 119,000 coal-miners, who averaged 172 tons each in 1895, being a product of £64 per miner.

## CANADA

The production has quadrupled in twenty years, viz:—

| Year       | Tons        |                  |           |
|------------|-------------|------------------|-----------|
|            | Nova Scotia | Brit. Colum. &c. | Total     |
| 1876 . . . | 710,000     | 120,000          | 830,000   |
| 1886 . . . | 1,490,000   | 370,000          | 1,860,000 |
| 1896 . . . | 2,230,000   | 1,100,000        | 3,330,000 |

Imports and exports were as follows:—

| Year       | Tons      |          |            |
|------------|-----------|----------|------------|
|            | Imported  | Exported | Net Import |
| 1876 . . . | 710,000   | 250,000  | 460,000    |
| 1886 . . . | 1,720,000 | 430,000  | 1,290,000  |
| 1896 . . . | 2,770,000 | 910,000  | 1,860,000  |

Consumption compared with population gave as follows:—

| Year       | Tons      | Cwts. per Inhab. |
|------------|-----------|------------------|
| 1876 . . . | 1,290,000 | 6.5              |
| 1886 . . . | 3,150,000 | 13.5             |
| 1896 . . . | 5,190,000 | 20.0             |

The consumption per head is higher than in Australia.

## AUSTRALIA

The monopoly was abolished in 1847, and the product from that time to December 1894 was as follows:—

|                 | Tons Raised | Value, £   | Pence per Ton |
|-----------------|-------------|------------|---------------|
| N. S. Wales . . | 64,600,000  | 29,600,000 | 110           |
| New Zealand . . | 9,200,000   | 4,900,000  | 128           |
| Queensland . .  | 3,700,000   | 1,700,000  | 110           |
| Tasmania . . .  | 500,000     | 300,000    | 144           |
| Victoria, &c. . | 400,000     | 200,000    | 120           |
| Total . . .     | 78,400,000  | 36,700,000 | 113           |

Production in 1888 and 1896 compares as follows:—

|                 | Tons      |           | Value, £  |           |
|-----------------|-----------|-----------|-----------|-----------|
|                 | 1888      | 1896      | 1888      | 1896      |
| N. S. Wales . . | 3,200,000 | 3,910,000 | 1,460,000 | 1,120,000 |
| New Zealand . . | 610,000   | 800,000   | 340,000   | 430,000   |
| Queensland, &c. | 360,000   | 490,000   | 140,000   | 230,000   |
| Total . . .     | 4,170,000 | 5,200,000 | 1,940,000 | 1,780,000 |

Australia exports one million tons yearly; consumption does not reach a ton per inhabitant.

## COFFEE

Production has been as follows:—

|            | Tons    |                 |         |
|------------|---------|-----------------|---------|
|            | Brazil  | Other Countries | Total   |
| 1880 . . . | 330,000 | 280,000         | 610,000 |
| 1892 . . . | 440,000 | 260,000         | 700,000 |
| 1897 . . . | 590,000 | 250,000         | 840,000 |

Consumption has been as follows, "native" signifying what is used in the countries where coffee is grown:—

|            | Tons    |           |         |         |
|------------|---------|-----------|---------|---------|
|            | Europe  | U. States | Native  | Total   |
| 1893 . . . | 270,000 | 250,000   | 180,000 | 700,000 |
| 1897 . . . | 310,000 | 320,000   | 210,000 | 840,000 |

Consumption in Europe is as follows:—

|                      | Tons    | Lbs. per Inhab. |
|----------------------|---------|-----------------|
| United Kingdom . . . | 12,000  | 0.7             |
| France . . .         | 77,000  | 4.5             |
| Germany . . .        | 136,000 | 5.8             |
| Belgium . . .        | 25,000  | 8.8             |
| Austria . . .        | 40,000  | 2.0             |
| Italy . . .          | 13,000  | 0.9             |

In the United States the average is 10 lbs. per inhabitant, a ratio which is surpassed only in Brazil. The consumption in Great Britain is now 25 per cent. less per head than it was in 1885.

## COLONIES

Pebrer's estimate of the British Colonies in 1830 was as follows:—

|                 | Population | Products, £ | Commerce, £ | Wealth, £   |
|-----------------|------------|-------------|-------------|-------------|
| Canada . . .    | 910,000    | 17,600,000  | 3,200,000   | 62,000,000  |
| W. Indies . . . | 730,000    | 22,500,000  | 14,600,000  | 131,000,000 |
| S. Africa . . . | 154,000    | 1,100,000   | 1,100,000   | 6,000,000   |
| Australia . . . | 81,000     | 500,000     | 200,000     | 3,000,000   |
| Total . . .     | 1,875,000  | 41,700,000  | 19,400,000  | 202,000,000 |

The same Colonies in 1896 showed as follows:—

|                 | Population | Millions £ Sterling |             |           |
|-----------------|------------|---------------------|-------------|-----------|
|                 |            | Products, £         | Commerce, £ | Wealth, £ |
| Canada . . .    | 5,200,000  | 181                 | 48          | 1,009     |
| W. Indies . . . | 1,470,000  | 21                  | 14          | 110       |
| S. Africa . . . | 2,350,000  | 17                  | 29          | 150       |
| Australia . . . | 4,280,000  | 174                 | 76          | 1,076     |
| Total . . .     | 13,300,000 | 393                 | 167         | 2,339     |

It would appear that Pebrer's estimate of the wealth of the West Indies in 1830 was too high.

See *Colonies* of all nations, p. 123.

## COMMERCE

The actual trade of the world compares with Juraschek's table of averages for five years ending 1890 thus:—

|                       | Millions £ Sterling |       |         |       |         |       |
|-----------------------|---------------------|-------|---------|-------|---------|-------|
|                       | Imports             |       | Exports |       | Total   |       |
|                       | 1886-90             | 1890  | 1886-90 | 1890  | 1886-90 | 1890  |
| U. Kingdom . . .      | 398                 | 442   | 241     | 240   | 639     | 682   |
| France . . .          | 171                 | 152   | 139     | 136   | 310     | 288   |
| Germany . . .         | 174                 | 228   | 158     | 188   | 332     | 416   |
| Russia . . .          | 40                  | 59    | 62      | 69    | 102     | 128   |
| Austria . . .         | 48                  | 59    | 62      | 65    | 110     | 124   |
| Italy . . .           | 57                  | 47    | 39      | 42    | 96      | 89    |
| Spain . . .           | 33                  | 36    | 31      | 41    | 64      | 77    |
| Portugal . . .        | 9                   | 9     | 5       | 6     | 14      | 15    |
| Scandinavia . . .     | 43                  | 54    | 31      | 43    | 74      | 97    |
| Holland . . .         | 101                 | 136   | 88      | 112   | 189     | 248   |
| Belgium . . .         | 61                  | 71    | 53      | 59    | 114     | 130   |
| Switzerland . . .     | 34                  | 42    | 28      | 37    | 62      | 72    |
| Danub. States . . .   | 18                  | 18    | 15      | 19    | 33      | 37    |
| Greece . . .          | 5                   | 5     | 4       | 3     | 9       | 8     |
| Turkey . . .          | 18                  | 15    | 12      | 17    | 30      | 32    |
| Europe . . .          | 1,210               | 1,373 | 968     | 1,070 | 2,178   | 2,443 |
| United States . . .   | 155                 | 162   | 157     | 180   | 312     | 342   |
| Canada . . .          | 25                  | 22    | 20      | 25    | 45      | 47    |
| Mexico . . .          | 7                   | 8     | 8       | 11    | 15      | 19    |
| Cent. America . . .   | 3                   | 3     | 5       | 5     | 8       | 8     |
| West Indies . . .     | 20                  | 20    | 30      | 28    | 50      | 48    |
| South America . . .   | 58                  | 65    | 57      | 74    | 115     | 139   |
| America . . .         | 268                 | 280   | 277     | 323   | 545     | 603   |
| India . . .           | 52                  | 48    | 70      | 65    | 122     | 113   |
| Singapore . . .       | 19                  | 28    | 16      | 25    | 35      | 53    |
| Ceylon . . .          | 4                   | 6     | 3       | 6     | 7       | 12    |
| Tonquin . . .         | 3                   | 3     | 3       | 3     | 6       | 6     |
| Siam . . .            | 2                   | 2     | 3       | 3     | 5       | 5     |
| Java . . .            | 11                  | 13    | 16      | 19    | 27      | 32    |
| Japan . . .           | 9                   | 19    | 10      | 13    | 19      | 32    |
| China . . .           | 28                  | 34    | 22      | 22    | 50      | 56    |
| Siberia . . .         | 4                   | 6     | 5       | 9     | 9       | 15    |
| Philippines . . .     | 4                   | 2     | 5       | 4     | 9       | 6     |
| Persia . . .          | 2                   | 3     | 2       | 3     | 4       | 6     |
| Other states . . .    | 10                  | 10    | 8       | 8     | 18      | 18    |
| Asia . . .            | 143                 | 174   | 163     | 180   | 311     | 354   |
| Egypt . . .           | 8                   | 10    | 12      | 13    | 20      | 23    |
| Algeria & Tunis . . . | 11                  | 13    | 10      | 11    | 21      | 24    |
| Cape Colony . . .     | 7                   | 17    | 8       | 17    | 15      | 34    |
| Transvaal . . .       | 5                   | 14    | 2       | 9     | 7       | 23    |
| Mauritius . . .       | 2                   | 2     | 2       | 2     | 4       | 4     |
| Morocco . . .         | 2                   | 2     | 1       | 2     | 3       | 4     |
| East Africa . . .     | 4                   | 4     | 2       | 2     | 6       | 6     |
| Senegal, &c. . .      | 5                   | 5     | 4       | 4     | 9       | 9     |
| Africa . . .          | 44                  | 67    | 41      | 60    | 85      | 127   |
| Australia . . .       | 63                  | 63    | 50      | 66    | 113     | 129   |
| Hawaii . . .          | 1                   | 1     | 2       | 3     | 3       | 4     |
| Oceania . . .         | 64                  | 64    | 52      | 69    | 116     | 133   |
| The World . . .       | 1,734               | 1,958 | 1,501   | 1,702 | 3,235   | 3,660 |

It will be observed that, notwithstanding the fall of prices since 1886, the trade of the world in 1896 showed an increase of value amounting to 13 per cent., or 425 millions sterling over the average given by Juraschek for five years ending 1890, viz. :—

|                 | Millions £ |       |          | Per Cent. |
|-----------------|------------|-------|----------|-----------|
|                 | 1886-90    | 1896  | Increase |           |
| Europe . . .    | 2,178      | 2,443 | 265      | 12.2      |
| America . . .   | 545        | 603   | 58       | 10.7      |
| Asia . . .      | 311        | 354   | 43       | 13.8      |
| Africa . . .    | 85         | 127   | 42       | 49.0      |
| Australia . . . | 116        | 133   | 17       | 14.7      |
| The World . . . | 3,235      | 3,660 | 425      | 13.0      |

Levasseur's table of European commerce shows:—

|                          | Millions £ Sterling |      |       |
|--------------------------|---------------------|------|-------|
|                          | 1830                | 1850 | 1894  |
| United Kingdom . . .     | 88                  | 168  | 682   |
| France . . .             | 36                  | 76   | 277   |
| Germany . . .            | 32                  | 104  | 346   |
| Austria . . .            | 16                  | 28   | 124   |
| Russia . . .             | 20                  | 32   | 124   |
| Italy . . .              | 12                  | 24   | 85    |
| Spain and Portugal . . . | 12                  | 16   | 73    |
| Scandinavia . . .        | 8                   | 20   | 89    |
| Holland . . .            | 16                  | 48   | 214   |
| Belgium . . .            | 12                  | 36   | 115   |
| Other states . . .       | 8                   | 30   | 111   |
| Europe . . .             | 260                 | 582  | 2,240 |

Commerce increased 124 per cent. between 1830 and 1850, that is about 6 per cent. yearly; and 286 per cent. between 1850 and 1894, or about 6½ per cent. yearly, say six times as fast as population. In the foregoing table the trade of the United Kingdom appears larger than it is, as it includes foreign and colonial merchandise imported to be forwarded to other countries (tea, wool, &c.).

Juraschek gives the following table of imports and exports of all nations:—

| Year          | Millions £ Sterling, Yearly |         |       | Excess of Imports |
|---------------|-----------------------------|---------|-------|-------------------|
|               | Imports                     | Exports | Total |                   |
| 1875-80 . . . | 1,547                       | 1,356   | 2,903 | 14 p. c.          |
| 1881-85 . . . | 1,732                       | 1,510   | 3,242 | 15 "              |
| 1886-90 . . . | 1,737                       | 1,507   | 3,244 | 15 "              |
| 1891-94 . . . | 1,876                       | 1,619   | 3,495 | 16 "              |

## UNITED KINGDOM

In the following table imports include not only merchandise for consumption but also goods that are afterwards exported as foreign (and colonial) produce. The gross trade exceeds the real trade by double the amount of such foreign produce. Thus the gross trade of 1888 would be 128 millions over the net figure, which would be 558 millions. The returns for 10 years stand thus:—

| Year          | Millions £ |                 |                 |       |
|---------------|------------|-----------------|-----------------|-------|
|               | Imports    | British Exports | Foreign Exports | Total |
| 1888 . . .    | 388        | 234             | 64              | 686   |
| 1889 . . .    | 428        | 249             | 67              | 744   |
| 1890 . . .    | 421        | 263             | 65              | 749   |
| 1891 . . .    | 435        | 247             | 62              | 744   |
| 1892 . . .    | 424        | 227             | 64              | 715   |
| 1893 . . .    | 405        | 218             | 59              | 682   |
| 1894 . . .    | 408        | 216             | 58              | 682   |
| 1895 . . .    | 417        | 226             | 60              | 703   |
| 1896 . . .    | 442        | 240             | 56              | 738   |
| 1897 . . .    | 451        | 234             | 60              | 745   |
| Average . . . | 422        | 235             | 62              | 719   |

The principal items of imports were as follows :—

|                    | Millions £ |      | Shillings per Head |      |
|--------------------|------------|------|--------------------|------|
|                    | 1888       | 1897 | 1888               | 1897 |
| Food . . .         | 157        | 172  | 86                 | 86   |
| Fibres . . .       | 81         | 88   | 44                 | 44   |
| Manufactures . . . | 64         | 70   | 35                 | 35   |
| Metals . . .       | 22         | 18   | 12                 | 9    |
| Sundries . . .     | 64         | 103  | 35                 | 52   |
| Total . . .        | 338        | 451  | 212                | 226  |

*Exports*

|                | 1888 | 1897 | 1888 | 1897 |
|----------------|------|------|------|------|
| Textiles . . . | 109  | 100  | 58   | 50   |
| Hardware . . . | 50   | 64   | 27   | 32   |
| Sundries . . . | 139  | 130  | 75   | 65   |
| Total . . .    | 298  | 294  | 160  | 147  |

The countries from which we received our imports were :—

|                     | Millions £ |      | Ratio |       |
|---------------------|------------|------|-------|-------|
|                     | 1887       | 1897 | 1887  | 1897  |
| United States . . . | 83         | 113  | 23.0  | 25.0  |
| France . . .        | 37         | 53   | 10.2  | 11.8  |
| India . . .         | 31         | 25   | 8.5   | 5.6   |
| Holland . . .       | 25         | 29   | 6.9   | 6.4   |
| Germany . . .       | 25         | 26   | 6.9   | 5.8   |
| Australia . . .     | 23         | 29   | 6.4   | 6.4   |
| Russia . . .        | 16         | 22   | 4.4   | 4.9   |
| Belgium . . .       | 15         | 21   | 4.1   | 4.7   |
| Canada . . .        | 11         | 20   | 3.1   | 4.4   |
| Various . . .       | 96         | 113  | 26.5  | 25.0  |
| Total . . .         | 362        | 451  | 100.0 | 100.0 |

The trade of the United Kingdom in 1897 showed an increase of 5 per cent. over the average of ten years ending 1896, and of 16 per cent. over 1887, as to value. The principal increase has been in imports, which rose 25 per cent. in ten years, while exports rose only 4 per cent. Taking imports and exports together our trade with other countries has increased since 1887 in the

following ratios :—with Scandinavia 63 per cent., Russia 48 per cent., Canada 30 per cent., Egypt 27 per cent., France 26 per cent., United States 23 per cent., Argentina 22 per cent., Spain 21 per cent., Belgium 21 per cent., Australia 15 per cent., Germany 12 per cent., Holland 5 per cent.

The countries to which we sent our exports were :—

|                     | Millions £ |      | Ratio |       |
|---------------------|------------|------|-------|-------|
|                     | 1887       | 1897 | 1887  | 1897  |
| United States . . . | 40         | 38   | 14.2  | 12.9  |
| India . . .         | 32         | 28   | 11.4  | 9.5   |
| Germany . . .       | 27         | 32   | 9.6   | 11.0  |
| Australia . . .     | 22         | 24   | 7.8   | 8.2   |
| France . . .        | 21         | 20   | 7.5   | 6.8   |
| Holland . . .       | 15         | 13   | 5.4   | 4.4   |
| Belgium . . .       | 13         | 13   | 4.6   | 4.4   |
| Italy . . .         | 9          | 6    | 3.2   | 2.0   |
| Canada . . .        | 9          | 6    | 3.2   | 2.0   |
| Various . . .       | 93         | 114  | 33.1  | 38.8  |
| Total . . .         | 281        | 294  | 100.0 | 100.0 |

Comparing 1897 with 1887, the nations with which trade is carried on show :—

|                         | Millions £ Sterling |      |          |
|-------------------------|---------------------|------|----------|
|                         | 1887                | 1897 | Increase |
| United States . . .     | 123                 | 151  | 28       |
| France . . .            | 58                  | 73   | 15       |
| Germany . . .           | 52                  | 58   | 6        |
| India . . .             | 63                  | 53   | ...      |
| Australia . . .         | 46                  | 53   | 7        |
| Holland . . .           | 40                  | 42   | 2        |
| Russia . . .            | 23                  | 34   | 11       |
| Belgium . . .           | 28                  | 34   | 6        |
| Canada . . .            | 20                  | 26   | 6        |
| Sweden and Norway . . . | 15                  | 22   | 7        |
| Spain . . .             | 14                  | 17   | 3        |
| Argentina . . .         | 9                   | 11   | 2        |
| Egypt . . .             | 11                  | 14   | 3        |
| Denmark . . .           | 7                   | 14   | 7        |
| China . . .             | 13                  | 8    | ...      |
| Various . . .           | 121                 | 135  | 14       |
| Total . . .             | 643                 | 745  | 102      |

FRANCE

Imports and exports of French trade for 1897 compare with 1886 thus :—

|                | Imports, £  |             |                     | Exports, £  |             |
|----------------|-------------|-------------|---------------------|-------------|-------------|
|                | 1886        | 1897        |                     | 1886        | 1897        |
| Wool . . .     | 15,400,000  | 13,800,000  | Woollens . . .      | 15,000,000  | 10,600,000  |
| Wine . . .     | 20,700,000  | 11,300,000  | Silks . . .         | 9,700,000   | 10,800,000  |
| Grain . . .    | 6,400,000   | 9,900,000   | Cottons . . .       | 4,300,000   | 4,800,000   |
| Silk . . .     | 11,700,000  | 10,600,000  | Wine . . .          | 10,400,000  | 9,200,000   |
| Cotton . . .   | 6,400,000   | 8,200,000   | Leather goods . . . | 9,200,000   | 2,800,000   |
| Timber . . .   | 7,000,000   | 7,100,000   | Dairy produce . . . | 4,700,000   | 3,400,000   |
| Hides . . .    | 7,000,000   | 5,700,000   | Hardware . . .      | 3,600,000   | 3,200,000   |
| Oil seed . . . | 6,600,000   | 5,400,000   | Skins . . .         | 2,400,000   | 7,200,000   |
| Coal . . .     | 5,000,000   | 7,600,000   | Spirits . . .       | 3,000,000   | 2,100,000   |
| Textiles . . . | 6,800,000   | 5,100,000   | Sugar . . .         | 2,100,000   | 5,400,000   |
| Coffee . . .   | 4,100,000   | 4,200,000   | Chemicals . . .     | 1,900,000   | 3,000,000   |
| Sundries . . . | 72,500,000  | 69,400,000  | Sundries . . .      | 63,700,000  | 81,400,000  |
| Total . . .    | 168,300,000 | 158,200,000 | Total . . .         | 130,000,000 | 143,900,000 |

The countries trading with France are shown in the following table :—

|                     | Millions £ Sterling |            |       |              |            |       |
|---------------------|---------------------|------------|-------|--------------|------------|-------|
|                     | 1896                |            |       | 1897         |            |       |
|                     | Imports from*       | Exports to | Total | Imports from | Exports to | Total |
| Great Britain . . . | 21.0                | 34.2       | 55.2  | 19.4         | 45.4       | 64.8  |
| Belgium . . .       | 16.8                | 17.9       | 34.7  | 11.5         | 20.5       | 32.0  |
| Spain . . .         | 15.9                | 6.9        | 22.8  | 9.9          | 4.0        | 13.9  |
| United States . . . | 11.7                | 11.3       | 23.0  | 27.5         | 9.7        | 27.2  |
| Germany . . .       | 13.4                | 11.9       | 25.3  | 12.4         | 15.2       | 27.6  |
| Switzerland . . .   | 4.3                 | 8.4        | 12.7  | 3.2          | 7.6        | 10.8  |
| Italy . . .         | 12.4                | 7.7        | 20.1  | 5.2          | 6.1        | 11.3  |
| India . . .         | 7.7                 | 0.3        | 8.0   | 5.6          | 0.6        | 6.2   |
| Argentina . . .     | 9.1                 | 4.4        | 13.5  | 8.4          | 2.0        | 10.4  |
| Algeria . . .       | 5.2                 | 8.3        | 13.5  | 10.6         | 9.6        | 20.2  |
| Russia . . .        | 6.8                 | 0.4        | 7.2   | 9.4          | 1.0        | 10.4  |
| Various . . .       | 44.0                | 18.3       | 62.3  | 45.1         | 22.2       | 67.3  |
| Total . . .         | 168.3               | 130.0      | 298.3 | 158.2        | 143.9      | 302.1 |

\* Note.—This table reads thus : Imports from Great Britain 21.0, that is, £21,000,000.

While the trade of the world is rapidly increasing that of France is stationary, having risen only 1 per cent. in 11 years, as shown in the above table. Imports have declined 10 millions; while exports have risen 14 millions in the said interval.

The principal items of German trade (exclusive of Hamburg) for 1886 and 1897 were as follows :—

|                | Imports, £  |             |                     | Exports, £  |             |
|----------------|-------------|-------------|---------------------|-------------|-------------|
|                | 1886        | 1897        |                     | 1886        | 1897        |
|                |             |             |                     |             |             |
| Grain . . .    | 10,300,000  | 21,100,000  | Hardware . . .      | 10,500,000  | 23,000,000  |
| Wool . . .     | 10,900,000  | 10,700,000  | Cottons . . .       | 5,900,000   | 8,900,000   |
| Cotton . . .   | 8,800,000   | 9,700,000   | Sugar . . .         | 7,100,000   | 11,600,000  |
| Coffee . . .   | 6,900,000   | 6,400,000   | Woolens . . .       | 10,900,000  | 10,500,000  |
| Cattle . . .   | 8,200,000   | 6,100,000   | Coal . . .          | 4,400,000   | 8,700,000   |
| Yarns . . .    | 8,100,000   | 6,400,000   | Leather goods . . . | 7,600,000   | 8,100,000   |
| Timber . . .   | 3,700,000   | 10,200,000  | Silks . . .         | 9,000,000   | 5,800,000   |
| Hides . . .    | 4,600,000   | 7,400,000   | Clothing . . .      | 4,800,000   | 4,900,000   |
| Silk . . .     | 7,500,000   | 4,800,000   | Paper . . .         | 2,500,000   | 4,800,000   |
| Tobacco . . .  | 3,200,000   | 3,900,000   | Cattle . . .        | 5,000,000   | 1,100,000   |
| Sundries . . . | 72,200,000  | 145,500,000 | Sundries . . .      | 81,600,000  | 95,700,000  |
| Total . . .    | 144,400,000 | 232,200,000 | Total . . .         | 149,300,000 | 183,200,000 |

The countries with which Germany traded were :—

|                        | Millions £ Sterling |            |       |              |            |       |
|------------------------|---------------------|------------|-------|--------------|------------|-------|
|                        | 1886                |            |       | 1896         |            |       |
|                        | Imports from        | Exports to | Total | Imports from | Exports to | Total |
| Great Britain . . .    | 22.6                | 22.1       | 44.7  | 27.6         | 35.6       | 63.2  |
| Austria . . .          | 20.2                | 14.3       | 34.5  | 27.3         | 20.0       | 47.3  |
| United States . . .    | 5.3                 | 10.6       | 15.9  | 26.4         | 19.2       | 45.6  |
| Russia . . .           | 13.2                | 6.9        | 20.1  | 31.4         | 11.6       | 43.0  |
| France . . .           | 11.1                | 12.5       | 23.6  | 11.5         | 10.1       | 21.6  |
| Holland . . .          | 10.6                | 11.5       | 22.1  | 8.0          | 13.1       | 21.1  |
| British colonies . . . | 1.6                 | 1.1        | 2.7   | 15.6         | 6.6        | 22.2  |
| Switzerland . . .      | 7.8                 | 7.6        | 15.4  | 7.0          | 11.9       | 18.9  |
| Belgium . . .          | 13.9                | 7.7        | 21.6  | 8.7          | 8.4        | 17.1  |
| Italy . . .            | 4.5                 | 4.2        | 8.7   | 6.6          | 4.2        | 10.8  |
| Other countries . . .  | 33.6                | 50.8       | 84.4  | 45.3         | 35.6       | 80.9  |
| Total . . .            | 144.4               | 149.3      | 293.7 | 215.4        | 176.3      | 391.7 |

The following table compares French trade in 1897 with the average for 5 years ending December 1892 :—

| Trade with            | Millions £ Sterling |      | Ratio   |       |
|-----------------------|---------------------|------|---------|-------|
|                       | 1888-92             | 1897 | 1888-92 | 1897  |
| Great Britain . . .   | 62                  | 65   | 19.6    | 21.5  |
| Belgium . . .         | 39                  | 32   | 12.3    | 10.6  |
| Germany . . .         | 28                  | 28   | 8.7     | 9.2   |
| United States . . .   | 26                  | 27   | 8.2     | 9.0   |
| Spain . . .           | 21                  | 14   | 6.6     | 4.6   |
| Other countries . . . | 140                 | 136  | 44.6    | 45.1  |
| Total . . .           | 316                 | 302  | 100.0   | 100.0 |

There is a visible increase of ratio in dealings with Great Britain and Germany, while trade with Belgium and Spain is declining.

#### GERMANY

Trade has increased very notably in recent years, viz :—

| Year       | Value, Millions £ |         |       | Weight, Tons, Millions |         |       |
|------------|-------------------|---------|-------|------------------------|---------|-------|
|            | Imports           | Exports | Total | Imports                | Exports | Total |
| 1887 . . . | 159               | 160     | 319   | 19.4                   | 19.5    | 38.9  |
| 1891 . . . | 220               | 167     | 387   | 29.0                   | 20.1    | 49.1  |
| 1897 . . . | 232               | 183     | 415   | 40.2                   | 28.0    | 68.2  |

The following table compares German trade in 1896 with the average of five years ending December 1892 :—

| Trade with            | Millions £ Stg. |      | Ratio   |       |
|-----------------------|-----------------|------|---------|-------|
|                       | 1888-92         | 1896 | 1888-92 | 1896  |
| Great Britain . . .   | 60              | 63   | 16.9    | 16.0  |
| Austria . . .         | 43              | 47   | 12.1    | 12.0  |
| United States . . .   | 36              | 46   | 10.0    | 11.7  |
| Russia . . .          | 32              | 43   | 8.9     | 11.0  |
| Holland . . .         | 26              | 21   | 7.3     | 5.4   |
| France . . .          | 23              | 22   | 6.6     | 5.6   |
| Belgium . . .         | 22              | 17   | 6.3     | 4.3   |
| Other countries . . . | 114             | 133  | 31.9    | 34.0  |
| Total . . .           | 356             | 392  | 100.0   | 100.0 |

Trade relations with Belgium, France, and Holland have declined remarkably, while they have increased with Russia and United States.

In 10 years trade has increased 30 per cent. in value, and 75 per cent. in weight.

## RUSSIA

Returns of imports and exports of Russia, including Poland, for 1886 and 1896 compare thus :—

|                     | Imports, £ |            |                     | Exports, £ |            |
|---------------------|------------|------------|---------------------|------------|------------|
|                     | 1886       | 1896       |                     | 1886       | 1896       |
| Cotton . . . . .    | 7,300,000  | 7,600,000  | Grain . . . . .     | 23,300,000 | 32,200,000 |
| Tea . . . . .       | 6,500,000  | 4,200,000  | Flax . . . . .      | 5,400,000  | 7,900,000  |
| Hardware . . . . .  | 4,100,000  | 8,300,000  | Timber . . . . .    | 2,400,000  | 4,700,000  |
| Yarns . . . . .     | 3,300,000  | 2,100,000  | Wool . . . . .      | 2,200,000  | 800,000    |
| Metals . . . . .    | 2,500,000  | 4,800,000  | Seeds . . . . .     | 1,900,000  | 4,200,000  |
| Chemicals . . . . . | 1,300,000  | 1,400,000  | Sugar . . . . .     | 1,300,000  | 2,900,000  |
| Coal . . . . .      | 1,300,000  | 1,700,000  | Petroleum . . . . . | 1,300,000  | 2,900,000  |
| Textiles . . . . .  | 1,100,000  | 1,400,000  | Eggs . . . . .      | 500,000    | 2,200,000  |
| Sundries . . . . .  | 16,400,000 | 27,500,000 | Sundries . . . . .  | 10,100,000 | 11,200,000 |
| Total . . . . .     | 43,800,000 | 59,000,000 | Total . . . . .     | 48,400,000 | 69,000,000 |

The countries with which Russia traded in 1886 and 1896 were :—

|                           | Millions £ Sterling |            |       |              |            |       |
|---------------------------|---------------------|------------|-------|--------------|------------|-------|
|                           | 1886                |            |       | 1896         |            |       |
|                           | Imports from        | Exports to | Total | Imports from | Exports to | Total |
| Great Britain . . . . .   | 11.0                | 14.4       | 25.4  | 11.2         | 16.1       | 27.3  |
| Germany . . . . .         | 13.5                | 11.9       | 25.4  | 19.0         | 18.6       | 37.6  |
| France . . . . .          | 1.2                 | 3.0        | 4.2   | 2.3          | 5.8        | 8.1   |
| Austria . . . . .         | 1.7                 | 2.5        | 4.2   | 2.3          | 3.0        | 5.3   |
| Holland . . . . .         | 0.4                 | 3.7        | 4.1   | 0.6          | 7.1        | 7.7   |
| United States . . . . .   | 2.7                 | 0.0        | 2.7   | 6.6          | 0.2        | 6.8   |
| China . . . . .           | 3.0                 | 0.2        | 3.2   | 4.2          | 0.5        | 4.7   |
| Italy . . . . .           | 0.8                 | 2.2        | 3.0   | 1.0          | 3.6        | 4.6   |
| Other countries . . . . . | 9.5                 | 10.5       | 20.0  | 11.8         | 14.1       | 25.9  |
| Total . . . . .           | 43.8                | 48.4       | 92.2  | 59.0         | 69.0       | 128.0 |

The trade of 1896 compares with that of five years ending 1892 as follows :—

| Trade with                | Millions £ Stg. |      | Ratio   |       |
|---------------------------|-----------------|------|---------|-------|
|                           | 1888-92         | 1896 | 1888-92 | 1896  |
| Great Britain . . . . .   | 29              | 27   | 30.2    | 21.3  |
| Germany . . . . .         | 29              | 38   | 30.2    | 29.5  |
| France . . . . .          | 6               | 8    | 6.2     | 6.4   |
| Other countries . . . . . | 32              | 55   | 33.4    | 42.8  |
| Total . . . . .           | 96              | 128  | 100.0   | 100.0 |

There has been a relative diminution of trade with Germany and Great Britain, which is accounted for by the rapid increase of dealings with China, Austria, and Italy. In the interval between 1886 and 1896 we find an increase of 34 per cent. in imports and 42 per cent. in exports. The shipments of eggs, petroleum, and sugar have increased prodigiously.

## AUSTRIA-HUNGARY

Imports and exports of the whole empire for 1886 and 1897 compare thus :—

|                    | Imports, £ |            |                         | Exports, £ |            |
|--------------------|------------|------------|-------------------------|------------|------------|
|                    | 1886       | 1897       |                         | 1886       | 1897       |
| Cotton . . . . .   | 3,800,000  | 4,200,000  | Sugar . . . . .         | 4,000,000  | 5,100,000  |
| Wool . . . . .     | 2,600,000  | 3,200,000  | Cattle . . . . .        | 3,900,000  | 3,800,000  |
| Yarns . . . . .    | 2,400,000  | 2,500,000  | Timber . . . . .        | 4,500,000  | 7,000,000  |
| Textiles . . . . . | 2,700,000  | 2,200,000  | Grain . . . . .         | 3,500,000  | 3,500,000  |
| Coffee . . . . .   | 2,600,000  | 2,200,000  | Eggs . . . . .          | 900,000    | 3,700,000  |
| Coal . . . . .     | 1,100,000  | 3,100,000  | Leather goods . . . . . | 1,800,000  | 2,200,000  |
| Hardware . . . . . | 900,000    | 2,600,000  | Coal . . . . .          | 1,400,000  | 2,900,000  |
| Tobacco . . . . .  | 2,700,000  | 2,200,000  | Glass . . . . .         | 1,600,000  | 1,900,000  |
| Hides . . . . .    | 1,900,000  | 1,900,000  | Malt . . . . .          | 1,200,000  | 2,000,000  |
| Flax . . . . .     | 1,500,000  | 800,000    | Wool . . . . .          | 2,000,000  | 900,000    |
| Sundries . . . . . | 22,800,000 | 38,100,000 | Sundries . . . . .      | 33,400,000 | 31,000,000 |
| Total . . . . .    | 45,000,000 | 63,000,000 | Total . . . . .         | 58,200,000 | 64,000,000 |

Austria including Hungary has usually 500,000 tons of grain for exportation, but in 1897, on the contrary, she had to import 100,000 tons. Her exports of sugar and eggs have increased remarkably in ten years, viz :—

|                | Sugar, Tons | Eggs, Millions |
|----------------|-------------|----------------|
| 1887 . . . . . | 220,000     | 880            |
| 1897 . . . . . | 480,000     | 1,510          |

The trade of 1896 compares with the average for 4 years ending 1894 thus :—

| Trade with                | Millions £ Stg. |      | Ratio   |       |
|---------------------------|-----------------|------|---------|-------|
|                           | 1891-94         | 1896 | 1891-94 | 1896  |
| Germany . . . . .         | 55              | 55   | 46.3    | 44.8  |
| Great Britain . . . . .   | 10              | 12   | 8.4     | 9.7   |
| Italy . . . . .           | 8               | 9    | 6.7     | 7.3   |
| Other countries . . . . . | 46              | 47   | 38.6    | 38.2  |
| Total . . . . .           | 119             | 123  | 100.0   | 100.0 |

Trade with Germany is stationary, while it increases with Great Britain and Italy.

The countries trading with Austria were as follows :—

|                   | Millions £ Sterling |            |       |              |            |       |
|-------------------|---------------------|------------|-------|--------------|------------|-------|
|                   | 1886                |            |       | 1896         |            |       |
|                   | Imports from*       | Exports to | Total | Imports from | Exports to | Total |
| Germany . . .     | 15.7                | 19.2       | 34.9  | 21.5         | 33.5       | 55.0  |
| Great Britain . . | 1.5                 | 1.5        | 3.0   | 6.1          | 6.1        | 12.2  |
| Italy . . . . .   | 4.1                 | 8.5        | 12.6  | 3.9          | 5.0        | 8.9   |
| Russia . . . . .  | 2.8                 | 1.6        | 4.4   | 3.7          | 2.3        | 6.0   |
| United States . . | 4.4                 | 1.3        | 5.7   | 3.5          | 1.4        | 4.9   |
| Switzerland . . . | 1.6                 | 3.5        | 5.1   | 1.8          | 2.9        | 4.7   |
| France . . . . .  | 0.6                 | 4.1        | 4.7   | 2.1          | 2.5        | 4.6   |
| India . . . . .   | 2.2                 | 0.6        | 2.8   | 3.6          | 0.6        | 4.2   |
| Other countries   | 12.1                | 17.9       | 30.0  | 12.6         | 10.2       | 22.8  |
| Total . . . . .   | 45.0                | 58.2       | 103.2 | 58.8         | 64.5       | 123.3 |

The trade of the Austro-Hungarian monarchy shows an increase of 30 per cent. in imports, and 11 per cent. in exports between 1886 and 1896. There has been a great development of manufacturing industry, the value of imported coal having risen 135 per cent., and that of raw material (fibre) imported 25 per cent. At the same time certain exports show enormous increase, viz., eggs 260 per cent., sugar 60 per cent., leather goods 50 per cent.

## ITALY

Imports and exports have been as follows :—

| Year           | Millions £ Sterling |         |       | £ per Inhab. |
|----------------|---------------------|---------|-------|--------------|
|                | Imports             | Exports | Total |              |
| 1885 . . . . . | 58.4                | 38.0    | 96.4  | 3.3          |
| 1890 . . . . . | 52.8                | 35.8    | 88.6  | 2.9          |
| 1897 . . . . . | 48.1                | 44.6    | 92.7  | 2.9          |

The principal items of the trade of Italy for 1886 and 1896 compare as follows :—

|                    | Imports, £ |            |                    | Exports, £ |            |
|--------------------|------------|------------|--------------------|------------|------------|
|                    | 1886       | 1896       |                    | 1886       | 1896       |
| Cotton . . . . .   | 3,000,000  | 4,500,000  | Silk . . . . .     | 12,600,000 | 11,500,000 |
| Grain . . . . .    | 7,600,000  | 4,400,000  | Wine . . . . .     | 3,500,000  | 2,700,000  |
| Coal . . . . .     | 2,700,000  | 3,600,000  | Oil . . . . .      | 3,200,000  | 2,200,000  |
| Silk . . . . .     | 2,600,000  | 2,100,000  | Fruit . . . . .    | 1,500,000  | 2,100,000  |
| Hardware . . . .   | 1,700,000  | 1,900,000  | Flax . . . . .     | 1,000,000  | 1,500,000  |
| Timber . . . . .   | 2,400,000  | 1,300,000  | Eggs . . . . .     | 1,200,000  | 1,200,000  |
| Wool . . . . .     | 1,300,000  | 1,300,000  | Coral . . . . .    | 900,000    | 1,100,000  |
| Hides . . . . .    | 1,400,000  | 1,500,000  | Sulphur . . . . .  | 1,000,000  | 1,100,000  |
| Fish . . . . .     | 1,300,000  | 1,200,000  | Meat . . . . .     | 1,200,000  | 1,800,000  |
| Coffee . . . . .   | 700,000    | 1,100,000  | Ores . . . . .     | 200,000    | 400,000    |
| Sundries . . . . . | 33,600,000 | 24,000,000 | Sundries . . . . . | 14,800,000 | 17,700,000 |
| Total . . . . .    | 58,300,000 | 46,900,000 | Total . . . . .    | 41,100,000 | 42,100,000 |

As regards imports, there has been on the whole a fall of 20 per cent. Nevertheless some items show a remarkable increase, for example, raw cotton 50 per cent., and coal 33 per cent., from which it is evident that textile and other manufactures have been developed considerably in the last ten years. As for exports, if we except wine and oil, the quantities show a marked increase, but this is somewhat counteracted as regards value by the fall in prices. Trade on the whole shows an upward tendency.

The quantities of principal exports were as follows :—

| Year           | Gallons    |            | Millions Eggs | Tons Fruit |
|----------------|------------|------------|---------------|------------|
|                | Wine       | Oil        |               |            |
| 1887 . . . . . | 80,000,000 | 14,000,000 | 388           | 240,000    |
| 1897 . . . . . | 52,000,000 | 12,000,000 | 592           | 290,000    |

The decline in wine and oil has been very serious.

The trade of 1896 compares with the average of 5 years ending 1892 thus :—

| Trade with          | Millions £ Stg. |      | Ratio   |       |
|---------------------|-----------------|------|---------|-------|
|                     | 1888-92         | 1896 | 1888-92 | 1896  |
| Great Britain . . . | 16              | 14   | 17.6    | 16.2  |
| France . . . . .    | 16              | 12   | 17.6    | 13.5  |
| Germany . . . . .   | 11              | 12   | 12.0    | 13.5  |
| Other countries . . | 48              | 51   | 52.8    | 56.8  |
| Total . . . . .     | 91              | 89   | 100.0   | 100.0 |

The countries trading with Italy in 1886 and 1896 were :—

|                     | Millions £   |            |       |              |            |       |
|---------------------|--------------|------------|-------|--------------|------------|-------|
|                     | 1886         |            |       | 1896         |            |       |
|                     | Imports from | Exports to | Total | Imports from | Exports to | Total |
| Great Britain . . . | 11.0         | 2.8        | 13.8  | 9.2          | 4.4        | 13.6  |
| Germany . . . . .   | 5.2          | 4.3        | 9.5   | 5.8          | 6.6        | 12.4  |
| France . . . . .    | 12.4         | 17.8       | 30.2  | 5.5          | 6.3        | 11.8  |
| Austria . . . . .   | 8.9          | 3.7        | 12.6  | 5.4          | 5.0        | 10.4  |
| Switzerland . . . . | 3.2          | 3.5        | 6.7   | 1.8          | 6.9        | 8.7   |
| United States . . . | 2.2          | 2.1        | 4.3   | 4.8          | 3.4        | 8.2   |
| Russia . . . . .    | 3.8          | 0.7        | 4.5   | 4.7          | 0.5        | 5.2   |
| Other countries     | 11.6         | 6.2        | 17.8  | 9.7          | 9.0        | 18.7  |
| Total . . . . .     | 58.3         | 41.1       | 99.4  | 46.9         | 42.1       | 89.0  |

Trade with Germany is increasing, and with France is declining.

\* To be read thus: Imports £15,700,000.

## SPAIN

The foreign trade has risen 70 per cent. in 20 years, viz. :—

| Year       | Millions £ Sterling |         |       | £ per Inhab. |
|------------|---------------------|---------|-------|--------------|
|            | Imports             | Exports | Total |              |
| 1877 . . . | 19.6                | 20.5    | 40.1  | 2.4          |
| 1887 . . . | 32.4                | 28.9    | 61.3  | 3.5          |
| 1897 . . . | 31.7                | 37.0    | 68.7  | 3.9          |

The trade of 1896 compares with the average for 5 years, down to 1892, thus :—

| Trade with            | Millions £ Stg. |      | Ratio   |       |
|-----------------------|-----------------|------|---------|-------|
|                       | 1888-92         | 1896 | 1888-92 | 1896  |
| France . . .          | 21              | 20   | 36.8    | 26.0  |
| Great Britain . . .   | 11              | 15   | 19.4    | 19.5  |
| Cuba . . .            | 4               | 14   | 7.0     | 18.2  |
| Other countries . . . | 21              | 28   | 36.8    | 36.3  |
| Total . . .           | 57              | 77   | 100.0   | 100.0 |

The principal imports and exports of Spain in 1886 and 1896 were as follows :—

|                | Imports, £ |            |                   | Exports, £ |            |
|----------------|------------|------------|-------------------|------------|------------|
|                | 1886       | 1896       |                   | 1886       | 1896       |
| Cotton . . .   | 2,400,000  | 2,800,000  | Wine . . .        | 13,400,000 | 5,800,000  |
| Hardware . . . | 2,300,000  | 2,600,000  | Fruit . . .       | 2,100,000  | 3,200,000  |
| Coal . . .     | 1,000,000  | 2,000,000  | Minerals . . .    | 2,500,000  | 4,100,000  |
| Timber . . .   | 1,500,000  | 1,500,000  | Metals . . .      | 2,200,000  | 3,100,000  |
| Tobacco . . .  | 1,700,000  | 1,300,000  | Cottons . . .     | 500,000    | 2,100,000  |
| Textiles . . . | 2,200,000  | 1,100,000  | Cattle . . .      | 900,000    | 1,100,000  |
| Grain . . .    | 1,200,000  | 1,400,000  | Cork . . .        | 700,000    | 1,300,000  |
| Fish . . .     | 1,100,000  | 1,000,000  | Oil . . .         | 600,000    | 1,000,000  |
| Hides . . .    | 1,000,000  | 900,000    | Wool . . .        | 600,000    | 700,000    |
| Sugar . . .    | 1,300,000  | 700,000    | Quicksilver . . . | 100,000    | 300,000    |
| Sundries . . . | 16,000,000 | 21,100,000 | Sundries . . .    | 5,400,000  | 18,200,000 |
| Total . . .    | 31,700,000 | 36,400,000 | Total . . .       | 29,000,000 | 40,900,000 |

Spanish trade in the above interval of ten years showed a rise of 15 per cent. in imports, and 40 per cent. in exports. Wine has, indeed, fallen nearly 60 per cent., but minerals, metals, fruit, cotton manufactures, &c., have increased very remarkably.

The countries with which Spain traded were as follows :—

|                       | Millions £ Sterling |            |       |              |            |       |
|-----------------------|---------------------|------------|-------|--------------|------------|-------|
|                       | 1886                |            |       | 1896         |            |       |
|                       | Imports from*       | Exports to | Total | Imports from | Exports to | Total |
| France . . .          | 9.8                 | 13.5       | 23.3  | 8.7          | 11.3       | 20.0  |
| Great Britain . . .   | 4.5                 | 6.2        | 10.7  | 6.2          | 9.0        | 15.2  |
| Cuba . . .            | 1.6                 | 2.8        | 4.4   | 3.3          | 10.2       | 13.5  |
| United States . . .   | 3.8                 | 0.8        | 4.6   | 2.9          | 0.4        | 3.3   |
| Portugal . . .        | 0.3                 | 1.3        | 1.6   | 1.6          | 1.7        | 3.3   |
| Other countries . . . | 11.7                | 4.4        | 16.1  | 13.7         | 8.3        | 22.0  |
| Total . . .           | 31.7                | 29.0       | 60.7  | 36.4         | 40.9       | 77.3  |

## PORTUGAL

The countries trading with Portugal in 1886 and 1896 were :—

|                   | 1886       |            | 1896       |            |
|-------------------|------------|------------|------------|------------|
|                   | Imports, £ | Exports, £ | Imports, £ | Exports, £ |
| Gt. Britain . . . | 2,700,000  | 1,500,000  | 2,700,000  | 1,600,000  |
| France . . .      | 1,100,000  | 2,100,000  | 900,000    | 150,000    |
| Brazil . . .      | 400,000    | 1,000,000  | 400,000    | 1,450,000  |
| Various . . .     | 4,200,000  | 1,300,000  | 4,900,000  | 2,700,000  |
| Total . . .       | 8,400,000  | 5,900,000  | 8,900,000  | 5,900,000  |

Trade with France has declined very much, while it has increased with Brazil.

Trade returns for the kingdom of Portugal in 1886 and 1896 compare as follows :—

|                | Imports, £ |           |                | Exports, £ |           |
|----------------|------------|-----------|----------------|------------|-----------|
|                | 1886       | 1896      |                | 1886       | 1896      |
| Grain . . .    | 990,000    | 890,000   | Wine . . .     | 3,800,000  | 2,500,000 |
| Textiles . . . | 1,320,000  | 980,000   | Cork . . .     | 550,000    | 800,000   |
| Cotton . . .   | 290,000    | 250,000   | Cattle . . .   | 180,000    | 550,000   |
| Sugar . . .    | 380,000    | 440,000   | Copper . . .   | 160,000    | 250,000   |
| Fish . . .     | 400,000    | 510,000   | Sardines . . . | 220,000    | 220,000   |
| Sundries . . . | 5,020,000  | 5,830,000 | Sundries . . . | 990,000    | 1,580,000 |
| Total . . .    | 8,400,000  | 8,900,000 | Total . . .    | 5,900,000  | 5,900,000 |

\* To be read thus : Imports from France £9,800,000.

## SWEDEN

In the decade ending December 1896 imports rose 20 per cent., exports 50 per cent., viz :—

|                    | Imports, £ |            |                    | Exports, £ |            |
|--------------------|------------|------------|--------------------|------------|------------|
|                    | 1886       | 1896       |                    | 1886       | 1896       |
| Coal . . . . .     | 900,000    | 1,800,000  | Timber . . . . .   | 4,200,000  | 7,300,000  |
| Textiles . . . . . | 1,900,000  | 1,500,000  | Iron . . . . .     | 1,900,000  | 2,800,000  |
| Coffee . . . . .   | 1,000,000  | 1,500,000  | Butter . . . . .   | 1,100,000  | 2,500,000  |
| Hardware . . . . . | 1,200,000  | 1,800,000  | Fish . . . . .     | 200,000    | 400,000    |
| Grain . . . . .    | 1,600,000  | 1,300,000  | Matches . . . . .  | 600,000    | 300,000    |
| Sundries . . . . . | 9,800,000  | 12,000,000 | Sundries . . . . . | 4,700,000  | 5,600,000  |
| Total . . . . .    | 16,400,000 | 19,900,000 | Total . . . . .    | 12,700,000 | 18,900,000 |

The countries trading with Sweden were :—

|                   | Millions £    |            |       |              |            |       |
|-------------------|---------------|------------|-------|--------------|------------|-------|
|                   | 1886          |            |       | 1896         |            |       |
|                   | Imports from* | Exports to | Total | Imports from | Exports to | Total |
| Great Britain . . | 4.3           | 6.1        | 10.4  | 5.5          | 8.0        | 13.5  |
| Germany . . . .   | 5.1           | 1.1        | 6.2   | 6.5          | 2.4        | 8.9   |
| Denmark . . . .   | 2.4           | 1.4        | 3.8   | 2.5          | 2.3        | 4.8   |
| Various . . . . . | 4.6           | 4.1        | 8.7   | 5.4          | 6.2        | 11.6  |
| Total . . . . .   | 16.4          | 12.7       | 29.1  | 19.9         | 18.9       | 38.8  |

The principal Swedish exports which have risen (in value) are : timber 75 per cent., iron 48 per cent., butter 130 per cent., fish 100 per cent., over 1886. We see, moreover, that trade with Great Britain has risen 30 per cent.

## NORWAY

It is probably in a great measure due to her merchant fleet that the trade of Norway has grown so much in ten years, viz :—

| Year           | Imports, £ | Exports, £ | Total, £   |
|----------------|------------|------------|------------|
| 1886 . . . . . | 7,500,000  | 5,700,000  | 13,200,000 |
| 1896 . . . . . | 13,300,000 | 8,200,000  | 21,500,000 |

The countries trading with Norway were :—

|                   | Imports from, £ |            | Exports to, £ |           |
|-------------------|-----------------|------------|---------------|-----------|
|                   | 1886            | 1896       | 1886          | 1896      |
| G. Britain . . .  | 1,900,000       | 3,500,000  | 1,900,000     | 3,100,000 |
| Germany . . . .   | 2,100,000       | 3,500,000  | 700,000       | 1,000,000 |
| Sweden . . . . .  | 900,000         | 2,100,000  | 800,000       | 1,300,000 |
| Various . . . . . | 2,600,000       | 4,200,000  | 2,300,000     | 2,800,000 |
| Total . . . . .   | 7,500,000       | 13,300,000 | 5,700,000     | 8,200,000 |

The principal items of Norwegian trade in 1886 and 1896 were :—

|                    | Imports, £ |            |                    | Exports, £ |           |
|--------------------|------------|------------|--------------------|------------|-----------|
|                    | 1886       | 1896       |                    | 1886       | 1896      |
| Grain . . . . .    | 1,400,000  | 2,000,000  | Fish . . . . .     | 1,700,000  | 1,900,000 |
| Textiles . . . . . | 800,000    | 1,400,000  | Timber . . . . .   | 1,600,000  | 1,900,000 |
| Sundries . . . . . | 5,300,000  | 9,900,000  | Sundries . . . . . | 2,400,000  | 4,400,000 |
| Total . . . . .    | 7,500,000  | 13,300,000 | Total . . . . .    | 5,700,000  | 8,200,000 |

## DENMARK

The principal imports and exports of the trade of Denmark in 1886 and 1896 were :—

|                    | Imports, £ |            |                    | Exports, £ |            |
|--------------------|------------|------------|--------------------|------------|------------|
|                    | 1886       | 1896       |                    | 1886       | 1896       |
| Hardware . . . .   | 1,000,000  | 2,400,000  | Butter . . . . .   | 1,800,000  | 5,200,000  |
| Grain . . . . .    | 1,000,000  | 1,900,000  | Meat . . . . .     | 600,000    | 2,500,000  |
| Textiles . . . . . | 1,600,000  | 1,800,000  | Cattle . . . . .   | 2,200,000  | 1,300,000  |
| Coal . . . . .     | 800,000    | 1,200,000  | Eggs . . . . .     | 200,000    | 600,000    |
| Sundries . . . . . | 7,400,000  | 14,000,000 | Sundries . . . . . | 4,300,000  | 6,200,000  |
| Total . . . . .    | 11,800,000 | 21,300,000 | Total . . . . .    | 9,100,000  | 15,800,000 |

\* This table to read thus : Imports from Great Britain £4,300,000.



Trade has increased 80 per cent. in ten years, viz. :—

| Year       | Imports, £ | Exports, £ | Total, £   |
|------------|------------|------------|------------|
| 1886 . . . | 11,800,000 | 9,100,000  | 20,900,000 |
| 1896 . . . | 21,300,000 | 15,800,000 | 37,100,000 |

The principal trade is with Great Britain and Germany, viz. :—

|                     | Imports from,<br>Millions £ |      | Exports to,<br>Millions £ |      | Total |      |
|---------------------|-----------------------------|------|---------------------------|------|-------|------|
|                     | 1886                        | 1896 | 1886                      | 1896 | 1886  | 1896 |
| Great Britain . . . | 2.7                         | 4.3  | 3.8                       | 9.5  | 6.5   | 13.8 |
| Germany . . .       | 4.2                         | 7.0  | 2.8                       | 3.2  | 7.0   | 10.2 |
| Sweden . . .        | 1.7                         | 3.1  | 1.2                       | 1.7  | 2.9   | 4.8  |
| Various . . .       | 3.2                         | 6.9  | 1.3                       | 1.4  | 4.5   | 8.3  |
| Total . . .         | 11.8                        | 21.3 | 9.1                       | 15.8 | 20.9  | 37.1 |

Trade with Great Britain has more than doubled, while that with Germany has risen only 45 per cent. Thus in

The principal items of Dutch imports and exports in 1886 and 1896 were :—

|                | Imports, £ |             |                | Exports, £ |             |
|----------------|------------|-------------|----------------|------------|-------------|
|                | 1886       | 1896        |                | 1886       | 1896        |
| Grain . . .    | 12,400,000 | 26,500,000  | Drugs . . .    | 9,800,000  | 16,300,000  |
| Hardware . . . | 8,800,000  | 8,100,000   | Butter . . .   | 4,700,000  | 4,600,000   |
| Metals . . .   | 7,100,000  | 12,800,000  | Sugar . . .    | 2,500,000  | 2,500,000   |
| Cotton . . .   | 3,800,000  | 3,900,000   | Textiles . . . | 2,400,000  | 3,400,000   |
| Rice . . .     | 3,000,000  | 3,300,000   | Paper . . .    | 900,000    | 2,300,000   |
| Coal . . .     | 3,000,000  | 3,900,000   | Fish . . .     | 1,000,000  | 1,200,000   |
| Coffee . . .   | 3,100,000  | 3,500,000   | Hides . . .    | 1,000,000  | 1,300,000   |
| Timber . . .   | 1,400,000  | 3,000,000   | Cheese . . .   | 900,000    | 1,000,000   |
| Sundries . . . | 49,300,000 | 71,300,000  | Sundries . . . | 55,900,000 | 79,100,000  |
| Total . . .    | 91,900,000 | 136,300,000 | Total . . .    | 79,100,000 | 111,700,000 |

The countries trading with Holland were as follow :—

|                     | Imports from,<br>Millions £ |       | Exports to,<br>Millions £ |       | Total |       |
|---------------------|-----------------------------|-------|---------------------------|-------|-------|-------|
|                     | 1886                        | 1896  | 1886                      | 1896  | 1886  | 1896  |
| Germany . . .       | 26.3                        | 25.0  | 34.5                      | 58.3  | 60.8  | 83.3  |
| Great Britain . . . | 21.8                        | 21.3  | 21.3                      | 24.2  | 43.1  | 45.5  |
| Belgium . . .       | 13.2                        | 14.5  | 11.5                      | 13.7  | 24.7  | 28.2  |
| Java . . .          | 7.5                         | 20.0  | 3.8                       | 4.4   | 11.3  | 24.4  |
| Various . . .       | 20.6                        | 55.5  | 7.9                       | 11.1  | 28.5  | 66.6  |
| Total . . .         | 89.4                        | 136.3 | 79.0                      | 111.7 | 168.4 | 248.0 |

The following table compares Dutch trade in 1896 with the average for five years ending December 1892 :—

| Trade with          | Millions £ |      | Ratio   |       |
|---------------------|------------|------|---------|-------|
|                     | 1888-92    | 1896 | 1888-92 | 1896  |
| Germany . . .       | 66         | 83   | 33.0    | 33.5  |
| Great Britain . . . | 49         | 46   | 24.5    | 18.5  |
| Belgium . . .       | 27         | 28   | 13.5    | 11.3  |
| Java . . .          | 19         | 24   | 9.5     | 9.7   |
| Various . . .       | 39         | 67   | 19.5    | 27.0  |
| Total . . .         | 200        | 248  | 100.0   | 100.0 |

There is a decline in trade with Great Britain.

1886 Germany stood ahead of Great Britain in the trade of Denmark, whereas now Great Britain is 36 per cent. ahead of Germany.

#### HOLLAND

Exclusive of trade in transit the commerce of Holland has advanced by leaps and bounds, viz. :—

|            | Imports, £  | Exports, £  | Total, £    |
|------------|-------------|-------------|-------------|
| 1876 . . . | 58,000,000  | 44,100,000  | 102,100,000 |
| 1886 . . . | 91,900,000  | 79,100,000  | 171,000,000 |
| 1896 . . . | 136,300,000 | 111,700,000 | 248,000,000 |

As Holland is the only free-trade country of Continental Europe, the growth of its trade offers an important lesson. In twenty years the imports have risen 135 per cent., exports 154 per cent. The increased importation of coal and metals, as well as of timber, points to a development of home manufactures, while the increase of exports shows a great activity in the colonial trade and in Dutch products generally.

#### BELGIUM

Reviewing the trade of the last two decades we find it was stationary in the first, but has greatly expanded in the second, viz. :—

|            | Imports, £ | Exports, £ | Total, £    |
|------------|------------|------------|-------------|
| 1876 . . . | 57,900,000 | 42,600,000 | 100,500,000 |
| 1886 . . . | 53,400,000 | 47,300,000 | 100,700,000 |
| 1896 . . . | 71,100,000 | 58,700,000 | 129,800,000 |

The countries trading with Belgium were as follow :—

|                     | Millions £ Sterling |            |       |              |            |       |
|---------------------|---------------------|------------|-------|--------------|------------|-------|
|                     | 1886                |            |       | 1896         |            |       |
|                     | Imports from        | Exports to | Total | Imports from | Exports to | Total |
| France . . .        | 10.1                | 13.2       | 23.3  | 12.4         | 11.5       | 23.9  |
| Germany . . .       | 6.1                 | 7.8        | 13.9  | 8.6          | 13.1       | 21.7  |
| Great Britain . . . | 6.9                 | 9.4        | 16.3  | 8.2          | 12.7       | 19.9  |
| Holland . . .       | 8.0                 | 7.0        | 15.0  | 7.1          | 6.9        | 14.0  |
| United States . . . | 6.4                 | 1.6        | 8.0   | 6.9          | 2.0        | 8.9   |
| Various . . .       | 15.9                | 8.3        | 24.2  | 27.9         | 13.5       | 41.4  |
| Total . . .         | 53.4                | 47.3       | 100.7 | 71.1         | 58.7       | 129.8 |

The above is exclusive of transit trade, which exceeds 50 millions sterling. The chief items of imports and exports were :—

|                     | Imports, £ |            |                     | Exports, £ |            |
|---------------------|------------|------------|---------------------|------------|------------|
|                     | 1886       | 1896       |                     | 1886       | 1896       |
| Grain . . . . .     | 8,300,000  | 11,600,000 | Yarn . . . . .      | 5,200,000  | 4,100,000  |
| Fibre . . . . .     | 6,400,000  | 6,600,000  | Coal . . . . .      | 2,800,000  | 3,500,000  |
| Minerals . . . . .  | 2,800,000  | 5,700,000  | Hardware . . . . .  | 2,500,000  | 5,200,000  |
| Chemicals . . . . . | 2,700,000  | 4,400,000  | Textiles . . . . .  | 2,600,000  | 3,200,000  |
| Timber . . . . .    | 1,700,000  | 3,600,000  | Glass . . . . .     | 2,000,000  | 3,100,000  |
| Cattle . . . . .    | 2,900,000  | 2,300,000  | Machinery . . . . . | 2,000,000  | 2,600,000  |
| Coffee . . . . .    | 1,300,000  | 2,100,000  | Sugar . . . . .     | 1,200,000  | 2,200,000  |
| Sundries . . . . .  | 27,400,000 | 34,900,000 | Sundries . . . . .  | 29,000,000 | 34,800,000 |
| Total . . . . .     | 53,400,000 | 71,100,000 | Total . . . . .     | 47,300,000 | 58,700,000 |

Comparing the trade of Belgium in 1896 with the average of 5 years ending December 1892, we find as follows :—

| Trade with              | Millions £ Stg. |      | Ratio   |       |
|-------------------------|-----------------|------|---------|-------|
|                         | 1888-92         | 1896 | 1888-92 | 1896  |
| France . . . . .        | 26              | 24   | 21.5    | 18.5  |
| Germany . . . . .       | 18              | 22   | 14.8    | 16.9  |
| Great Britain . . . . . | 18              | 20   | 14.8    | 15.4  |
| Holland . . . . .       | 16              | 14   | 13.2    | 10.8  |
| Various . . . . .       | 43              | 50   | 35.7    | 38.4  |
| Total . . . . .         | 121             | 130  | 100.0   | 100.0 |

Germany and Great Britain are gaining ground, while France and Holland are receding.

#### SWITZERLAND

Comparing the trade of 1896 with the average of 5 years ending 1892 shows as follows :—

| Trade with              | Millions £ Stg. |      | Ratio   |       |
|-------------------------|-----------------|------|---------|-------|
|                         | 1888-92         | 1896 | 1888-92 | 1896  |
| Germany . . . . .       | 18              | 20   | 27.3    | 27.5  |
| France . . . . .        | 15              | 14   | 22.7    | 19.5  |
| Great Britain . . . . . | 6               | 8    | 9.1     | 11.3  |
| Italy . . . . .         | 7               | 7    | 10.6    | 9.7   |
| Various . . . . .       | 20              | 23   | 30.3    | 32.0  |
| Total . . . . .         | 66              | 72   | 100.0   | 100.0 |

Great Britain and Germany are gaining ground, while France has lost heavily in the ratio of Swiss trade.

The principal items of imports and exports of Switzerland were as follow :—

|                    | Imports, £ |            |                     | Exports, £ |            |
|--------------------|------------|------------|---------------------|------------|------------|
|                    | 1886       | 1896       |                     | 1886       | 1896       |
| Silk . . . . .     | 5,300,000  | 4,300,000  | Textiles . . . . .  | 10,200,000 | 10,200,000 |
| Grain . . . . .    | 3,400,000  | 4,400,000  | Watches . . . . .   | 3,200,000  | 3,900,000  |
| Cattle . . . . .   | 2,100,000  | 2,100,000  | Cheese . . . . .    | 1,500,000  | 1,500,000  |
| Hardware . . . . . | 1,200,000  | 3,200,000  | Yarn . . . . .      | 1,200,000  | 1,100,000  |
| Coal . . . . .     | 700,000    | 2,900,000  | Machinery . . . . . | 700,000    | 1,200,000  |
| Cotton . . . . .   | 1,400,000  | 1,400,000  | Milk . . . . .      | 500,000    | 800,000    |
| Sundries . . . . . | 16,900,000 | 24,200,000 | Sundries . . . . .  | 9,500,000  | 10,000,000 |
| Total . . . . .    | 31,000,000 | 42,500,000 | Total . . . . .     | 26,800,000 | 29,600,000 |

Trade increased 25 per cent. in 10 years, viz. :—

| Year           | Imports, £ | Exports, £ | Total, £   |
|----------------|------------|------------|------------|
| 1886 . . . . . | 31,000,000 | 26,800,000 | 57,800,000 |
| 1896 . . . . . | 42,500,000 | 29,600,000 | 72,100,000 |

The principal countries trading with Switzerland were :

|                         | Millions £ Sterling |            |       |              |            |       |
|-------------------------|---------------------|------------|-------|--------------|------------|-------|
|                         | 1886                |            |       | 1896         |            |       |
|                         | Imports from*       | Exports to | Total | Imports from | Exports to | Total |
| Germany . . . . .       | 10.4                | 6.4        | 16.8  | 12.3         | 7.2        | 19.5  |
| France . . . . .        | 7.5                 | 5.6        | 13.1  | 9.2          | 4.7        | 13.9  |
| Great Britain . . . . . | 1.8                 | 4.2        | 6.0   | 2.1          | 5.9        | 8.0   |
| Italy . . . . .         | 4.8                 | 2.3        | 7.1   | 5.7          | 1.6        | 7.3   |
| Austria . . . . .       | 3.7                 | 1.4        | 5.1   | 3.1          | 1.7        | 4.8   |
| Various . . . . .       | 2.8                 | 6.9        | 9.7   | 10.1         | 8.5        | 18.6  |
| Total . . . . .         | 31.0                | 26.8       | 57.8  | 42.5         | 29.6       | 72.1  |

#### ROUMANIA

The nations trading with Roumania were as follow :—

|                         | Millions £ Sterling |            |       |              |            |       |
|-------------------------|---------------------|------------|-------|--------------|------------|-------|
|                         | 1886                |            |       | 1896         |            |       |
|                         | Imports from        | Exports to | Total | Imports from | Exports to | Total |
| Great Britain . . . . . | 2.1                 | 2.5        | 4.6   | 2.9          | 4.5        | 7.4   |
| Austria . . . . .       | 4.8                 | 2.8        | 7.6   | 3.7          | 1.3        | 5.0   |
| Belgium . . . . .       | 0.2                 | 0.1        | 0.3   | 0.4          | 4.6        | 5.0   |
| Germany . . . . .       | 1.7                 | 0.3        | 2.0   | 3.8          | 0.7        | 4.5   |
| Various . . . . .       | 1.9                 | 4.2        | 6.1   | 2.7          | 1.9        | 4.6   |
| Total . . . . .         | 10.7                | 9.9        | 20.6  | 13.5         | 13.0       | 26.5  |

The only country with which dealings have fallen off is Austria. It is to be observed that Great Britain, instead of second as in 1886, now holds the foremost place in Roumanian trade, beyond all competitors.

\* To be read thus : Imports from Germany £10,400,000.

The country was impoverished in 1876, and hence exports exceeded imports. Since 1886 things are better, and imports are over exports. The principal items of trade were as follow :—

|                    | Imports, £        |                   |                    | Exports, £       |                   |
|--------------------|-------------------|-------------------|--------------------|------------------|-------------------|
|                    | 1886              | 1896              |                    | 1886             | 1896              |
| Textiles . . .     | 3,200,000         | 6,000,000         | Grain . . .        | 6,200,000        | 11,100,000        |
| Hardware . . .     | 600,000           | 2,500,000         | Cattle . . .       | ...              | 400,000           |
| Sundries . . .     | 6,900,000         | 5,000,000         | Sundries . . .     | 3,700,000        | 1,500,000         |
| <b>Total . . .</b> | <b>10,700,000</b> | <b>13,500,000</b> | <b>Total . . .</b> | <b>9,900,000</b> | <b>13,000,000</b> |

The trade of Roumania has risen 60 per cent. since 1876, viz :—

| Year       | Imports, £ | Exports, £ | Total, £   |
|------------|------------|------------|------------|
| 1876 . . . | 6,600,000  | 9,400,000  | 16,000,000 |
| 1886 . . . | 10,700,000 | 9,900,000  | 20,600,000 |
| 1896 . . . | 13,500,000 | 13,000,000 | 26,500,000 |

## SERVIA

The trade of this kingdom has been as follows :—

| Year       | Imports, £ | Exports, £ | Total, £  |
|------------|------------|------------|-----------|
| 1876 . . . | 900,000    | 1,100,000  | 2,000,000 |
| 1886 . . . | 2,200,000  | 1,900,000  | 4,100,000 |
| 1896 . . . | 1,300,000  | 2,100,000  | 3,400,000 |

The trade of 1896 was as follows :—

| Imports            | £                | Exports            | £                |
|--------------------|------------------|--------------------|------------------|
| Textiles . . .     | 400,000          | Grain . . .        | 900,000          |
| Hardware . . .     | 100,000          | Cattle . . .       | 900,000          |
| Sundries . . .     | 800,000          | Sundries . . .     | 300,000          |
| <b>Total . . .</b> | <b>1,300,000</b> | <b>Total . . .</b> | <b>2,100,000</b> |

The countries trading with Servia are shown thus :—

|                       | Imports from     | Exports to       | Total, £         | Ratio        |
|-----------------------|------------------|------------------|------------------|--------------|
| Austria . . .         | 780,000          | 1,900,000        | 2,680,000        | 78.8         |
| Other countries . . . | 520,000          | 200,000          | 720,000          | 21.2         |
| <b>Total . . .</b>    | <b>1,300,000</b> | <b>2,100,000</b> | <b>3,400,000</b> | <b>100.0</b> |

## BULGARIA

The countries trading with Bulgaria in 1886 and 1896 showed thus :—

|                    | Imports, £       |                  | Exports, £       |                  |
|--------------------|------------------|------------------|------------------|------------------|
|                    | 1886             | 1896             | 1886             | 1896             |
| G. Britain . . .   | 740,000          | 720,000          | 200,000          | 1,300,000        |
| Austria . . .      | 680,000          | 900,000          | 100,000          | 100,000          |
| Turkey . . .       | 450,000          | 400,000          | 1,200,000        | 900,000          |
| Various . . .      | 730,000          | 1,080,000        | 500,000          | 2,000,000        |
| <b>Total . . .</b> | <b>2,600,000</b> | <b>3,100,000</b> | <b>2,000,000</b> | <b>4,300,000</b> |

Trade with Great Britain has more than doubled in ten years, while it has notably declined with Turkey.

The principal imports and exports in 1887 and 1896 were :—

|                    | Imports, £       |                  |
|--------------------|------------------|------------------|
|                    | 1887             | 1896             |
| Textiles . . .     | 800,000          | 800,000          |
| Hardware . . .     | 200,000          | 200,000          |
| Sundries . . .     | 1,600,000        | 2,100,000        |
| <b>Total . . .</b> | <b>2,600,000</b> | <b>3,100,000</b> |

|                    | Exports, £       |                  |
|--------------------|------------------|------------------|
|                    | 1887             | 1896             |
| Grain . . .        | 900,000          | 3,800,000        |
| Cattle . . .       | 200,000          | 150,000          |
| Sundries . . .     | 700,000          | 350,000          |
| <b>Total . . .</b> | <b>1,800,000</b> | <b>4,300,000</b> |

The trade of the principality has grown thus in ten years :—

| Year           | Imports, £ | Exports, £ | Total, £  |
|----------------|------------|------------|-----------|
| 1886 . . . . . | 2,600,000  | 2,000,000  | 4,600,000 |
| 1896 . . . . . | 3,100,000  | 4,300,000  | 7,400,000 |

## GREECE

Official returns for 1888 and 1896 compare as follows :—

| Year           | Imports, £ | Exports, £ | Total, £  |
|----------------|------------|------------|-----------|
| 1888 . . . . . | 4,400,000  | 3,800,000  | 8,200,000 |
| 1896 . . . . . | 4,700,000  | 2,900,000  | 7,600,000 |

The countries trading with Greece were :—

|                    | Imports, £       |                  | Exports, £       |                  |
|--------------------|------------------|------------------|------------------|------------------|
|                    | 1888             | 1896             | 1888             | 1896             |
| G. Britain . . .   | 1,200,000        | 1,200,000        | 1,600,000        | 700,000          |
| Russia . . .       | 1,000,000        | 1,000,000        | ...              | 300,000          |
| Turkey . . .       | 500,000          | 600,000          | 200,000          | 300,000          |
| Various . . .      | 1,700,000        | 1,900,000        | 1,600,000        | 1,600,000        |
| <b>Total . . .</b> | <b>4,400,000</b> | <b>4,700,000</b> | <b>3,800,000</b> | <b>2,900,000</b> |

The fall in the price of currants, from £27 a ton in 1888 to £15 in 1896, has injuriously affected Greek commerce.

The principal items of imports and exports of Greece were :—

|                  | Imports, £ |           |                  | Exports, £ |           |
|------------------|------------|-----------|------------------|------------|-----------|
|                  | 1888       | 1896      |                  | 1888       | 1896      |
| Grain . . . .    | 1,400,000  | 1,200,000 | Fruit . . . .    | 1,900,000  | 1,100,000 |
| Textiles . . . . | 800,000    | 900,000   | Oil . . . .      | 100,000    | 100,000   |
| Sundries . . . . | 2,200,000  | 2,600,000 | Sundries . . . . | 1,800,000  | 1,700,000 |
| Total . . . .    | 4,400,000  | 4,700,000 | Total . . . .    | 3,800,000  | 2,900,000 |

### TURKEY

The chief items of Turkish imports and exports were the following :—

|                  | Imports, £ |            |                  | Exports, £ |            |
|------------------|------------|------------|------------------|------------|------------|
|                  | 1889       | 1894       |                  | 1889       | 1894       |
| Coal . . . .     | 200,000    | 2,300,000  | Fruit . . . .    | 2,200,000  | 2,300,000  |
| Sugar . . . .    | 1,400,000  | 1,600,000  | Grain . . . .    | 2,000,000  | 1,500,000  |
| Linens . . . .   | 1,600,000  | 1,400,000  | Silk . . . .     | 1,400,000  | 1,500,000  |
| Quilts . . . .   | 1,100,000  | 1,200,000  | Mohair . . . .   | 600,000    | 600,000    |
| Coffee . . . .   | 700,000    | 800,000    | Opium . . . .    | 600,000    | 500,000    |
| Woollens . . . . | 700,000    | 700,000    | Oil . . . .      | 600,000    | 300,000    |
| Sundries . . . . | 13,200,000 | 13,700,000 | Sundries . . . . | 6,300,000  | 5,300,000  |
| Total . . . .    | 18,900,000 | 21,700,000 | Total . . . .    | 13,700,000 | 12,000,000 |

The returns for 1896 compare with 1882 as follows :—

| Year         | Imports, £ | Exports, £ | Total, £   |
|--------------|------------|------------|------------|
| 1882 . . . . | 17,500,000 | 10,200,000 | 27,700,000 |
| 1896 . . . . | 15,400,000 | 16,600,000 | 32,000,000 |

The countries trading with Turkey were as follow :—

|                  | Millions £ Sterling |            |       |              |            |       |
|------------------|---------------------|------------|-------|--------------|------------|-------|
|                  | 1889                |            |       | 1894         |            |       |
|                  | Imports from *      | Exports to | Total | Imports from | Exports to | Total |
| G. Britain . . . | 8.2                 | 5.2        | 13.4  | 8.2          | 5.1        | 13.3  |
| Austria . . . .  | 3.7                 | 1.2        | 4.9   | 4.7          | 1.2        | 5.9   |
| France . . . .   | 2.3                 | 3.9        | 6.2   | 2.5          | 3.2        | 5.7   |
| Russia . . . .   | 1.6                 | 0.3        | 1.9   | 1.3          | 0.3        | 1.6   |
| Bulgaria . . . . | 1.0                 | 0.3        | 1.3   | 1.1          | 0.3        | 1.4   |
| Various . . . .  | 2.1                 | 2.8        | 4.9   | 3.9          | 1.9        | 5.8   |
| Total . . . .    | 18.9                | 13.7       | 32.6  | 21.7         | 12.0       | 33.7  |

The only country that shows any remarkable increase in its dealings with Turkey is Austria.

### UNITED STATES

The trade of 1897 compares with that of thirty years preceding as follows :—

| Period        | Annual Average. £ Sterling |             |             | £ per Inhab. |
|---------------|----------------------------|-------------|-------------|--------------|
|               | Imports                    | Exports     | Total       |              |
| 1867-71 . . . | 88,400,000                 | 70,700,000  | 159,100,000 | 4.2          |
| 1872-81 . . . | 114,000,000                | 132,000,000 | 246,000,000 | 5.4          |
| 1882-91 . . . | 148,000,000                | 158,600,000 | 306,600,000 | 5.3          |
| 1892-96 . . . | 160,600,000                | 185,600,000 | 346,200,000 | 5.1          |
| 1897 . . . .  | 159,000,000                | 214,800,000 | 373,800,000 | 5.1          |

It appears that since 1872 trade has not kept pace with population. Textile goods form a great part of imports, and show as follows :—

|                 | Annual Average, £ Sterling |            |            |            |
|-----------------|----------------------------|------------|------------|------------|
|                 | 1867-76                    | 1877-86    | 1887-96    | 1897       |
| Cottons . . .   | 4,800,000                  | 5,800,000  | 5,900,000  | 7,200,000  |
| Woollens . . .  | 8,500,000                  | 7,100,000  | 8,900,000  | 10,200,000 |
| Silks . . . .   | 5,200,000                  | 6,300,000  | 6,900,000  | 5,200,000  |
| Linens, &c. . . | 3,700,000                  | 4,200,000  | 5,200,000  | 6,800,000  |
| Total . . . .   | 22,200,000                 | 23,400,000 | 26,900,000 | 29,400,000 |

The importation of fibre is best understood by comparing its weight with that of native fibre, since 1867, thus :—

| Period        | Tons of Fibre Yearly |         |             |
|---------------|----------------------|---------|-------------|
|               | Imported             | Native  | Consumption |
| 1867-71 . . . | 60,000               | 280,000 | 340,000     |
| 1872-81 . . . | 102,000              | 403,000 | 505,000     |
| 1882-91 . . . | 220,000              | 600,000 | 820,000     |
| 1892-96 . . . | 280,000              | 740,000 | 1,020,000   |
| 1897 . . . .  | 345,000              | 790,000 | 1,135,000   |

The value of imported fibres was as follows :—

|               | Annual Average £ Sterling |            |            |
|---------------|---------------------------|------------|------------|
|               | 1867-81                   | 1882-96    | 1897       |
| Wool . . . .  | 2,300,000                 | 3,400,000  | 11,000,000 |
| Silk . . . .  | 1,200,000                 | 4,200,000  | 4,000,000  |
| Flax, &c. . . | 1,000,000                 | 3,200,000  | 2,500,000  |
| Total . . . . | 4,500,000                 | 10,800,000 | 17,500,000 |

\* Note.—To be read thus: Imports from Great Britain, £8,200,000.

As regards exports the increase has been much greater than that of imports, viz. :—

|                | Annual Average, £ Sterling |             |             |             |
|----------------|----------------------------|-------------|-------------|-------------|
|                | 1867-76                    | 1877-86     | 1887-96     | 1897        |
| Food . . .     | 29,400,000                 | 64,600,000  | 63,400,000  | 84,100,000  |
| Cotton . . .   | 40,800,000                 | 42,200,000  | 47,200,000  | 48,000,000  |
| Sundries . . . | 19,400,000                 | 48,800,000  | 63,000,000  | 82,700,000  |
| Exports . . .  | 89,600,000                 | 155,600,000 | 173,600,000 | 214,800,000 |

The increase in weight of exports has been even greater than in value, taking for example four items, viz. :—

|                 | Tons Yearly |            |            |
|-----------------|-------------|------------|------------|
|                 | 1872-76     | 1892-96    | 1897       |
| Meat . . .      | 190,000     | 590,000    | 650,000    |
| Grain . . .     | 2,660,000   | 6,220,000  | 9,700,000  |
| Cotton . . .    | 560,000     | 1,210,000  | 1,410,000  |
| Petroleum . . . | 920,000     | 3,850,000  | 4,410,000  |
| Total . . .     | 4,320,000   | 11,870,000 | 16,170,000 |

The trade of the United States with the several quarters of the globe was as follows :—

|                 | Millions £ Sterling |            |       |              |            |       |
|-----------------|---------------------|------------|-------|--------------|------------|-------|
|                 | 1887                |            |       | 1897         |            |       |
|                 | Imports from        | Exports to | Total | Imports from | Exports to | Total |
| Europe . . .    | 81                  | 117        | 198   | 89           | 167        | 256   |
| Asia . . .      | 17                  | 5          | 22    | 23           | 9          | 32    |
| Australia . . . | 1                   | 2          | 3     | 1            | 4          | 5     |
| Africa . . .    | 1                   | 1          | 2     | 2            | 3          | 5     |
| America . . .   | 44                  | 22         | 66    | 44           | 32         | 76    |
| Total . . .     | 144                 | 147        | 291   | 159          | 215        | 374   |

Comparing the returns for 1897 with the average of 5 years to June 1894 we find the currents of trade, imports and exports together, as follows :—

| Trade with          | Millions £ Stg. |      | Ratio   |       |
|---------------------|-----------------|------|---------|-------|
|                     | 1890-94         | 1897 | 1890-94 | 1897  |
| Great Britain . . . | 128             | 134  | 36.2    | 35.8  |
| Germany . . .       | 37              | 49   | 10.4    | 13.1  |
| France . . .        | 27              | 26   | 7.6     | 7.0   |
| Cuba . . .          | 18              | 6    | 5.1     | 1.6   |
| Canada . . .        | 18              | 22   | 5.1     | 5.9   |
| Various . . .       | 126             | 137  | 35.6    | 36.6  |
| Total . . .         | 354             | 374  | 100.0   | 100.0 |

There is a marked increase of trade with Germany and Canada, while the ratios of other countries are declining. Since 1894 transactions with Germany have risen 33, with Canada 22, per cent. The trade of the United States with South America in the years 1892-96 as compared with 1882-86 showed an advance of 48 per cent., while British trade with that part of the world increased 20 per cent. in the same interval. In regard to the British West Indies, their trade with the United States rose 50 per cent. in 10 years, while their dealings with Great Britain fell off 15 per cent.

## CANADA

Trade since 1881 may be summed up thus, in yearly average :—

| Period        | Imports, £ | Exports, £ | Total, £   |
|---------------|------------|------------|------------|
| 1881-90 . . . | 23,100,000 | 20,100,000 | 43,200,000 |
| 1891-95 . . . | 24,200,000 | 23,800,000 | 48,000,000 |
| 1897 . . .    | 23,000,000 | 25,800,000 | 48,800,000 |

The importation of fibre has multiplied five-fold in twenty years, viz. :—

|              | Tons  |        |        |
|--------------|-------|--------|--------|
|              | 1876  | 1886   | 1896   |
| Cotton . . . | 3,000 | 16,000 | 20,000 |
| Hemp . . .   | 2,000 | 5,000  | 10,000 |
| Wool . . .   | 2,000 | 6,000  | 4,000  |
| Total . . .  | 7,000 | 27,000 | 34,000 |

The trade of Canada may be said to be equally shared between the United States and Great Britain, the dealings with other countries being very small.

The returns for 1896 show thus, in comparison with 1886 :—

|                  | Trade of 1896 |            |            | 1886       |
|------------------|---------------|------------|------------|------------|
|                  | Imp. from     | Exp. to    | Total, £   |            |
| G. Britain . . . | 6,900,000     | 13,800,000 | 20,700,000 | 16,900,000 |
| U. States . . .  | 12,200,000    | 7,600,000  | 19,800,000 | 16,700,000 |
| Various . . .    | 2,800,000     | 3,800,000  | 6,600,000  | 4,600,000  |
| Total . . .      | 21,900,000    | 25,200,000 | 47,100,000 | 38,200,000 |

In ten years the trade with the United States has risen 18, with Great Britain 22, per cent.

The imports and exports of 1896 compare with 1886 as to value thus :—

|                | Imports, £ |            |
|----------------|------------|------------|
|                | 1886       | 1896       |
| Textiles . . . | 3,800,000  | 3,500,000  |
| Hardware . . . | 2,600,000  | 2,900,000  |
| Coal . . .     | 1,400,000  | 1,900,000  |
| Sugar . . .    | 900,000    | 1,200,000  |
| Tea . . .      | 900,000    | 700,000    |
| Sundries . . . | 11,100,000 | 11,700,000 |
| Total . . .    | 20,700,000 | 21,900,000 |

|                 | Exports, £ |            |
|-----------------|------------|------------|
|                 | 1886       | 1896       |
| Timber . . .    | 3,900,000  | 5,100,000  |
| Cheese, &c. . . | 2,100,000  | 3,300,000  |
| Meat . . .      | 1,600,000  | 3,000,000  |
| Fish . . .      | 1,000,000  | 2,100,000  |
| Grain . . .     | 3,800,000  | 2,000,000  |
| Sundries . . .  | 5,100,000  | 9,700,000  |
| Total . . .     | 17,500,000 | 25,200,000 |

## MEXICO

Imports are not classified. The trade returns of 1897 compare with previous dates thus:—

| Year       | Imports, £ | Exports, £ | Total, £   |
|------------|------------|------------|------------|
| 1880 . . . | 5,000,000  | 6,800,000  | 11,800,000 |
| 1889 . . . | 8,100,000  | 8,300,000  | 16,400,000 |
| 1897 . . . | 8,400,000  | 11,100,000 | 19,500,000 |

Exports were as follows:—

| Year       | Silver, £  | Sundries, £ | Total, £   |
|------------|------------|-------------|------------|
| 1889 . . . | 5,800,000  | 6,700,000   | 12,500,000 |
| 1897 . . . | 11,400,000 | 10,800,000  | 22,200,000 |

Import and export trade in 1897 stood thus:—

|                   | Imp. from | Exp. to    | Total, £   | Ratio |
|-------------------|-----------|------------|------------|-------|
| United States . . | 4,500,000 | 8,700,000  | 13,200,000 | 67.6  |
| Great Britain . . | 1,400,000 | 1,400,000  | 2,800,000  | 14.4  |
| Various . . .     | 2,500,000 | 1,000,000  | 3,500,000  | 18.0  |
| Total . . .       | 8,400,000 | 11,100,000 | 19,500,000 | 100.0 |

## CENTRAL AMERICA

This term embraces five small republics, Guatemala, Salvador, Nicaragua, Costa Rica, and Honduras, the trade in 1896 showing thus:—

|                  | Imports, £ | Exports, £ | Total, £   |
|------------------|------------|------------|------------|
| Guatemala . . .  | 2,200,000  | 1,900,000  | 4,100,000  |
| Salvador . . .   | 1,900,000  | 1,700,000  | 3,600,000  |
| Nicaragua, &c. . | 2,500,000  | 2,800,000  | 5,300,000  |
| Total . . .      | 6,600,000  | 6,400,000  | 13,000,000 |

These states export 70,000 tons of coffee, valued at £4,700,000, besides a large quantity of bananas. Their trade with other nations stands thus:—

|                   | Imp. from | Exp. to   | Total, £   | Ratio |
|-------------------|-----------|-----------|------------|-------|
| United States . . | 1,400,000 | 2,200,000 | 3,600,000  | 27.7  |
| Great Britain . . | 1,500,000 | 800,000   | 2,300,000  | 17.7  |
| Various . . .     | 3,700,000 | 3,400,000 | 7,100,000  | 54.6  |
| Total . . .       | 6,600,000 | 6,400,000 | 13,000,000 | 100.0 |

## ARGENTINA

The imports and exports of the Argentine Republic in 1890 and 1896 compared thus:—

|                 | Imports, £ |            |                | Exports, £ |            |
|-----------------|------------|------------|----------------|------------|------------|
|                 | 1890       | 1896       |                | 1890       | 1896       |
| Textiles . . .  | 5,600,000  | 7,700,000  | Wool . . .     | 7,100,000  | 6,700,000  |
| Hardware . . .  | 9,400,000  | 3,500,000  | Grain . . .    | 4,800,000  | 6,200,000  |
| Comestibles . . | 2,500,000  | 2,800,000  | Hides . . .    | 4,100,000  | 2,100,000  |
| Wine . . .      | 2,000,000  | 1,700,000  | Meat . . .     | 2,200,000  | 2,000,000  |
| Coal . . .      | 1,100,000  | 1,200,000  | Linseed . . .  | 200,000    | 1,400,000  |
| Sundries . . .  | 7,800,000  | 5,500,000  | Sundries . . . | 1,800,000  | 4,900,000  |
| Total . . .     | 28,400,000 | 22,400,000 | Total . . .    | 20,200,000 | 23,300,000 |

\* To be read thus: Colombia, £2,800,000.

## SOUTH AMERICA

The commerce of these ten republics showed as follows:—

|                 | Millions £ Sterling |            |       |              |            |       |
|-----------------|---------------------|------------|-------|--------------|------------|-------|
|                 | 1886                |            |       | 1896         |            |       |
|                 | Imports from*       | Exports to | Total | Imports from | Exports to | Total |
| Colombia . . .  | 2.8                 | 1.6        | 4.4   | 2.0          | 3.0        | 5.0   |
| Venezuela . . . | 2.5                 | 3.3        | 5.8   | 3.3          | 4.4        | 7.7   |
| Ecuador . . .   | 2.2                 | 2.0        | 4.2   | 1.2          | 1.7        | 2.9   |
| Peru . . .      | 1.8                 | 1.3        | 3.1   | 1.7          | 2.5        | 4.2   |
| Chile . . .     | 6.6                 | 7.5        | 14.1  | 11.7         | 11.7       | 23.4  |
| Bolivia . . .   | 0.9                 | 1.5        | 2.4   | 0.6          | 1.3        | 1.9   |
| Paraguay . . .  | 0.3                 | 0.2        | 0.5   | 0.5          | 0.5        | 1.0   |
| Argentina . . . | 19.1                | 14.0       | 33.1  | 22.4         | 23.0       | 45.4  |
| Uruguay . . .   | 4.2                 | 5.0        | 9.2   | 5.5          | 6.5        | 12.0  |
| Brazil . . .    | 13.7                | 15.3       | 29.0  | 16.0         | 19.0       | 35.0  |
| Total . . .     | 54.1                | 51.7       | 105.8 | 64.9         | 73.6       | 138.5 |

Venezuela exports yearly 1 ton of gold in bars, value £140,000, besides 70,000 tons of coffee, worth £3,500,000. Colombia also exports 20,000 tons of coffee. The trade of Peru, Bolivia, and Paraguay is insignificant.

## CHILE

Imports are of a mixed character, and not precisely classified. Exports in 1890 and 1895 were as follows:—

|                | Value, £  |            | Tons      |
|----------------|-----------|------------|-----------|
|                | 1890      | 1895       | 1895      |
| Nitre . . .    | 4,500,000 | 7,200,000  | 1,200,000 |
| Minerals . . . | 1,800,000 | 2,100,000  | 250,000   |
| Grain . . .    | 200,000   | 300,000    | 80,000    |
| Sundries . . . | 2,000,000 | 1,400,000  | —         |
| Total . . .    | 8,500,000 | 11,000,000 | —         |

The countries trading with Chile in 1890 and 1895 were:—

|                   | Millions £ |      | Ratio |       |
|-------------------|------------|------|-------|-------|
|                   | 1890       | 1895 | 1890  | 1895  |
| Great Britain . . | 9.1        | 12.8 | 53.5  | 58.2  |
| Germany . . .     | 2.6        | 3.8  | 15.3  | 17.3  |
| Various . . .     | 5.3        | 5.4  | 31.2  | 24.5  |
| Total . . .       | 17.0       | 22.0 | 100.0 | 100.0 |

The countries trading with Argentina were :—

|                        | Millions £ Sterling |             |             |              |             |             |
|------------------------|---------------------|-------------|-------------|--------------|-------------|-------------|
|                        | 1886                |             |             | 1896         |             |             |
|                        | Imports from        | Exports to  | Total       | Imports from | Exports to  | Total       |
| Great Britain . . .    | 6.7                 | 2.0         | 8.7         | 8.9          | 2.9         | 11.8        |
| France . . . . .       | 3.4                 | 4.5         | 7.9         | 2.4          | 4.7         | 7.1         |
| Germany . . . . .      | 1.6                 | 1.4         | 3.0         | 2.8          | 2.7         | 5.5         |
| Belgium . . . . .      | 1.5                 | 2.2         | 3.7         | 1.7          | 2.4         | 4.1         |
| Italy . . . . .        | 0.9                 | 0.5         | 1.4         | 2.3          | 0.8         | 3.1         |
| Various . . . . .      | 5.0                 | 3.4         | 8.4         | 4.3          | 9.5         | 13.8        |
| <b>Total . . . . .</b> | <b>19.1</b>         | <b>14.0</b> | <b>33.1</b> | <b>22.4</b>  | <b>23.0</b> | <b>45.4</b> |

The ratios of trade corresponding to the various countries show thus :—

| Trade with             | Millions £  |             | Ratio        |              |
|------------------------|-------------|-------------|--------------|--------------|
|                        | 1886        | 1896        | 1886         | 1896         |
| Great Britain . . .    | 8.7         | 11.8        | 26.3         | 26.0         |
| France . . . . .       | 7.9         | 7.1         | 23.9         | 15.7         |
| Germany . . . . .      | 3.0         | 5.5         | 9.1          | 12.1         |
| Belgium . . . . .      | 3.7         | 4.1         | 11.2         | 9.0          |
| Italy . . . . .        | 1.4         | 3.1         | 4.2          | 6.8          |
| Various . . . . .      | 8.4         | 13.8        | 25.3         | 30.4         |
| <b>Total . . . . .</b> | <b>33.1</b> | <b>45.4</b> | <b>100.0</b> | <b>100.0</b> |

France and Belgium have lost ground, while Germany and Italy have gained exceedingly, and Great Britain holds the same ratio as ten years ago.

Trade returns of the republic of Uruguay for 1890 and 1896 compare as follows :—

|                        | Imports, £       |                  |                        | Exports, £       |                  |
|------------------------|------------------|------------------|------------------------|------------------|------------------|
|                        | 1890             | 1896             |                        | 1890             | 1896             |
| Comestibles . . . .    | 2,400,000        | 1,500,000        | Wool . . . . .         | 1,700,000        | 2,200,000        |
| Hardware . . . . .     | 1,800,000        | 1,400,000        | Meat . . . . .         | 1,300,000        | 1,700,000        |
| Textiles . . . . .     | 1,200,000        | 1,300,000        | Hides . . . . .        | 2,000,000        | 1,500,000        |
| Sundries . . . . .     | 1,600,000        | 1,300,000        | Sundries . . . . .     | 1,200,000        | 1,100,000        |
| <b>Total . . . . .</b> | <b>7,000,000</b> | <b>5,500,000</b> | <b>Total . . . . .</b> | <b>6,200,000</b> | <b>6,500,000</b> |

#### BRAZIL

Imports are not properly classified. Exports in 1884 and 1896 were :—

|                        | Value, £ Sterling |                   |
|------------------------|-------------------|-------------------|
|                        | 1884              | 1896              |
| Coffee . . . . .       | 6,500,000         | 12,200,000        |
| Sugar . . . . .        | 2,000,000         | 1,900,000         |
| Rubber . . . . .       | 800,000           | 2,400,000         |
| Cotton . . . . .       | 500,000           | 200,000           |
| Sundries . . . . .     | 2,800,000         | 2,400,000         |
| <b>Total . . . . .</b> | <b>12,600,000</b> | <b>19,100,000</b> |

The countries trading with Brazil in 1890 were :—

|                        | Imp. from         | Exp. to           | Total, £          | Ratio        |
|------------------------|-------------------|-------------------|-------------------|--------------|
| United States . . .    | 1,700,000         | 8,300,000         | 10,000,000        | 33.0         |
| Great Britain . . .    | 5,800,000         | 2,900,000         | 8,700,000         | 28.5         |
| France . . . . .       | 2,600,000         | 1,000,000         | 3,600,000         | 11.8         |
| Germany . . . . .      | 2,000,000         | 1,500,000         | 3,500,000         | 11.6         |
| Various . . . . .      | 2,300,000         | 2,300,000         | 4,600,000         | 15.1         |
| <b>Total . . . . .</b> | <b>14,400,000</b> | <b>16,000,000</b> | <b>30,400,000</b> | <b>100.0</b> |

The weight of the principal exports in the last three years was :—

|                        | Tons Exported    |                  |                |                  |
|------------------------|------------------|------------------|----------------|------------------|
|                        | 1895             | 1896             | 1897           | Average          |
| Maize . . . . .        | 770,000          | 1,570,000        | 360,000        | 900,000          |
| Wheat . . . . .        | 1,080,000        | 600,000          | 160,000        | 610,000          |
| Linseed . . . . .      | 220,000          | 240,000          | 160,000        | 210,000          |
| Wool . . . . .         | 201,000          | 188,000          | 203,000        | 197,000          |
| Sheepskins . . . .     | 34,000           | 37,000           | 35,000         | 35,000           |
| Hides . . . . .        | 48,000           | 52,000           | 56,000         | 52,000           |
| <b>Total . . . . .</b> | <b>2,353,000</b> | <b>2,687,000</b> | <b>977,000</b> | <b>2,004,000</b> |

#### URUGUAY

The total trade, imports and exports, with the various nations in 1886 and 1896 was as follows :—

|                        | £ Sterling       |                   | Ratio        |              |
|------------------------|------------------|-------------------|--------------|--------------|
|                        | 1886             | 1896              | 1886         | 1896         |
| G. Britain . . . . .   | 2,300,000        | 2,000,000         | 25.0         | 16.7         |
| Brazil . . . . .       | 1,300,000        | 1,600,000         | 14.1         | 15.8         |
| Argentina . . . . .    | 400,000          | 1,800,000         | 4.4          | 15.0         |
| France . . . . .       | 1,300,000        | 1,600,000         | 14.1         | 13.3         |
| Germany . . . . .      | 500,000          | 1,100,000         | 5.4          | 9.2          |
| Various . . . . .      | 3,400,000        | 3,600,000         | 37.0         | 30.0         |
| <b>Total . . . . .</b> | <b>9,200,000</b> | <b>12,000,000</b> | <b>100.0</b> | <b>100.0</b> |

There has been a great increase of trade with Germany, Brazil, and Argentina, while Great Britain has lost ground.

#### EGYPT

Trade returns show an increase of 27 per cent. in ten years, viz. :—

| Year           | Imports, £ | Exports, £ | Total, £   |
|----------------|------------|------------|------------|
| 1886 . . . . . | 8,100,000  | 10,400,000 | 18,500,000 |
| 1896 . . . . . | 10,100,000 | 13,500,000 | 23,600,000 |

Imports were as follows :—

| Year           | Textiles, £ | Sundries, £ | Total, £   |
|----------------|-------------|-------------|------------|
| 1886 . . . . . | 1,300,000   | 6,800,000   | 8,100,000  |
| 1896 . . . . . | 2,700,000   | 7,400,000   | 10,100,000 |

Exports showed as follows :—

| Year           | Cotton, £  | Sundries, £ | Total, £   |
|----------------|------------|-------------|------------|
| 1886 . . . . . | 7,100,000  | 3,300,000   | 10,400,000 |
| 1896 . . . . . | 10,200,000 | 3,300,000   | 13,500,000 |

The nations trading with Egypt were :—

|              | Imports, £ |            | Exports, £ |            |
|--------------|------------|------------|------------|------------|
|              | 1886       | 1896       | 1886       | 1896       |
| G. Britain . | 3,200,000  | 3,200,000  | 6,600,000  | 7,200,000  |
| France .     | 900,000    | 1,400,000  | 900,000    | 1,300,000  |
| Turkey .     | 1,300,000  | 2,100,000  | 400,000    | 400,000    |
| Various .    | 2,700,000  | 3,400,000  | 2,500,000  | 4,600,000  |
| Total .      | 8,100,000  | 10,100,000 | 10,400,000 | 13,500,000 |

The ratios of trade for the principal countries were :—

|                 | Millions £ |      | Ratio |       |
|-----------------|------------|------|-------|-------|
|                 | 1886       | 1896 | 1886  | 1896  |
| Great Britain . | 9.8        | 10.4 | 53.0  | 44.0  |
| France .        | 1.8        | 2.7  | 9.7   | 11.5  |
| Turkey .        | 1.7        | 2.5  | 9.2   | 10.6  |
| Various .       | 5.2        | 8.0  | 28.1  | 33.9  |
| Total .         | 18.5       | 23.6 | 100.0 | 100.0 |

There is a relative decline in trade with Great Britain, and an increase with France and Turkey.

#### INDIA

The trade of India, excluding precious metals, shows thus :—

| Year       | Imports, £ | Exports, £ | Total, £    |
|------------|------------|------------|-------------|
| 1877 . . . | 33,700,000 | 55,000,000 | 88,700,000  |
| 1887 . . . | 48,800,000 | 68,000,000 | 116,800,000 |
| 1897 . . . | 47,500,000 | 65,000,000 | 112,500,000 |

|                 | Imports, £ |            |
|-----------------|------------|------------|
|                 | 1887       | 1897       |
| Textiles . . .  | 2,200,000  | 20,100,000 |
| Hardware . . .  | 6,100,000  | 8,200,000  |
| Sugar . . .     | 1,600,000  | 2,100,000  |
| Petroleum . . . | 900,000    | 2,100,000  |
| Silk . . .      | 600,000    | 1,400,000  |
| Sundries . . .  | 17,400,000 | 13,600,000 |
| Total . . .     | 48,800,000 | 47,500,000 |

The various countries trading with India were :—

|              | Imports, £ |            | Exports, £ |            |
|--------------|------------|------------|------------|------------|
|              | 1887       | 1897       | 1887       | 1897       |
| G. Britain . | 41,900,000 | 31,500,000 | 26,300,000 | 19,800,000 |
| China .      | 600,000    | 1,400,000  | 2,000,000  | 8,500,000  |
| Germany .    | 100,000    | 1,500,000  | 600,000    | 4,800,000  |
| U. States .  | 1,400,000  | 1,000,000  | 2,500,000  | 3,000,000  |
| Various .    | 4,800,000  | 12,100,000 | 36,600,000 | 28,900,000 |
| Total .      | 48,800,000 | 47,500,000 | 68,000,000 | 65,000,000 |

The ratios of trade for the above countries are shown thus :—

|                 | Millions £ Stg. |      | Ratio |       |
|-----------------|-----------------|------|-------|-------|
|                 | 1887            | 1897 | 1887  | 1897  |
| Great Britain . | 68              | 51   | 58.2  | 45.5  |
| China .         | 3               | 10   | 2.5   | 8.9   |
| Germany .       | 1               | 6    | 0.8   | 5.4   |
| United States . | 4               | 4    | 3.4   | 3.6   |
| Various .       | 41              | 41   | 35.1  | 36.6  |
| Total .         | 117             | 112  | 100.0 | 100.0 |

Trade with Great Britain has declined remarkably, while there has been a prodigious increase in dealings with China and Germany.

The value of both imports and exports has declined in the last ten years, although the Board of Trade Report shows an enormous increase, by fictitiously valuing the rupee at 24, instead of 15, pence. The following table shows the imports and exports for 1887 and 1897 at their real value :—

|                | Exports, £ |            |
|----------------|------------|------------|
|                | 1887       | 1897       |
| Jute . . .     | 4,500,000  | 9,900,000  |
| Cotton . . .   | 10,200,000 | 8,100,000  |
| Rice . . .     | 6,600,000  | 7,500,000  |
| Opium . . .    | 8,400,000  | 5,000,000  |
| Tea . . .      | 3,600,000  | 5,000,000  |
| Sundries . . . | 34,700,000 | 29,500,000 |
| Total . . .    | 68,000,000 | 65,000,000 |

#### CHINA

The principal items of Chinese trade are shown thus :—

|                    | Imports, £ |            |                | Exports, £ |            |
|--------------------|------------|------------|----------------|------------|------------|
|                    | 1886       | 1896       |                | 1886       | 1896       |
| Cotton goods . . . | 7,300,000  | 13,200,000 | Silk . . .     | 7,200,000  | 7,000,000  |
| Opium . . .        | 6,200,000  | 4,800,000  | Tea . . .      | 8,400,000  | 5,000,000  |
| Sundries . . .     | 8,600,000  | 15,700,000 | Sundries . . . | 3,700,000  | 9,800,000  |
| Total . . .        | 22,100,000 | 33,700,000 | Total . . .    | 19,300,000 | 21,800,000 |

Official returns show as follows :—

| Year       | Imports, £ | Exports, £ | Total, £   |
|------------|------------|------------|------------|
| 1876 . . . | 21,600,000 | 24,100,000 | 45,700,000 |
| 1886 . . . | 22,100,000 | 19,300,000 | 41,400,000 |
| 1896 . . . | 33,700,000 | 21,800,000 | 55,500,000 |

There has been no decline of trade with Great Britain, as most of the Hong-Kong trade is British : both together form 60 per cent. of the total, the same as ten years ago.

Adding together imports and exports, the countries trading with China show thus :—

| Trade with          | Millions £ |      | Ratio |       |
|---------------------|------------|------|-------|-------|
|                     | 1886       | 1896 | 1886  | 1896  |
| Hong-Kong . . .     | 14.5       | 24.1 | 35.3  | 43.4  |
| Great Britain . . . | 10.5       | 9.3  | 25.2  | 16.8  |
| Japan . . .         | 1.8        | 4.8  | 4.3   | 8.6   |
| India . . .         | 4.3        | 4.2  | 10.4  | 7.6   |
| United States . . . | 3.5        | 3.8  | 8.4   | 6.8   |
| Various . . .       | 6.8        | 9.3  | 16.4  | 16.8  |
| Total . . .         | 41.4       | 55.5 | 100.0 | 100.0 |



## JAPAN

The principal items of trade of the Japanese empire were :—

|                   | Imports, £ |            |                  | Exports, £ |            |
|-------------------|------------|------------|------------------|------------|------------|
|                   | 1886       | 1896       |                  | 1886       | 1896       |
| Textiles . . . .  | 2,000,000  | 4,100,000  | Silk . . . . .   | 3,300,000  | 3,500,000  |
| Cotton, raw . . . | 100,000    | 3,600,000  | Silk goods . . . | 100,000    | 1,400,000  |
| Sugar . . . . .   | 900,000    | 1,500,000  | Fancy goods . .  | 500,000    | 1,100,000  |
| Hardware . . . .  | 500,000    | 1,300,000  | Coal . . . . .   | 400,000    | 1,000,000  |
| Sundries . . . .  | 2,600,000  | 8,400,000  | Sundries . . . . | 3,600,000  | 6,000,000  |
| Total . . . . .   | 6,100,000  | 18,900,000 | Total . . . . .  | 7,900,000  | 13,000,000 |

Trade has doubled in ten years, viz. :—

|                  | Imports, £ | Exports, £ | Total, £   |
|------------------|------------|------------|------------|
| 1886 . . . . .   | 6,100,000  | 7,900,000  | 14,000,000 |
| 1896 . . . . .   | 18,900,000 | 13,000,000 | 31,900,000 |
| Increase . . . . | 12,800,000 | 5,100,000  | 17,900,000 |

The total trade between Japan and various countries stands thus :—

|                   | £ Sterling |            | Ratio |       |
|-------------------|------------|------------|-------|-------|
|                   | 1886       | 1896       | 1886  | 1896  |
| Great Britain . . | 3,500,000  | 7,500,000  | 25.0  | 23.4  |
| United States . . | 4,000,000  | 5,300,000  | 28.6  | 16.6  |
| China . . . . .   | 1,700,000  | 3,900,000  | 12.1  | 12.2  |
| Hong-Kong . . .   | 1,100,000  | 3,200,000  | 7.8   | 10.0  |
| France . . . . .  | 1,900,000  | 3,000,000  | 13.6  | 9.4   |
| India . . . . .   | 600,000    | 2,900,000  | 4.3   | 9.1   |
| Germany . . . .   | 600,000    | 2,200,000  | 4.3   | 7.1   |
| Various . . . . . | 600,000    | 3,900,000  | 4.3   | 12.2  |
| Total . . . . .   | 14,000,000 | 31,900,000 | 100.0 | 100.0 |

Great Britain and Hong-Kong taken together represent one-third of the whole trade of Japan, the same as ten years ago.

## AUSTRALIA

The nominal amount of trade has been as follows :—

| Year           | Imports, £ | Exports, £ | Total, £    | £ per Inhab. |
|----------------|------------|------------|-------------|--------------|
| 1871 . . . . . | 31,100,000 | 38,400,000 | 69,500,000  | 35.9         |
| 1881 . . . . . | 53,000,000 | 48,700,000 | 101,700,000 | 36.6         |
| 1891 . . . . . | 72,100,000 | 72,700,000 | 144,800,000 | 37.7         |
| 1896 . . . . . | 62,600,000 | 66,600,000 | 129,200,000 | 30.2         |

The above, however, includes local trade, such as between Sydney and Melbourne, and if this were excluded the real transmarine trade of Australia would stand thus :—

| Year           | Imports, £ | Exports, £ | Total, £   | £ per Inhab. |
|----------------|------------|------------|------------|--------------|
| 1871 . . . . . | 16,800,000 | 23,300,000 | 40,100,000 | 20.6         |
| 1881 . . . . . | 33,800,000 | 31,100,000 | 64,900,000 | 23.2         |
| 1891 . . . . . | 41,400,000 | 43,300,000 | 84,700,000 | 21.7         |
| 1896 . . . . . | 34,200,000 | 40,100,000 | 74,300,000 | 17.5         |

The following table shows the ultramarine and inter-colonial trade for 1896 thus :—

|                   | Number (000 omitted) |            |          |                   |          |
|-------------------|----------------------|------------|----------|-------------------|----------|
|                   | Ultramarine          |            |          | Inter-colonial, £ | Total, £ |
|                   | Imports, £           | Exports, £ | Total, £ |                   |          |
| N. S. Wales . . . | 11,000               | 14,600     | 25,600   | 18,000            | 43,600   |
| Victoria . . . .  | 8,300                | 8,800      | 17,100   | 11,700            | 28,800   |
| N. Zealand . . .  | 6,000                | 8,100      | 14,100   | 2,400             | 16,500   |
| Queensland . . .  | 2,800                | 3,700      | 6,500    | 8,100             | 14,600   |
| S. Australia . .  | 3,300                | 4,000      | 7,300    | 7,500             | 14,800   |
| Tasmania . . . .  | 400                  | 200        | 600      | 2,100             | 2,700    |
| W. Australia . .  | 2,400                | 700        | 3,100    | 5,100             | 8,200    |
| Total . . . . .   | 34,200               | 40,100     | 74,300   | 54,900            | 129,200  |

The total foreign trade of 20 years ending December 1893 summed up 1336 millions sterling, the several colonies holding the following order :—

|                   | Millions £ Sterling |         |       | Ratio |
|-------------------|---------------------|---------|-------|-------|
|                   | Imports             | Exports | Total |       |
| Victoria . . . .  | 233                 | 201     | 434   | 32.5  |
| N. S. Wales . . . | 220                 | 191     | 411   | 30.8  |
| New Zealand . .   | 112                 | 116     | 228   | 17.1  |
| S. Australia . .  | 67                  | 76      | 143   | 10.7  |
| Queensland . . .  | 46                  | 40      | 86    | 6.4   |
| Tasmania . . . .  | 11                  | 8       | 19    | 1.4   |
| W. Australia . .  | 7                   | 8       | 15    | 1.1   |
| Total . . . . .   | 696                 | 640     | 1,336 | 100.0 |

The total trade, imports and exports, between Australia and other countries was as follows :—

| With                | £ Sterling Yearly |            | Ratio   |         |
|---------------------|-------------------|------------|---------|---------|
|                     | 1881-85           | 1891-95    | 1881-85 | 1891-95 |
| Great Britain . .   | 56,800,000        | 54,800,000 | 79.4    | 77.1    |
| British Colonies .  | 6,200,000         | 3,500,000  | 8.7     | 4.9     |
| Other countries . . | 8,500,000         | 12,900,000 | 11.9    | 18.0    |
| Total . . . . .     | 71,500,000        | 71,200,000 | 100.0   | 100.0   |

The trade with foreign countries increases rapidly, while that with British colonies declines.

Imports cannot be classified, as they are mixed up with local or intercolonial trade. The principal exports are wool and gold, which averaged yearly as follows:—

| Year        | Wool,<br>Million<br>Lbs. | Value, £   | Gold,<br>Tons | £         |
|-------------|--------------------------|------------|---------------|-----------|
| 1871-80 . . | 282                      | 14,900,000 | 52            | 7,300,000 |
| 1881-90 . . | 422                      | 17,900,000 | 43            | 6,100,000 |
| 1891-95 . . | 658                      | 22,600,000 | 56            | 7,800,000 |
| 1896 . . .  | 678                      | 20,600,000 | 63            | 8,800,000 |

## SOUTH AFRICA

The aggregate trade, imports and exports, showed:—

| With                | £ Sterling |            | Ratio |       |
|---------------------|------------|------------|-------|-------|
|                     | 1885       | 1896       | 1885  | 1896  |
| Great Britain . .   | 11,500,000 | 18,200,000 | 91.0  | 82.7  |
| Other countries . . | 1,100,000  | 3,700,000  | 9.0   | 17.3  |
| Total . . .         | 12,600,000 | 21,900,000 | 100.0 | 100.0 |

Trade between South Africa and the United States has quadrupled in 10 years.

The nominal trade returns of Cape Colony and Natal show thus:—

|                   | Cape, £    | Natal, £  | Total, £   |
|-------------------|------------|-----------|------------|
| Imports, 1876 . . | 5,500,000  | 1,000,000 | 6,500,000  |
| " 1886 . . .      | 3,800,000  | 1,300,000 | 5,100,000  |
| " 1896 . . .      | 16,900,000 | 5,400,000 | 22,300,000 |
| Exports, 1876 . . | 3,500,000  | 700,000   | 4,200,000  |
| " 1886 . . .      | 3,600,000  | 800,000   | 4,400,000  |
| " 1896 . . .      | 16,700,000 | 1,800,000 | 18,500,000 |

Thus it would appear that the aggregate imports and exports of 1896 were 41 millions sterling, against 9½ in 1886. This is, however, a deception, which arises from the transit trade of the Transvaal or South African Republic being included. The real trade in 1895 was as follows:—

|                 | Imports, £ | Exports, £ | Total, £   |
|-----------------|------------|------------|------------|
| Cape . . . . .  | 8,300,000  | 8,900,000  | 17,200,000 |
| Natal . . . . . | 3,600,000  | 1,100,000  | 4,700,000  |
| Total . . . . . | 11,900,000 | 10,000,000 | 21,900,000 |

Considering both these colonies as one, the principal items of South African trade may be summed up thus:—

|                    | Imports, £ |            |                    | Exports, £ |            |
|--------------------|------------|------------|--------------------|------------|------------|
|                    | 1885       | 1896       |                    | 1885       | 1896       |
| Textiles . . . . . | 1,800,000  | 3,600,000  | Diamonds . . . . . | 2,500,000  | 4,800,000  |
| Hardware . . . . . | 500,000    | 2,800,000  | Wool . . . . .     | 1,900,000  | 2,900,000  |
| Sundries . . . . . | 3,900,000  | 5,500,000  | Sundries . . . . . | 2,000,000  | 2,300,000  |
| Total . . . . .    | 6,200,000  | 11,900,000 | Total . . . . .    | 6,400,000  | 10,000,000 |

## ALGERIA

Returns for 1896 compare with those of 1883 thus:—

| Year           | Imports, £ | Exports, £ | Total £    |
|----------------|------------|------------|------------|
| 1883 . . . . . | 9,400,000  | 6,400,000  | 15,800,000 |
| 1896 . . . . . | 10,800,000 | 9,200,000  | 20,000,000 |

The trade of 1895 was as follows:—

| Imports, £         |            | Exports, £         |            |
|--------------------|------------|--------------------|------------|
| Textiles . . . . . | 2,500,000  | Wine . . . . .     | 3,500,000  |
| Hardware . . . . . | 700,000    | Grain . . . . .    | 2,200,000  |
| Coffee . . . . .   | 400,000    | Meat . . . . .     | 2,100,000  |
| Sundries . . . . . | 6,600,000  | Sundries . . . . . | 3,600,000  |
| Total . . . . .    | 10,200,000 | Total . . . . .    | 11,400,000 |

The countries trading with Algeria in 1896 were:—

|                     | Imports<br>from | Exports<br>to | Total,<br>£ | Ratio |
|---------------------|-----------------|---------------|-------------|-------|
| France . . . . .    | 8,700,000       | 7,800,000     | 16,500,000  | 82.5  |
| Great Britain . . . | 200,000         | 500,000       | 700,000     | 3.5   |
| Various . . . . .   | 1,900,000       | 900,000       | 2,800,000   | 14.0  |
| Total . . . . .     | 10,800,000      | 9,200,000     | 20,000,000  | 100.0 |

## BRITISH WEST INDIES

This group of minor colonies includes British Guiana, Jamaica, Trinidad, Barbadoes and several small islands. The average trade of 5 years ending December 1895 compares with that of the period ending 1885 thus:—

|                   | £ Sterling yearly |           |            |
|-------------------|-------------------|-----------|------------|
|                   | Imports           | Exports   | Total      |
| 1881-85 . . . . . | 6,700,000         | 7,400,000 | 14,100,000 |
| 1891-95 . . . . . | 6,900,000         | 6,900,000 | 13,800,000 |

A valuable trade has sprung up to supply American cities with tropical fruit, Jamaica alone exporting bananas and oranges worth £500,000 yearly to the United States. The countries trading with this group of colonies show thus:—

| Trade with          | £ Sterling |            | Ratio |       |
|---------------------|------------|------------|-------|-------|
|                     | 1886       | 1896       | 1886  | 1896  |
| Great Britain . . . | 5,800,000  | 6,700,000  | 43.6  | 41.9  |
| United States . . . | 4,400,000  | 5,800,000  | 33.1  | 36.2  |
| Various . . . . .   | 3,100,000  | 3,500,000  | 23.3  | 21.9  |
| Total . . . . .     | 13,300,000 | 16,000,000 | 100.0 | 100.0 |

The tendency is towards an increase of trade with the United States, and a decline in dealings with Great

Britain and the rest of the world. For the trade of other islands see *Colonies*.

The principal export is sugar, viz. :—

|                | Annual Average, £ |           |
|----------------|-------------------|-----------|
|                | 1881-85           | 1891-95   |
| Sugar . . .    | 4,730,000         | 3,430,000 |
| Sundries . . . | 2,670,000         | 3,470,000 |
| Total . . .    | 7,400,000         | 6,900,000 |

The decline as regards sugar is mainly owing to the fall in price, the average in the second term having been £13 per ton, against £16½ in the first. Shipments of sugar have been as follows :—

|                     | Tons    |         |         |
|---------------------|---------|---------|---------|
|                     | 1885    | 1890    | 1895    |
| Guiana . . .        | 96,000  | 105,000 | 101,000 |
| Trinidad . . .      | 64,000  | 51,000  | 55,000  |
| Barbadoes . . .     | 57,000  | 74,000  | 33,000  |
| Jamaica . . .       | 25,000  | 19,000  | 19,000  |
| Small islands . . . | 48,000  | 49,000  | 29,000  |
| Total . . .         | 290,000 | 298,000 | 237,000 |

### CONSOLS

Quotations since 1880 have been as follows :—

| Year          | Highest | Lowest | Average |
|---------------|---------|--------|---------|
| 1881-85 . . . | 102.4   | 96.3   | 100.4   |
| 1886-90 . . . | 103.2   | 94.6   | 99.6    |
| 1891 . . .    | 97.6    | 94.8   | 95.7    |
| 1892 . . .    | 97.5    | 95.7   | 96.7    |
| 1893 . . .    | 99.0    | 98.0   | 98.5    |
| 1894 . . .    | 103.1   | 98.8   | 101.1   |
| 1895 . . .    | 107.4   | 104.4  | 106.2   |
| 1896 . . .    | 113.5   | 107.0  | 110.7   |
| 1897 . . .    | 114.0   | 112.1  | 112.4   |

In 1889 the interest was reduced from 3 per cent. to 2½ per cent., which caused quotations to fall from 101 to 98. Allowing for difference of interest, the quotations of 1897 would be equivalent to 122½ for the old Three per Cents.

For quotations from 1740 to 1881 see page 262.

### CO-OPERATION

The number of co-operative societies in the United Kingdom rose from 1273 in 1885 to 1695 in 1895, and their figures compared thus :—

|                  | 1885       | 1895       |
|------------------|------------|------------|
| Members . . .    | 802,000    | 1,440,000  |
| Capital, £ . . . | 10,600,000 | 21,700,000 |
| Sales, £ . . .   | 29,900,000 | 56,600,000 |

Building societies have declined in the same interval, viz. :—

|                   | 1885       | 1895       |
|-------------------|------------|------------|
| Shares, £ . . .   | 34,900,000 | 31,900,000 |
| Deposits, £ . . . | 17,800,000 | 13,100,000 |
| Total . . .       | 52,700,000 | 45,000,000 |

Horace Plunkett began co-operative dairies in Ireland in 1893; their number now reaches 243, with 27,000 members, and the sales of butter in 1897 amounted to a value of £346,000 sterling.

### GERMANY

In May 1897 there were 14,842 societies, viz. : People's banks 9417, agricultural societies 3315, and supply associations 2110. This showed an increase of 1837 societies upon the preceding year. The Popular Banks had 1,430,000 members, of whom 950,000 belonged to Schultz-Delitzsch and 480,000 to Raffeisen societies. Agricultural societies showed an increase of 360 on 1896.

### FRANCE

In 1895 the mutual societies counted 1,540,000 members, with assets £8,700,000, investments £4,200,000, and cash £2,600,000. There were 280 Raffeisen banks.

### ITALY

There are 720 Popular Banks, with 405,000 shareholders, capital £4,600,000, deposits £14,900,000, and discounts £39,700,000.

### BELGIUM

In 1896 there were 417 rural co-operative societies, including 37 Raffeisen banks and 64 joint-stock dairies.

### SWITZERLAND

There are 77 co-operative cattle associations, besides joint-stock dairies in every village.

### AUSTRIA

There are 1250 Raffeisen banks between Austria and Hungary, and 3100 co-operative societies of other kinds, with 1,220,000 members.

### UNITED STATES

In 1893 there were 5840 building societies, with 1,745,000 members, holding a capital of £93,600,000 sterling.

See *Friendly Societies*, p. 737, and *Societies*, p. 542.

### COPPER

Production has more than trebled in 16 years :—

|                     | Tons    |         |         |
|---------------------|---------|---------|---------|
|                     | 1880    | 1890    | 1896    |
| United States . . . | 20,300  | 104,000 | 210,000 |
| Great Britain . . . | 40,000  | 76,000  | 100,000 |
| Spain . . .         | 21,300  | 71,000  | 60,000  |
| Chili . . .         | 20,000  | 20,000  | 20,000  |
| Germany . . .       | 10,100  | 15,000  | 25,000  |
| France . . .        | 5,100   | 8,000   | 10,000  |
| Russia, &c. . .     | 25,200  | 76,000  | 65,000  |
| Total . . .         | 142,000 | 370,000 | 490,000 |

Most of what is produced in Great Britain is from Chilian and other foreign ores or regulus, the quantity of native copper not exceeding 600 tons. The price of bar copper has been as follows per ton :—

|                |      |                |      |                |      |
|----------------|------|----------------|------|----------------|------|
| 1882 . . . . . | £ 72 | 1888 . . . . . | £ 78 | 1893 . . . . . | £ 48 |
| 1885 . . . . . | 48   | 1890 . . . . . | 58   | 1896 . . . . . | 49   |

Great Britain exports 50,000 tons yearly. The copper mines of Spain give employment to 8600 men, who raise 2,700,000 tons of ore, valued at £560,000, being an average of 315 tons per miner, of the value of £65.

See *Metals*, page 773.

### COTTON

Production has been approximately as follows :—

|              | Million Lbs. |            |           |
|--------------|--------------|------------|-----------|
|              | U. States    | India, &c. | The World |
| 1881 . . . . | 3,200        | 900        | 4,100     |
| 1886 . . . . | 3,180        | 1,020      | 4,300     |
| 1891 . . . . | 4,310        | 1,290      | 5,600     |
| 1897 . . . . | 4,400        | 1,500      | 5,900     |

The United States crop was disposed of as follows :—

|              | Million Lbs. |          |          |
|--------------|--------------|----------|----------|
|              | Crop         | Exported | Home Use |
| 1881 . . . . | 3,200        | 2,190    | 1,010    |
| 1886 . . . . | 3,180        | 2,050    | 1,130    |
| 1891 . . . . | 4,310        | 2,880    | 1,430    |
| 1897 . . . . | 4,400        | 3,060    | 1,340    |

Since 1881 the crop has increased 37 per cent., home consumption 33 per cent.

The consumption by latest accounts was as follows :—

|                       | Mil. Lbs. |                       | Mil. Lbs. |
|-----------------------|-----------|-----------------------|-----------|
| Great Britain . . . . | 1,570     | Spain . . . .         | 160       |
| France . . . .        | 400       | India . . . .         | 480       |
| Germany . . . .       | 620       | Japan . . . .         | 160       |
| Russia . . . .        | 430       | Brazil . . . .        | 120       |
| Austria . . . .       | 270       | United States . . . . | 1,340     |
| Italy . . . .         | 240       | Various . . . .       | 110       |

Making a total of 5900 million lbs., or 2,650,000 tons, representing a value of 130 millions sterling. The value of cotton goods manufactured in 1896 reached 360 millions sterling.

### GREAT BRITAIN

The consumption of cotton and the value of exported goods were :—

|                 | Million Lbs. Yearly | Exports Yearly, £ |
|-----------------|---------------------|-------------------|
| 1882-86 . . . . | 1,450               | 72,400,000        |
| 1887-91 . . . . | 1,600               | 71,800,000        |
| 1892-96 . . . . | 1,480               | 65,800,000        |
| 1897 . . . .    | 1,570               | 64,000,000        |

The exports of cotton goods and yarn were as follows :—

| Year         | Yarn, Million Lbs. | Cotton Cloth, Million Yds. | Total Value, £ Sterling |
|--------------|--------------------|----------------------------|-------------------------|
| 1840 . . . . | 118                | 791                        | 24,700,000              |
| 1860 . . . . | 197                | 2,776                      | 52,000,000              |
| 1880 . . . . | 216                | 4,496                      | 75,600,000              |
| 1890 . . . . | 258                | 5,125                      | 74,300,000              |
| 1897 . . . . | 252                | 4,800                      | 64,000,000              |

In 1894 the following estimate of consumption was published :—

|                       | Million Lbs. |         |       |
|-----------------------|--------------|---------|-------|
|                       | 1880         | 1890-93 | 1894  |
| Great Britain . . . . | 1,400        | 1,530   | 1,550 |
| Continent . . . .     | 1,150        | 1,800   | 2,010 |
| United States . . . . | 830          | 1,340   | 1,110 |
| India . . . .         | 120          | 460     | 480   |
| Total . . . .         | 3,500        | 5,220   | 5,150 |

Countries exporting cotton goods (and yarn) were :—

|                       | Millions £ Sterling |      |      |
|-----------------------|---------------------|------|------|
|                       | 1885                | 1890 | 1896 |
| Great Britain . . . . | 67.0                | 74.4 | 63.8 |
| France . . . .        | 4.1                 | 4.4  | 4.7  |
| Germany . . . .       | 4.9                 | 9.4  | 10.0 |
| Switzerland . . . .   | 6.4                 | 6.3  | 5.2  |
| Spain . . . .         | 0.3                 | 1.0  | 1.7  |
| Total . . . .         | 82.7                | 95.5 | 85.4 |

Production and consumption of cotton goods were :—

|                        | Output, Millions £ | Consumption |                    |
|------------------------|--------------------|-------------|--------------------|
|                        |                    | Millions £  | Shillings per Head |
| United Kingdom . . . . | 92.1               | 40.1        | 21                 |
| France . . . .         | 22.4               | 19.8        | 10                 |
| Germany . . . .        | 35.4               | 29.0        | 11                 |
| Russia . . . .         | 20.4               | 20.5        | 4                  |
| Austria . . . .        | 18.4               | 18.3        | 9                  |
| Italy . . . .          | 12.9               | 13.5        | 9                  |
| Spain . . . .          | 8.8                | 7.1         | 8                  |
| Other States . . . .   | 19.6               | 20.7        | 9                  |
| Europe . . . .         | 230.0              | 169.0       | 9                  |
| United States . . . .  | 68.0               | 64.0        | 18                 |
| Total . . . .          | 298.0              | 233.0       | 11                 |

Cotton manufacture in the United Kingdom advanced as follows :—

| Year         | Spindles   | Power-Looms | Operatives |
|--------------|------------|-------------|------------|
| 1870 . . . . | 37,700,000 | 440,000     | 450,000    |
| 1890 . . . . | 44,500,000 | 620,000     | 530,000    |

There was an increase of 18 per cent. both in spindles and operatives. The consumption of raw cotton rose from 450,000 tons in 1870 to 710,000 tons in 1896.

The *Bremen Exchange* publishes the following on the growth of cotton manufacture in five European countries :—

|                     | Spindles  |            | Bales Cotton used |           |
|---------------------|-----------|------------|-------------------|-----------|
|                     | 1887      | 1898       | 1887              | 1898      |
| Germany . . . .     | 5,060,000 | 7,880,000  | 1,010,000         | 1,580,000 |
| Austria . . . .     | 2,070,000 | 3,140,000  | 500,000           | 600,000   |
| Switzerland . . . . | 1,710,000 | 1,710,000  | 100,000           | 100,000   |
| Poland . . . .      | 510,000   | 960,000    | 120,000           | 290,000   |
| Belgium . . . .     | 610,000   | 880,000    | 70,000            | 120,000   |
| Total . . . .       | 9,960,000 | 14,570,000 | 1,800,000         | 2,690,000 |

## CRIME

Tables compiled by Rev. W. D. Morrison (1897) show the ratio of sexes among criminals in various countries thus:—

|                 | Males | Females | Total |
|-----------------|-------|---------|-------|
| England . . . . | 820   | 180     | 1,000 |
| France . . . .  | 850   | 150     | 1,000 |
| Germany . . . . | 819   | 181     | 1,000 |
| Austria . . . . | 848   | 152     | 1,000 |
| Spain . . . .   | 890   | 110     | 1,000 |
| Sweden . . . .  | 864   | 136     | 1,000 |
| Norway . . . .  | 791   | 209     | 1,000 |
| Denmark . . . . | 736   | 264     | 1,000 |
| Mexico . . . .  | 858   | 142     | 1,000 |
| Japan . . . .   | 913   | 87      | 1,000 |
| Average . . . . | 839   | 161     | 1,000 |

The number of persons in prison on a given day in various countries, compared with population, was as follows:—

|                        | Prison Population | Per 100,000 Inhabitants |
|------------------------|-------------------|-------------------------|
| United Kingdom . . . . | 17,800            | 46                      |
| Russia . . . .         | 155,020           | 155                     |
| Finland . . . .        | 2,120             | 85                      |
| Holland . . . .        | 4,010             | 84                      |
| Belgium . . . .        | 4,440             | 70                      |
| Switzerland . . . .    | 3,200             | 107                     |
| Italy . . . .          | 67,420            | 217                     |
| United States . . . .  | 82,330            | 132                     |
| Canada . . . .         | 4,034             | 85                      |
| Australia . . . .      | 6,001             | 150                     |
| India . . . .          | 101,180           | 44                      |
| Cape Colony . . . .    | 3,260             | 310                     |
| Jamaica . . . .        | 1,150             | 164                     |

For France and some other countries there are no returns since 1888. See page 163.

## UNITED KINGDOM

The annual average of committals has been as follows:—

|         | Number Yearly |          |         |            | Per Million Inhab. |          |         |            |
|---------|---------------|----------|---------|------------|--------------------|----------|---------|------------|
|         | England       | Scotland | Ireland | U. Kingdom | England            | Scotland | Ireland | U. Kingdom |
| 1880-89 | 14,100        | 2,450    | 3,320   | 19,870     | 522                | 647      | 665     | 555        |
| 1890-94 | 12,070        | 2,330    | 2,190   | 16,590     | 410                | 574      | 470     | 435        |
| 1895-96 | 11,480        | 2,070    | 1,920   | 15,470     | 374                | 496      | 480     | 392        |

*Convicted.*

|         |        |       |       |        |     |     |     |     |
|---------|--------|-------|-------|--------|-----|-----|-----|-----|
| 1880-89 | 10,800 | 1,910 | 1,760 | 14,470 | 401 | 248 | 348 | 404 |
| 1890-94 | 9,470  | 1,860 | 1,300 | 12,630 | 322 | 460 | 280 | 331 |
| 1895-96 | 8,860  | 1,680 | 1,205 | 11,745 | 290 | 403 | 264 | 299 |

In 1895-96 the ratio of convictions to committals was 77 per cent. in England, 81 in Scotland, and 63 per cent. in Ireland.

The prison population of the three kingdoms has been as follows:—

|                        | Number |        | Per 100,000 Pop. |      |
|------------------------|--------|--------|------------------|------|
|                        | 1880   | 1893   | 1880             | 1893 |
| England . . . .        | 19,835 | 13,178 | 76               | 44   |
| Scotland . . . .       | 2,616  | 2,196  | 71               | 54   |
| Ireland . . . .        | 2,620  | 2,428  | 50               | 53   |
| United Kingdom . . . . | 25,071 | 17,802 | 71               | 46   |

The diminution of crime is in great measure attributed to the action of reformatories (see page 799).

## FRANCE

The number of convictions yearly, assize and correctional, was as follows:—

|                 | Annual Average |          |         | Per 100,000 Inhab. |
|-----------------|----------------|----------|---------|--------------------|
|                 | Crimes         | Offences | Total   |                    |
| 1871-80 . . . . | 3,650          | 128,850  | 132,500 | 358                |
| 1883-87 . . . . | 3,105          | 203,295  | 206,400 | 543                |
| 1889-94 . . . . | 2,916          | 218,854  | 221,770 | 576                |

The above does not include misdemeanours tried at the police courts, which averaged 440,200 convictions yearly in 1889-94. It is observed that professional criminals of the worst type, such as murderers and burglars, show an increasing ratio: they are termed "recidivists," and their ratio in the records of crime has risen from 41 per cent. in 1870 to 48 in 1880, to 57 in 1889, and to 58 per cent. of all criminals tried at assize in 1893.

## GERMANY

The returns for 1895 compare with those of 1886 as follows:—

|               | Convicted |         | Per 100,000 Inh. |      |
|---------------|-----------|---------|------------------|------|
|               | 1886      | 1895    | 1886             | 1895 |
| Men . . . .   | 291,400   | 377,200 | 612              | 725  |
| Women . . . . | 61,600    | 77,000  | 129              | 148  |
| Total . . . . | 353,000   | 454,200 | 741              | 873  |

The number of recidivists, or professional criminals, and of juvenile offenders (under 18) are shown thus:—

|                     | Number  |         | Per 1000 Convicts |      |
|---------------------|---------|---------|-------------------|------|
|                     | 1886    | 1895    | 1886              | 1895 |
| Recidivists . . . . | 102,800 | 172,200 | 290               | 378  |
| Juveniles . . . .   | 31,510  | 44,380  | 89                | 98   |

Both these classes are rapidly increasing: the former have increased 70 per cent., the latter 40 per cent., in 9 years, while population has risen only 10 per cent.

## RUSSIA

The prison population in 1893 compared with that of 1887 thus:—

|                   | In Jail |         | Per 100,000 Pop. |      |
|-------------------|---------|---------|------------------|------|
|                   | 1887    | 1893    | 1887             | 1893 |
| In Russia . . . . | 75,350  | 116,380 | 84               | 116  |
| „ Siberia . . . . | 33,490  | 38,640  | 37               | 39   |
| Total . . . .     | 108,840 | 155,020 | 121              | 155  |

About 30,000 persons are exiled yearly to Siberia, some of whom are put in chain-gangs for working the gold mines, others are sent to the island of Saghalien, north of China, and established as farmers. Of the prisoners in Russia, 90 per cent. are males, 10 per cent. females; 80 per cent. convicts, 20 per cent. untried.

## AUSTRIA

The record for 1894 (Austria proper) compares with that of 1886 thus:—

|                | Convictions |         | Per 100,000 Pop. |       |
|----------------|-------------|---------|------------------|-------|
|                | 1886        | 1894    | 1886             | 1894  |
| Crimes . . .   | 29,710      | 30,130  | 129              | 123   |
| Offences . . . | 558,440     | 532,770 | 2,428            | 2,174 |
| Total . . .    | 588,150     | 562,900 | 2,557            | 2,297 |

The number of criminals undergoing penal servitude in 1894 was 10,270, or 420 per million of the population, against 490 in 1886. There are 4000 juvenile offenders in reformatories.

## HUNGARY

The returns for 1886 and 1896 were as follows:—

| Court              | Convictions |        | Per 100,000 Pop. |      |
|--------------------|-------------|--------|------------------|------|
|                    | 1886        | 1896   | 1886             | 1896 |
| Assize . . .       | 20,210      | 10,580 | 125              | 57   |
| Correctional . . . | 95,090      | 78,760 | 595              | 426  |
| Total . . .        | 115,300     | 89,340 | 720              | 483  |

This does not include cases tried at the police courts, which number about 250,000 per annum.

## ITALY

The returns for 1885 and 1895 showed as follows:—

| Court              | Convictions |         | Per 100,000 Pop. |       |
|--------------------|-------------|---------|------------------|-------|
|                    | 1885        | 1895    | 1885             | 1895  |
| Assize . . .       | 5,140       | 3,604   | 17               | 12    |
| Correctional . . . | 53,100      | 78,030  | 177              | 252   |
| Police . . .       | 273,470     | 278,656 | 934              | 898   |
| Total . . .        | 331,710     | 360,290 | 1,128            | 1,162 |

The crimes on which convictions were obtained were:—

|                      | Number  |         | Per 1000 Convicts |       |
|----------------------|---------|---------|-------------------|-------|
|                      | 1885    | 1895    | 1885              | 1895  |
| Homicide . . .       | 2,445   | 2,286   | 8                 | 6     |
| Assault . . .        | 61,400  | 62,730  | 185               | 174   |
| Robbery, &c. . .     | 52,520  | 55,390  | 160               | 154   |
| Minor offences . . . | 215,345 | 239,884 | 647               | 666   |
| Total . . .          | 331,710 | 360,290 | 1,000             | 1,000 |

Prison population, including reformatories, showed:—

| In                    | Number |        | Per 100,000 Pop. |      |
|-----------------------|--------|--------|------------------|------|
|                       | 1885   | 1895   | 1885             | 1895 |
| Prison . . .          | 30,130 | 34,790 | 102              | 112  |
| Reformatories . . .   | 5,520  | 6,320  | 19               | 20   |
| Penal servitude . . . | 34,720 | 32,630 | 119              | 105  |
| Total . . .           | 70,370 | 73,740 | 240              | 237  |

Of the prison population 91 per cent. are males, and of those in penal servitude 95 per cent.

## NORWAY

The returns for 1887 and 1894 compare thus:—

|                | Convictions |        | Per 100,000 Pop. |       |
|----------------|-------------|--------|------------------|-------|
|                | 1887        | 1894   | 1887             | 1894  |
| Crimes . . .   | 2,930       | 2,950  | 150              | 145   |
| Offences . . . | 22,660      | 28,820 | 1,155            | 1,415 |
| Total . . .    | 25,590      | 31,770 | 1,305            | 1,560 |

## DENMARK

The returns for 1890 and 1885 compare as follows:—

| Year           | Convictions | Per 100,000 Pop. |
|----------------|-------------|------------------|
| 1885 . . . . . | 3,525       | 168              |
| 1890 . . . . . | 3,897       | 177              |

In 1890 there were 73 per cent. of the convicts males, against 75 per cent. in 1885.

## HOLLAND

The number of convictions was as follows:—

| Court                  | Convictions |         | Per 100,000 Pop. |       |
|------------------------|-------------|---------|------------------|-------|
|                        | 1885        | 1895    | 1885             | 1895  |
| Assize . . . . .       | 727         | 1,330   | 17               | 28    |
| Correctional . . . . . | 15,080      | 16,070  | 351              | 338   |
| Local . . . . .        | 67,583      | 86,990  | 1,572            | 1,824 |
| Total . . . . .        | 83,390      | 104,390 | 1,940            | 2,190 |

The convictions showed 90 per cent. males. The prison population, including reformatories, in December 1896 was 4010, equal to 84 per 100,000 population, exclusive of asylums for drunkards and vagrants, which had 3600 inmates.

## BELGIUM

Excluding police courts and reformatories, the records show:—

| Year       | Convictions | Per 100,000 Population | In Prison | Per 100,000 Population |
|------------|-------------|------------------------|-----------|------------------------|
| 1870 . . . | 22,360      | 447                    | 4,700     | 94                     |
| 1880 . . . | 34,245      | 623                    | 3,705     | 67                     |
| 1890 . . . | 40,370      | 666                    | 4,280     | 71                     |
| 1894 . . . | 44,910      | 713                    | 4,440     | 70                     |

## SWITZERLAND

In 1895 the prison population was 3200, equal to 107 per 100,000 of the population, 85 per cent. being males.

## SERVIA

The returns for 1894 compare with 1887 as follows:—

|                 | Number |        | Per 100,000 Pop. |      |
|-----------------|--------|--------|------------------|------|
|                 | 1887   | 1894   | 1887             | 1894 |
| Accused . . .   | 7,540  | 12,590 | 360              | 550  |
| Acquitted . . . | 1,840  | 9,010  | 88               | 392  |
| Convicted . . . | 5,700  | 3,580  | 272              | 158  |

## FINLAND

The records for 1892 show as follows:—

|                  | Convictions | Per 100,000 Pop. |
|------------------|-------------|------------------|
| Crimes . . . .   | 2,710       | 113              |
| Offences . . . . | 14,740      | 614              |
| Total . . . .    | 17,450      | 727              |

The prison population in December 1894 was 2120, equal to 85 per 100,000 inhabitants.

## UNITED STATES

The prison population was as follows:—

|                | Number | Per 100,000 Inhabitants |
|----------------|--------|-------------------------|
| 1870 . . . . . | 32,900 | 88                      |
| 1880 . . . . . | 59,260 | 118                     |
| 1890 . . . . . | 82,330 | 132                     |

The ratio of criminals and offenders is higher among foreigners than American whites, viz:—

|                      | Number |        | Per 100,000 |      |
|----------------------|--------|--------|-------------|------|
|                      | 1880   | 1890   | 1880        | 1890 |
| Amer. Whites . . . . | 29,370 | 39,730 | 80          | 87   |
| Coloured . . . . .   | 16,980 | 25,020 | 255         | 334  |
| Foreigners . . . . . | 12,910 | 17,580 | 193         | 190  |
| Total . . . . .      | 59,260 | 82,330 | 118         | 132  |
| Males . . . . .      | 54,190 | 75,920 | 213         | 237  |
| Females . . . . .    | 5,070  | 6,410  | 21          | 21   |

The increase of crime among the coloured population is remarkable. If we deduct from the population all children under 10, the comparison as regards criminals will stand thus for 1890:—

|                         | Pop. over 10 | Criminals | Per 100,000 |
|-------------------------|--------------|-----------|-------------|
| American Whites . . . . | 33,150,000   | 39,730    | 120         |
| Coloured . . . . .      | 5,480,000    | 25,020    | 455         |
| Foreigners . . . . .    | 8,780,000    | 17,580    | 200         |
| Total . . . . .         | 47,410,000   | 82,330    | 173         |

The prison population of the United States is higher than in most European countries. The number of prisoners charged with homicide was as follows:—

| States              | Number |       | Per Million Pop. |      |
|---------------------|--------|-------|------------------|------|
|                     | 1880   | 1890  | 1880             | 1890 |
| New England . . . . | 197    | 248   | 49               | 53   |
| Middle . . . . .    | 636    | 939   | 54               | 66   |
| South . . . . .     | 2,023  | 3,532 | 132              | 193  |
| Prairie . . . . .   | 1,269  | 1,796 | 73               | 80   |
| Pacific . . . . .   | 483    | 836   | 273              | 276  |
| Union . . . . .     | 4,608  | 7,351 | 92               | 117  |

Homicide, compared with population, is three times as frequent in the Southern, and four times as frequent in the Pacific, as in the Eastern States, which shows that Prof. Lombroso's theory of civilisation causing an increase of murder is unfounded.

## JAVA

The returns for 1882 and 1894 compared as follows:—

| Year         | Convictions |          |        | Per 100,000 Pop. |
|--------------|-------------|----------|--------|------------------|
|              | Crimes      | Offences | Total  |                  |
| 1882 . . . . | 11,700      | 6,670    | 18,370 | 810              |
| 1894 . . . . | 11,170      | 8,470    | 19,640 | 780              |

## AUSTRALIA

The records for 1894 show as follows:—

|                      | Convictions |        |         | Per 10,000 Pop. |
|----------------------|-------------|--------|---------|-----------------|
|                      | Grave       | Slight | Total   |                 |
| N. S. Wales . . . .  | 10,120      | 36,090 | 46,210  | 361             |
| Victoria . . . . .   | 6,020       | 21,100 | 27,120  | 230             |
| N. Zealand . . . .   | 3,910       | 8,700  | 12,610  | 180             |
| Queensland . . . .   | 4,280       | 7,530  | 11,810  | 257             |
| S. Australia . . . . | 1,235       | 4,745  | 5,980   | 168             |
| Tasmania . . . . .   | 1,275       | 2,465  | 3,740   | 234             |
| W. Australia . . . . | 1,540       | 2,860  | 4,400   | 440             |
| Total . . . . .      | 28,380      | 83,490 | 111,870 | 266             |

The number of crimes for which convictions were obtained before the Superior Courts were for all seven colonies in the aggregate thus:—

|                | Number | Per 100,000 Pop. |
|----------------|--------|------------------|
| 1871 . . . . . | 1,622  | 86               |
| 1881 . . . . . | 2,085  | 76               |
| 1894 . . . . . | 2,110  | 50               |

This shows a progressive and healthy decline in the ratio of crime of a grave character.

## CANADA

The returns of crimes and offences were as follows:—

| Year         | Convictions |          |        | Per 100,000 Pop. |
|--------------|-------------|----------|--------|------------------|
|              | Crimes      | Offences | Total  |                  |
| 1884 . . . . | 2,506       | 27,044   | 29,550 | 634              |
| 1888 . . . . | 3,747       | 33,903   | 37,650 | 800              |
| 1892 . . . . | 4,030       | 30,970   | 35,000 | 714              |
| 1896 . . . . | 5,204       | 32,076   | 37,280 | 730              |

The provinces showed as follows in 1886 and 1896:—

|                       | Convictions |        | Per 100,000 Souls |      |
|-----------------------|-------------|--------|-------------------|------|
|                       | 1886        | 1896   | 1886              | 1896 |
| Ontario . . . . .     | 19,170      | 16,890 | 960               | 767  |
| Quebec . . . . .      | 7,850       | 10,740 | 555               | 786  |
| Nova Scotia . . . .   | 1,540       | 3,500  | 350               | 777  |
| New Brunswick . . .   | 2,180       | 2,300  | 680               | 720  |
| Other provinces . . . | 3,130       | 3,850  | 870               | 710  |
| Total . . . . .       | 33,870      | 37,280 | 736               | 730  |

Convictions were for the following crimes and offences:

|                        | Number |        | Ratio |       |
|------------------------|--------|--------|-------|-------|
|                        | 1886   | 1896   | 1886  | 1896  |
| Homicide . . . . .     | 33     | 13     | 1     | ...   |
| Assault . . . . .      | 704    | 1,105  | 21    | 29    |
| Robbery . . . . .      | 281    | 527    | 8     | 14    |
| Larceny, &c. . . . .   | 2,238  | 3,460  | 66    | 92    |
| Drunkenness . . . .    | 11,160 | 11,160 | 330   | 297   |
| Minor offences . . . . | 19,454 | 21,325 | 574   | 568   |
| Total . . . . .        | 33,870 | 37,590 | 1,000 | 1,000 |

The nationality of criminals and their proportion to the number of each nationality residing in Canada, during 12 years ending December 1895, averaged as follows :—

|                     | Whole No. | Annual Average | Per 100,000 Souls |
|---------------------|-----------|----------------|-------------------|
| Canadians . . .     | 32,950    | 2,746          | 65                |
| English . . .       | 4,210     | 350            | 160               |
| Irish . . .         | 3,245     | 270            | 180               |
| Americans . . .     | 2,655     | 221            | 276               |
| Scotch . . .        | 1,010     | 84             | 80                |
| Foreigners, &c. . . | 4,340     | 363            | ...               |
| Total . . .         | 48,410    | 4,034          | 85                |

If children under 10 were excluded, the ratios would be approximately :—

|                 | Pop. over 10 | Criminals | Per 100,000 |
|-----------------|--------------|-----------|-------------|
| Canadians . . . | 3,020,000    | 2,746     | 91          |
| English . . .   | 210,000      | 350       | 167         |
| Irish . . .     | 142,000      | 270       | 190         |
| Americans . . . | 77,000       | 221       | 287         |
| Scotch . . .    | 102,000      | 84        | 82          |

The ratio for the whole population over 10 years of age would be 111 per 100,000; that for foreigners cannot be ascertained, as 2660 criminals were not classified in the whole period of 12 years. The high ratio of American criminals would indicate that many outlaws from the United States cross into Canada.

#### INDIA

The returns for 1881 and 1895 compare as follows :—

|            | Convictions |          |         | Per 100,000 Pop. |
|------------|-------------|----------|---------|------------------|
|            | Crimes      | Offences | Total   |                  |
| 1881 . . . | 177,000     | 468,000  | 645,000 | 323              |
| 1895 . . . | 178,000     | 667,000  | 845,000 | 367              |

The prison population was as follows :—

|            | Males  | Females | Total   | Per 100,000 Pop. |
|------------|--------|---------|---------|------------------|
| 1881 . . . | 83,430 | 3,890   | 87,320  | 44               |
| 1890 . . . | 86,730 | 3,050   | 89,780  | 41               |
| 1895 . . . | 97,990 | 3,190   | 101,180 | 44               |

In 1895, of convicts for grave crimes, 14 per cent. were recidivists or old offenders.

#### CAPE COLONY

The returns for 1888 and 1896 compared thus :—

|            | Convictions |          |        | Per 100,000 Pop. |
|------------|-------------|----------|--------|------------------|
|            | Crimes      | Offences | Total  |                  |
| 1888 . . . | 1,408       | 39,172   | 40,580 | 4,660            |
| 1896 . . . | 2,400       | 48,810   | 51,210 | 4,860            |

The prison population was as follows :—

|            | Males | Females | Total | Per 100,000 Pop. |
|------------|-------|---------|-------|------------------|
| 1888 . . . | 2,032 | 200     | 2,232 | 260              |
| 1896 . . . | 2,924 | 336     | 3,260 | 310              |

The ratio of persons in jail to population is remarkably high.

#### ALGERIA

The records for 1893 compare with 1886 as follows :—

|            | Convictions |          |        | Per 100,000 Pop. |
|------------|-------------|----------|--------|------------------|
|            | Crimes      | Offences | Total  |                  |
| 1886 . . . | 12,410      | 59,980   | 72,390 | 1,910            |
| 1893 . . . | 22,750      | 60,660   | 83,410 | 1,980            |

Under the head of offences are included minor police court cases.

#### JAMAICA

Returns for 1887 and 1897 were as follows :—

|            | Convictions |          |        | Per 100,000 Pop. |
|------------|-------------|----------|--------|------------------|
|            | Crimes      | Offences | Total  |                  |
| 1887 . . . | 2,410       | 8,120    | 10,530 | 1,720            |
| 1897 . . . | 4,490       | 11,400   | 15,890 | 2,270            |

The prison population in March 1897 was 1150, equal to 164 per 100,000 inhabitants.

#### CURIOSITIES

A collection of Australian postage stamps, begun in 1872 by Mr. M. Castle, of London, was purchased by Stanley Gibbons in 1897 for £10,000, being £2000 more than the price of the Galliera collection (1880). At a sale in London in 1895, four Mauritius stamps were sold for £210, and one blue Mauritius twopenny stamp for £140. A sale of coins in London in June 1896 realised among others the following prices : farthing of Henry IV., £17; a silver groat, £28; a half-noble, £45; and a half-groat of Edward III., £23. Besides the 35 autographs recorded with their prices at page 172, the following have since been sold :—

The Pretender . £8 | Q. Elizabeth . £6 | Henry VII. . £18  
Henry VIII. . 8 | Wesley . . . 3 | Paul Veronese 19

In March 1898 the bugle used for the Balaklava charge (1855) was sold in London for £750.

#### CURRENTS

The *Times* of December 8, 1896, mentions that on October 9, 1894, the s.s. *Hunter* threw overboard a box containing a letter in

S. lat. 45° 19' 32" : E. long. 63° 59' 15",

which was picked up in July 1896 in

S. lat. 44° 0' 0" ; W. long. 176° 30' 0",

having drifted in a straight line 4791 miles in 20 months 26 days, being at the rate of 7½ miles per day.

In June 1881 was picked up in the Feejee Islands a bottle containing a letter which had been thrown overboard in March 1880 in 4° S. lat. and 119° W. long., having been carried 6700 miles in 455 days, that is, 15 miles a day.

#### CUSTOMS

See *Taxes*, page 811, and page 172.



## D

## DAIRY

The following table shows the production and consumption of butter and cheese, and the approximate number of milch cows:—

|               | Production,<br>Tons | Consumption |                    | Milch<br>Cows |
|---------------|---------------------|-------------|--------------------|---------------|
|               |                     | Tons        | Lbs. per<br>Inhab. |               |
| U. Kingdom    | 200,000             | 510,000     | 28                 | 3,950,000     |
| France . .    | 200,000             | 270,000     | 16                 | 5,020,000     |
| Germany . .   | 300,000             | 440,000     | 17                 | 8,950,000     |
| Russia . .    | 350,000             | 345,000     | 7                  | 10,000,000    |
| Austria . .   | 170,000             | 170,000     | 9                  | 6,000,000     |
| Italy . .     | 145,000             | 85,000      | 6                  | 2,400,000     |
| Spain & Port. | 50,000              | 50,000      | 6                  | 1,200,000     |
| Swed. & Nor.  | 80,000              | 55,000      | 18                 | 2,300,000     |
| Denmark . .   | 60,000              | 20,000      | 20                 | 1,050,000     |
| Holland . .   | 120,000             | 20,000      | 10                 | 900,000       |
| Belgium . .   | 60,000              | 65,000      | 23                 | 800,000       |
| Switzerland   | 70,000              | 30,000      | 22                 | 500,000       |
| Europe . .    | 1,805,000           | 2,060,000   | 13                 | 43,070,000    |
| U. States . . | 610,000             | 580,000     | 18                 | 15,940,000    |
| Canada . .    | 130,000             | 50,000      | 22                 | 1,990,000     |
| Australia . . | 55,000              | 50,000      | 24                 | 1,100,000     |
| Total . .     | 2,600,000           | 2,740,000   | 15                 | 62,100,000    |

The consumption in Holland is probably double what it appears to be, as margarine is largely mixed with what is exported as butter. For the same reason it appears in the above table that the consumption of butter and cheese in the world is 140,000 tons more than production, the difference being evidently ascribable to margarine.

Great Britain consumes more butter and cheese for population than any other country; the consumption (exclusive of Ireland) being over 30 pounds per inhabitant, or nearly twice as much as in France or Germany. See *Food*, page 715.

Bodio's tables for five years ending December 1891 give the annual average death-rate of various countries as follows:—

|                       | Deaths Yearly per 100,000 Population |                   |                  |          |            |         |         |            |           |                   |         |
|-----------------------|--------------------------------------|-------------------|------------------|----------|------------|---------|---------|------------|-----------|-------------------|---------|
|                       | Bronchitis,<br>&c.                   | Diarrhoea,<br>&c. | Consump-<br>tion | Apoplexy | Diphtheria | Measles | Typhoid | Scarlatina | Small-pox | Whooping<br>Cough | Various |
| England . . . . .     | 382                                  | 76                | 229              | 101      | 29         | 47      | 20      | 23         | 1         | 44                | 954     |
| Scotland . . . . .    | 363                                  | 71                | 252              | 108      | 42         | 47      | 23      | 20         | 0         | 64                | 930     |
| Ireland . . . . .     | 296                                  | 44                | 268              | 59       | 24         | 20      | 31      | 12         | 0         | 29                | 1,022   |
| France . . . . .      | 420                                  | 215               | 397              | ...      | 67         | 52      | 53      | 31         | 23        | 18                | 1,273   |
| Prussia . . . . .     | ...                                  | 109               | 290              | 103      | 142        | 32      | 23      | 25         | 0         | 50                | 1,552   |
| Austria . . . . .     | 303                                  | 139               | 372              | 67       | 132        | 54      | 54      | 56         | 44        | 98                | 1,513   |
| Switzerland . . . . . | ...                                  | 113               | 211              | 86       | 35         | 15      | 15      | 12         | 1         | 20                | 1,838   |
| Belgium . . . . .     | 444                                  | 125               | 199              | ...      | 58         | 62      | 38      | 16         | 15        | 61                | 989     |
| Holland . . . . .     | 282                                  | 42                | 192              | 79       | 37         | 39      | 25      | 4          | 0         | 31                | 1,298   |
| Sweden . . . . .      | ...                                  | 38                | ...              | ...      | 52         | 23      | 22      | 37         | 0         | 17                | 1,447   |
| Italy . . . . .       | 509                                  | 334               | 196              | 107      | 71         | 62      | 78      | 30         | 39        | 35                | 1,214   |
| Average . . . . .     | 375                                  | 119               | 261              | 89       | 63         | 41      | 35      | 24         | 11        | 42                | 1,125   |

The statistics for France refer to the urban population. In the above table Bronchitis includes Pneumonia and similar complaints, Consumption comprises all tubercular diseases, and Diarrhoea includes Cholera and Dysentery, while Diphtheria includes Croup.

## DEATHS

The death-rate of the principal countries, and the saving of life yearly by the reduction of mortality since 1880, owing to improved sanitation and other causes, are shown briefly thus:—

|                        | Deaths per 1000 Pop.<br>Yearly |         |         | Lives<br>Saved<br>Yearly |
|------------------------|--------------------------------|---------|---------|--------------------------|
|                        | 1861-80                        | 1885-90 | 1891-96 |                          |
| England . . . .        | 22.0                           | 18.9    | 18.5    | 103,000                  |
| Scotland . . . .       | ...                            | 18.9    | 18.7    | ...                      |
| Ireland . . . .        | ...                            | 18.0    | 18.1    | ...                      |
| United Kingdom . . . . | ...                            | 18.8    | 18.4    | ...                      |
| France . . . .         | 24.0                           | 21.9    | 22.1    | 73,000                   |
| Prussia . . . .        | 27.1                           | 24.3    | 22.9    | 124,000                  |
| Scandinavia . . . .    | 19.0                           | 17.2    | 17.3    | 16,000                   |
| Austria . . . .        | 30.8                           | 29.0    | 27.6    | 79,000                   |
| Hungary . . . .        | 39.4                           | 32.2    | 31.4    | 145,000                  |
| Italy . . . .          | 29.9                           | 27.3    | 25.5    | 131,000                  |
| Holland . . . .        | 24.6                           | 20.6    | 19.2    | 26,000                   |
| Belgium . . . .        | 22.7                           | 20.7    | 19.9    | 18,000                   |
| Bavaria . . . .        | ...                            | 27.8    | 26.0    | ...                      |
| Wurtemberg . . . .     | ...                            | 24.9    | 25.0    | ...                      |
| Saxony . . . .         | ...                            | 27.7    | 25.2    | ...                      |
| Baden . . . .          | ...                            | 23.5    | 23.0    | ...                      |
| Switzerland . . . .    | ...                            | 20.6    | 20.0    | ...                      |
| Bulgaria . . . .       | ...                            | 18.5    | 28.7    | ...                      |
| Japan . . . .          | ...                            | 21.1    | 21.1    | ...                      |
| Australia . . . .      | 15.6                           | 14.0    | 12.7    | 11,000                   |

Thus in ten countries, of which we can compare death-rates in the last thirty-six years, the diminution of mortality yearly amounts to 726,000 lives; that is to say, the number of deaths in those countries is now 4,712,000, whereas at the rates prevalent down to 1880 they would have been 5,438,000. In other words, taking the ten countries collectively, the span of life has been lengthened 15 per cent.—say 6 years.

The following table shows the number of deaths from certain diseases in 10,000 deaths from all causes :—

|                          | England | Scotland | Ireland | France | Austria | Belgium | Holland | Italy  | Average |
|--------------------------|---------|----------|---------|--------|---------|---------|---------|--------|---------|
| Bronchitis . . . . .     | 2,001   | 1,888    | 1,643   | 1,714  | 1,070   | 2,220   | 1,390   | 1,905  | 1,730   |
| Diarrhoea . . . . .      | 398     | 370      | 244     | 843    | 495     | 623     | 207     | 1,248  | 554     |
| Consumption . . . . .    | 1,200   | 1,310    | 1,487   | 1,558  | 1,315   | 980     | 945     | 732    | 1,190   |
| Diphtheria . . . . .     | 152     | 218      | 133     | 265    | 464     | 290     | 180     | 265    | 246     |
| Measles . . . . .        | 247     | 247      | 111     | 204    | 190     | 310     | 190     | 232    | 210     |
| Typhoid . . . . .        | 105     | 120      | 172     | 208    | 190     | 190     | 123     | 291    | 175     |
| Scarlatina . . . . .     | 120     | 104      | 67      | 122    | 198     | 80      | 20      | 113    | 103     |
| Whooping-cough . . . . . | 230     | 332      | 160     | 70     | 345     | 303     | 153     | 132    | 216     |
| Other diseases . . . . . | 5,547   | 5,411    | 5,983   | 5,016  | 5,733   | 5,004   | 6,792   | 5,082  | 5,570   |
| Total . . . . .          | 10,000  | 10,000   | 10,000  | 10,000 | 10,000  | 10,000  | 10,000  | 10,000 | 10,000  |

The annual death-rate per million inhabitants from certain diseases in ten years, 1882-91, in various cities averaged as follows :—

|                      | Per Million Inhabitants |         |            |            |                |         |                 |          | Total |
|----------------------|-------------------------|---------|------------|------------|----------------|---------|-----------------|----------|-------|
|                      | Small-pox               | Measles | Scarlatina | Diphtheria | Whooping Cough | Typhoid | Puerperal Fever | Phthisis |       |
| London . . . . .     | 60                      | 610     | 290        | 280        | 710            | 180     | 80              | 2,940    | 5,150 |
| Paris . . . . .      | 110                     | 550     | 90         | 1,050      | 180            | 600     | 100             | 4,510    | 7,190 |
| Berlin . . . . .     | 4                       | 310     | 260        | 1,270      | 310            | 160     | 100             | 3,080    | 5,494 |
| Vienna . . . . .     | 270                     | 370     | 200        | 540        | 130            | 100     | 120             | 5,340    | 7,070 |
| Rome . . . . .       | 400                     | 690     | 60         | 500        | 100            | 430     | 50              | 3,490    | 5,720 |
| Buda-Pesth . . . . . | 600                     | 280     | 440        | 1,170      | 130            | 430     | 70              | 6,330    | 9,150 |
| Hamburg . . . . .    | 5                       | 290     | 300        | 850        | 350            | 400     | 100             | 3,000    | 5,295 |
| Leipzig . . . . .    | 3                       | 160     | 220        | 850        | 160            | 130     | 80              | 2,580    | 4,183 |
| Dresden . . . . .    | ...                     | 210     | 260        | 1,380      | 260            | 120     | 110             | 3,240    | 5,580 |
| Breslau . . . . .    | 10                      | 260     | 210        | 1,100      | 210            | 190     | 50              | 3,270    | 5,300 |
| Naples . . . . .     | 220                     | 610     | 320        | 380        | 120            | 460     | 30              | 2,500    | 4,040 |
| Milan . . . . .      | 480                     | 530     | 150        | 720        | 160            | 750     | 70              | 3,530    | 6,390 |
| Turin . . . . .      | 240                     | 500     | 130        | 710        | 230            | 580     | 80              | 3,110    | 5,530 |
| Genoa . . . . .      | 450                     | 390     | 40         | 350        | 110            | 460     | 50              | 2,520    | 4,370 |
| Florence . . . . .   | 250                     | 270     | 120        | 470        | 130            | 880     | 60              | 3,880    | 6,000 |
| Palermo . . . . .    | 40                      | 900     | 150        | 640        | 150            | 1,170   | 40              | 2,120    | 5,210 |
| Venice . . . . .     | 1,090                   | 530     | 50         | 280        | 110            | 360     | 30              | 3,450    | 6,100 |
| Bologna . . . . .    | 300                     | 290     | 240        | 540        | 150            | 590     | 60              | 3,220    | 5,300 |
| Trieste . . . . .    | 800                     | 310     | 140        | 1,260      | 130            | 190     | 50              | 5,280    | 8,160 |
| Brussels . . . . .   | 320                     | 320     | 70         | 470        | 280            | 260     | 180             | 3,450    | 5,350 |
| Average . . . . .    | 282                     | 419     | 187        | 741        | 205            | 432     | 76              | 3,542    | 5,884 |

The following table shows the proportions which the above eight infectious diseases had in the total mortality during the said ten years :—

|                      | Number of Deaths Yearly |         |         | Per 10,000 Inhabitants |       |       | Ratio of Infectious |
|----------------------|-------------------------|---------|---------|------------------------|-------|-------|---------------------|
|                      | Infectious              | Other   | Total   | Infectious             | Other | Total |                     |
| London . . . . .     | 20,800                  | 61,500  | 82,300  | 52                     | 152   | 204   | 25.5                |
| Paris . . . . .      | 16,800                  | 38,700  | 55,500  | 72                     | 166   | 238   | 30.2                |
| Berlin . . . . .     | 7,700                   | 24,800  | 32,500  | 55                     | 176   | 231   | 23.8                |
| Vienna . . . . .     | 7,300                   | 14,900  | 22,200  | 71                     | 144   | 215   | 33.0                |
| Rome . . . . .       | 2,500                   | 6,900   | 9,400   | 57                     | 199   | 256   | 22.4                |
| Buda-Pesth . . . . . | 4,200                   | 9,500   | 13,700  | 95                     | 214   | 309   | 30.6                |
| Hamburg . . . . .    | 2,600                   | 9,800   | 12,400  | 53                     | 195   | 248   | 21.4                |
| Leipzig . . . . .    | 1,000                   | 3,400   | 4,400   | 42                     | 130   | 172   | 24.4                |
| Dresden . . . . .    | 1,500                   | 4,300   | 5,800   | 56                     | 163   | 219   | 25.5                |
| Breslau . . . . .    | 1,600                   | 7,500   | 9,100   | 53                     | 239   | 292   | 18.2                |
| Naples . . . . .     | 2,400                   | 12,800  | 15,200  | 46                     | 255   | 301   | 15.3                |
| Milan . . . . .      | 2,400                   | 8,100   | 10,500  | 64                     | 217   | 281   | 22.7                |
| Turin . . . . .      | 1,600                   | 5,700   | 7,300   | 56                     | 206   | 262   | 21.3                |
| Genoa . . . . .      | 800                     | 4,200   | 5,000   | 44                     | 212   | 256   | 17.2                |
| Florence . . . . .   | 1,100                   | 3,800   | 4,900   | 61                     | 204   | 265   | 23.0                |
| Palermo . . . . .    | 1,400                   | 5,100   | 6,500   | 52                     | 201   | 253   | 20.6                |
| Venice . . . . .     | 900                     | 3,300   | 4,200   | 61                     | 248   | 309   | 19.7                |
| Bologna . . . . .    | 700                     | 3,000   | 3,700   | 54                     | 226   | 280   | 19.3                |
| Trieste . . . . .    | 1,300                   | 3,400   | 4,700   | 82                     | 230   | 312   | 26.2                |
| Brussels . . . . .   | 900                     | 3,200   | 4,100   | 52                     | 192   | 244   | 21.3                |
| Total . . . . .      | 79,500                  | 233,900 | 313,400 | Av. 59                 | 198   | 257   | 23.0                |

It appears that during the said ten years Leipzig, London, and Vienna were the cities of lowest death-rate, while Trieste, Venice, Buda-Pesth, and Naples were the most unhealthy.

## FRIENDLY SOCIETIES

Bertillon's table of death-rates among Friendly Societies published in 1892 shows as follows:—

| Age             | Deaths Yearly per 1,000 |        |       |         |
|-----------------|-------------------------|--------|-------|---------|
|                 | England                 | France | Italy | Average |
| 20-25 . . . .   | 7.4                     | 13.0   | 6.3   | 8.9     |
| 25-30 . . . .   | 7.3                     | 5.4    | 5.9   | 6.2     |
| 30-35 . . . .   | 8.9                     | 6.4    | 6.8   | 7.2     |
| 35-40 . . . .   | 10.9                    | 6.4    | 7.8   | 8.4     |
| 40-45 . . . .   | 12.8                    | 10.2   | 9.2   | 10.7    |
| 45-50 . . . .   | 16.6                    | 11.8   | 11.6  | 13.3    |
| 50-55 . . . .   | 20.5                    | 20.2   | 14.9  | 18.5    |
| 55-60 . . . .   | 29.7                    | 19.5   | 22.2  | 23.8    |
| 60-65 . . . .   | 38.0                    | 40.7   | 32.5  | 37.1    |
| 65-70 . . . .   | 58.4                    | 67.0   | 50.4  | 58.6    |
| General . . . . | 12.1                    | 23.5   | 11.7  | 15.8    |

The table was compiled from observations by Neison, Bertillon, and Bodio, between 1871 and 1889.

## INFANT MORTALITY

The *Statistical Journal* of Paris gives a table of infant mortality in 1895, which compares with one for 1876-80 as follows:—

## Percentage of Infants who Die under Twelve Months.

| 1876-80          |      | 1895 | 1876-80       |      | 1895 |
|------------------|------|------|---------------|------|------|
| Ireland . . . .  | 10.0 | 10.0 | Switzerland   | 18.9 | 19.0 |
| Sweden . . . .   | 12.6 | 10.0 | Roumania . .  | ...  | 20.0 |
| Denmark . . . .  | 15.0 | 14.0 | Holland . . . | 21.1 | 20.0 |
| Greece . . . .   | ...  | 15.0 | Prussia . . . | 20.5 | 21.0 |
| G. Britain . . . | 14.5 | 15.0 | Wurtemberg    | 30.2 | 25.0 |
| France . . . .   | 16.3 | 17.0 | Austria . . . | 24.9 | 25.0 |
| Belgium . . . .  | 17.4 | 17.0 | Bavaria . . . | 29.8 | 27.0 |
| Italy . . . .    | 22.3 | 19.0 | Russia . . .  | 31.2 | 30.0 |

There is an increase of infant mortality in Great Britain, France, and Prussia, but a decline in most other countries. In Great Britain the death-rate of infants is 50 per cent. higher than in Ireland. Official returns in Prussia, for twelve years ending December 1888, show that infant mortality increases as we descend in the social scale; thus of 1000 children born in various classes we find:—

| Class             | Die First Year | Survive |
|-------------------|----------------|---------|
| Affluent . . . .  | 211            | 789     |
| Labourers . . . . | 251            | 749     |
| Servants . . . .  | 332            | 668     |
| Paupers . . . .   | 422            | 578     |

Drysdale (see page 178) gives the rates in England as 110 per thousand in the West-End of London, and 380 among the "slum" population.

The principal causes of death among infants showed the following averages in England and Wales during ten years to December 31, 1890:—

|                     | Deaths Yearly | Ratio |
|---------------------|---------------|-------|
| Inanition . . . .   | 19,490        | 15.6  |
| Convulsions . . . . | 18,140        | 14.5  |
| Bronchitis . . . .  | 16,160        | 13.0  |
| Diarrhoea . . . .   | 11,930        | 9.5   |
| Pneumonia . . . .   | 5,950         | 4.7   |
| Whooping-cough . .  | 5,340         | 4.3   |
| Suffocation . . . . | 1,490         | 1.2   |
| Infanticide . . . . | 103           | 0.1   |
| Various . . . .     | 46,417        | 37.1  |
| Total . . . .       | 125,020       | 100.0 |

As a rule the death-rate of infants under twelve months is eight times as much as that of the general public, in England, viz:—

|                    | Deaths Yearly per 1000 Living. |         |
|--------------------|--------------------------------|---------|
|                    | All Ages                       | Infants |
| Brighton . . . .   | 17                             | 149     |
| Hull . . . .       | 19                             | 165     |
| London . . . .     | 20                             | 158     |
| Birmingham . . .   | 20                             | 176     |
| Bristol . . . .    | 20                             | 149     |
| Leeds . . . .      | 21                             | 172     |
| Sheffield . . . .  | 22                             | 177     |
| Liverpool . . . .  | 24                             | 186     |
| Newcastle . . . .  | 25                             | 174     |
| Manchester . . . . | 29                             | 191     |
| Average . . . .    | 22                             | 170     |

## ENGLAND

The following table shows the death-rate for males and females in England and Wales at various ages in 1891-95 as compared with 1881-85.

| Ages             | Deaths Yearly per 1000 Living |         |         |         |
|------------------|-------------------------------|---------|---------|---------|
|                  | Males                         |         | Females |         |
|                  | 1881-85                       | 1891-95 | 1881-85 | 1891-95 |
| Under 5 . . . .  | 61.3                          | 62.1    | 51.9    | 52.0    |
| 5-10 . . . .     | 5.8                           | 4.5     | 5.7     | 4.5     |
| 10-15 . . . .    | 3.2                           | 2.5     | 3.3     | 2.7     |
| 15-20 . . . .    | 4.5                           | 4.0     | 4.7     | 4.0     |
| 20-25 . . . .    | 6.0                           | 5.3     | 5.9     | 4.8     |
| 25-35 . . . .    | 8.2                           | 7.2     | 7.9     | 6.7     |
| 35-45 . . . .    | 12.8                          | 12.2    | 11.0    | 10.3    |
| 45-55 . . . .    | 19.3                          | 19.8    | 15.2    | 15.3    |
| 55-65 . . . .    | 34.2                          | 36.3    | 28.1    | 29.8    |
| 65-75 . . . .    | 68.7                          | 71.9    | 59.0    | 62.8    |
| 75-85 . . . .    | 145.0                         | 150.0   | 129.0   | 136.0   |
| All ages . . . . | 20.5                          | 19.8    | 18.3    | 17.7    |

As regards infants under 5 years there is not much change. The rates for ages between 5 and 45 show a notable decline, which accounts for the increased death-rates between 55 and 85. A woman's life is much better than a man's at all ages, except from 10 to 15. The death-rate both for males and females in 1891-95 was 3 per cent. less than in 1881-85.

Death-rates for age in English cities during 10 years ending December 1890, gave the following averages per 1000 living:—

| Age             | London     |         | Liverpool |         | Bristol   |         |
|-----------------|------------|---------|-----------|---------|-----------|---------|
|                 | Males      | Females | Males     | Females | Males     | Females |
| Under 5 . . . . | 68.5       | 59.0    | 84.3      | 74.9    | 59.7      | 48.3    |
| 5-15 . . . .    | 4.3        | 4.2     | 6.1       | 5.8     | 3.9       | 3.8     |
| 15-25 . . . .   | 4.6        | 3.9     | 6.0       | 5.2     | 4.8       | 4.3     |
| 25-35 . . . .   | 8.2        | 6.5     | 10.9      | 9.8     | 7.7       | 6.2     |
| 35-45 . . . .   | 14.0       | 10.8    | 17.9      | 15.8    | 12.4      | 10.3    |
| 45-55 . . . .   | 22.2       | 16.3    | 28.5      | 24.0    | 19.6      | 15.1    |
| 55-65 . . . .   | 39.1       | 29.4    | 50.8      | 42.5    | 34.7      | 26.9    |
| 65-75 . . . .   | 74.4       | 60.7    | 94.3      | 80.0    | 72.3      | 57.6    |
|                 | Birmingham |         | Leeds     |         | Sheffield |         |
|                 | Males      | Females | Males     | Females | Males     | Females |
| Under 5 . . . . | 68.2       | 58.7    | 78.0      | 65.2    | 78.6      | 67.2    |
| 5-15 . . . .    | 3.7        | 3.7     | 5.3       | 5.5     | 5.3       | 5.3     |
| 15-25 . . . .   | 4.2        | 4.0     | 5.8       | 5.2     | 5.3       | 5.1     |
| 25-35 . . . .   | 7.7        | 7.0     | 7.7       | 8.1     | 8.4       | 7.7     |
| 35-45 . . . .   | 13.7       | 11.4    | 13.2      | 11.5    | 14.7      | 11.7    |
| 45-55 . . . .   | 21.7       | 17.4    | 23.3      | 18.5    | 25.0      | 17.4    |
| 55-65 . . . .   | 40.9       | 32.0    | 45.5      | 37.0    | 46.8      | 34.8    |
| 65-75 . . . .   | 81.6       | 67.2    | 94.0      | 77.0    | 94.9      | 74.1    |

The following table for England and Wales shows death-rate of males according to professions :—

|                    | Deaths Yearly per 1,000 Living |         |           |         |                       | Deaths Yearly per 1,000 Living |         |           |         |
|--------------------|--------------------------------|---------|-----------|---------|-----------------------|--------------------------------|---------|-----------|---------|
|                    | Age 25-45                      |         | Age 45-65 |         |                       | Age 25-45                      |         | Age 45-65 |         |
|                    | 1860-71                        | 1880-82 | 1860-71   | 1880-82 |                       | 1860-71                        | 1880-82 | 1860-71   | 1880-82 |
| Clergyman . . .    | 6.0                            | 4.6     | 17.3      | 15.9    | Printer . . .         | 13.0                           | 11.1    | 29.4      | 26.6    |
| Farmer . . .       | 7.7                            | 6.1     | 17.3      | 16.5    | Dyer . . .            | 11.2                           | 9.5     | 26.0      | 27.1    |
| Grocer . . .       | 9.5                            | 8.0     | 17.2      | 19.2    | Wool-spinner . . .    | 9.4                            | 9.7     | 23.3      | 27.5    |
| Fisherman . . .    | 11.3                           | 8.3     | 15.8      | 19.7    | Physician . . .       | 13.8                           | 11.6    | 24.6      | 28.0    |
| Schoolmaster . . . | 9.8                            | 6.4     | 23.6      | 19.8    | Cooper . . .          | 11.8                           | 10.6    | 26.1      | 28.6    |
| Bookseller . . .   | 10.8                           | 8.5     | 21.4      | 20.6    | Butcher . . .         | 13.2                           | 12.2    | 28.4      | 29.1    |
| Carpenter . . .    | 9.4                            | 7.8     | 21.4      | 21.7    | Cotton-spinner . . .  | 10.7                           | 10.0    | 27.9      | 29.4    |
| Watchmaker . . .   | 10.8                           | 9.3     | 24.9      | 22.6    | Stone-cutter . . .    | 10.9                           | 10.0    | 28.7      | 31.0    |
| Lawyer . . .       | 9.9                            | 7.5     | 23.0      | 23.1    | Glass-blower . . .    | 13.2                           | 11.2    | 29.3      | 31.7    |
| Shoemaker . . .    | 10.4                           | 9.3     | 22.3      | 23.4    | Musician . . .        | 18.9                           | 13.8    | 34.8      | 32.4    |
| Slater . . .       | 10.7                           | 9.0     | 30.8      | 24.9    | Painter . . .         | 12.5                           | 11.1    | 34.7      | 32.5    |
| Druggist . . .     | 13.9                           | 10.6    | 23.6      | 25.2    | Hairdresser . . .     | 15.1                           | 13.6    | 30.1      | 33.3    |
| Tanner . . .       | 10.4                           | 8.0     | 26.6      | 25.4    | Publican . . .        | 18.0                           | 18.0    | 34.1      | 33.7    |
| Mason . . .        | 11.4                           | 9.3     | 27.2      | 25.6    | Cutler . . .          | 11.9                           | 11.7    | 32.7      | 34.4    |
| Blacksmith . . .   | 10.1                           | 9.3     | 23.9      | 25.7    | Cab-driver . . .      | 15.9                           | 15.4    | 35.3      | 36.8    |
| Gasfitter . . .    | 11.0                           | 9.2     | 27.9      | 25.7    | Chimney-sweep . . .   | 17.5                           | 13.7    | 42.9      | 41.5    |
| Baker . . .        | 10.7                           | 8.7     | 26.4      | 26.1    | File-maker . . .      | 16.3                           | 15.3    | 42.3      | 45.1    |
| Chandler . . .     | 11.8                           | 7.7     | 27.2      | 26.2    | Costermonger . . .    | 20.1                           | 20.3    | 37.8      | 45.3    |
| Tailor . . .       | 12.9                           | 10.7    | 24.8      | 26.5    | Potter . . .          | 12.6                           | 13.7    | 41.8      | 51.4    |
| Coal-miner . . .   | 11.3                           | 7.8     | 30.5      | 26.5    | General average . . . | 11.3                           | 10.2    | 24.0      | 25.3    |

The tables of mortality of England and Wales for 20 years are summed up as follows :—

|                    | Average Number of Deaths Yearly |         | Deaths per Million Inhabitants |         | Deaths Yearly, 1891-95 |        |
|--------------------|---------------------------------|---------|--------------------------------|---------|------------------------|--------|
|                    | 1876-80                         | 1891-95 | 1876-80                        | 1891-95 | Male                   | Female |
| Accidents . . .    | 15,789                          | 16,765  | 630                            | 562     | 11,772                 | 4,993  |
| Aneurism . . .     | 810                             | 823     | 32                             | 28      | 632                    | 191    |
| Angina . . .       | 469                             | 672     | 19                             | 23      | 426                    | 246    |
| Apoplexy . . .     | 13,780                          | 17,052  | 550                            | 574     | 7,822                  | 9,230  |
| Asthma . . .       | 2,564                           | 2,605   | 102                            | 88      | 1,430                  | 1,175  |
| Bladder . . .      | 1,620                           | 2,150   | 65                             | 72      | 1,910                  | 240    |
| Brain* . . .       | 18,414                          | 13,710  | 736                            | 462     | 6,664                  | 7,046  |
| Bright's . . .     | 4,714                           | 7,656   | 188                            | 258     | 4,134                  | 3,522  |
| Bronchitis . . .   | 59,632                          | 61,645  | 2,378                          | 2,076   | 30,508                 | 31,137 |
| Cancer* . . .      | 12,383                          | 21,194  | 494                            | 712     | 7,891                  | 13,303 |
| Child-birth . . .  | 1,998                           | 2,700   | 79                             | 90      | ...                    | 2,700  |
| Convulsions . . .  | 24,322                          | 20,475  | 972                            | 688     | 11,558                 | 8,917  |
| Croup . . .        | 3,864                           | 2,073   | 154                            | 70      | 1,118                  | 935    |
| Dentition . . .    | 4,479                           | 4,141   | 179                            | 139     | 2,276                  | 1,865  |
| Diabetes . . .     | 1,016                           | 2,065   | 40                             | 70      | 1,164                  | 901    |
| Diarrhoea . . .    | 20,890                          | 18,797  | 832                            | 630     | 9,866                  | 8,931  |
| Diphtheria . . .   | 3,049                           | 7,545   | 122                            | 253     | 3,644                  | 3,901  |
| Dropsy* . . .      | 2,553                           | 220     | 102                            | 7       | 86                     | 134    |
| Enteritis* . . .   | 2,758                           | 7,202   | 110                            | 241     | 3,780                  | 3,422  |
| Epilepsy . . .     | 2,876                           | 2,811   | 115                            | 95      | 1,442                  | 1,369  |
| Erysipelas* . . .  | 2,022                           | 1,422   | 81                             | 48      | 741                    | 681    |
| Gout . . .         | 637                             | 609     | 25                             | 20      | 422                    | 127    |
| Hernia . . .       | 1,119                           | 1,295   | 45                             | 43      | 626                    | 669    |
| Homicide . . .     | 351                             | 313     | 14                             | 10      | 164                    | 149    |
| Hunger* . . .      | 630                             | 335     | 25                             | 11      | 182                    | 153    |
| Influenza . . .    | 208                             | 12,320  | 8                              | 416     | 6,102                  | 6,218  |
| Intemperance . . . | 1,052                           | 2,018   | 42                             | 68      | 1,248                  | 770    |
| Laryngitis . . .   | 1,061                           | 1,444   | 42                             | 48      | 782                    | 662    |
| Liver* . . .       | 9,977                           | 7,498   | 398                            | 252     | 3,942                  | 3,556  |
| Measles . . .      | 9,659                           | 12,117  | 385                            | 408     | 6,232                  | 5,885  |
| Meningitis . . .   | 8,112                           | 6,738   | 324                            | 226     | 3,692                  | 3,046  |
| Mesenterica . . .  | 8,288                           | 7,091   | 330                            | 237     | 3,736                  | 3,355  |
| Nephritis . . .    | 1,017                           | 1,907   | 40                             | 64      | 1,088                  | 819    |
| Old age . . .      | 26,874                          | 27,636  | 1,075                          | 926     | 11,750                 | 15,886 |
| Peritonitis . . .  | 2,017                           | 2,346   | 80                             | 79      | 1,092                  | 1,254  |
| Phthisis . . .     | 51,092                          | 43,520  | 2,043                          | 1,458   | 23,538                 | 19,982 |
| Pleurisy . . .     | 1,254                           | 1,712   | 50                             | 57      | 1,022                  | 690    |
| Pneumonia . . .    | 25,058                          | 37,226  | 1,002                          | 1,247   | 21,520                 | 15,706 |
| Rheumatism . . .   | 3,481                           | 3,544   | 139                            | 119     | 1,718                  | 1,866  |
| Scarlatina . . .   | 17,042                          | 5,424   | 682                            | 182     | 2,684                  | 2,740  |

\* Those marked thus have undergone new classification since 1880.

|                          | Average Number of Deaths Yearly |         | Deaths per Million Inhabitants |         | Deaths Yearly, 1891-95 |         |
|--------------------------|---------------------------------|---------|--------------------------------|---------|------------------------|---------|
|                          | 1876-80                         | 1891-95 | 1876-80                        | 1891-95 | Male                   | Female  |
| Smallpox . . . . .       | 1,946                           | 596     | 78                             | 20      | 352                    | 244     |
| Spinal* . . . . .        | 695                             | 2,112   | 28                             | 71      | 1,234                  | 878     |
| Suicide . . . . .        | 1,850                           | 2,636   | 74                             | 88      | 1,966                  | 670     |
| Syncope . . . . .        | 2,032                           | 1,910   | 81                             | 64      | 1,002                  | 908     |
| Syphilis . . . . .       | 2,120                           | 2,036   | 84                             | 68      | 1,106                  | 930     |
| Thrush . . . . .         | 1,201                           | 436     | 48                             | 15      | 232                    | 204     |
| Tumour* . . . . .        | 310                             | 133     | 12                             | 4       | 54                     | 79      |
| Typhoid . . . . .        | 6,930                           | 5,164   | 277                            | 173     | 2,796                  | 2,368   |
| Typhus* . . . . .        | 848                             | 106     | 34                             | 4       | 56                     | 50      |
| Whooping-cough . . . . . | 13,220                          | 11,830  | 528                            | 397     | 5,278                  | 6,552   |
| Various . . . . .        | 121,029                         | 141,303 | 4,818                          | 4,777   | 70,894                 | 70,409  |
| Total . . . . .          | 521,112                         | 557,078 | 20,791                         | 18,738  | 285,434                | 271,644 |

\* Those marked thus have undergone new classification since 1880.

The following table shows the annual number of deaths *per million inhabitants* from various diseases:—

|                          | 1886-89 | 1890-92 | 1893-95 | 1886-95 |
|--------------------------|---------|---------|---------|---------|
| Zymotic . . . . .        | 2,492   | 2,677   | 2,748   | 2,625   |
| Constitutional . . . . . | 3,243   | 3,294   | 3,131   | 3,225   |
| Local . . . . .          | 9,736   | 10,324  | 9,132   | 9,731   |
| Violent . . . . .        | 630     | 658     | 664     | 649     |
| Sundry . . . . .         | 2,631   | 2,629   | 2,489   | 2,587   |
| Total . . . . .          | 18,732  | 19,582  | 18,164  | 18,817  |

#### ACCIDENTAL DEATHS

In England and Wales there are 16,800 persons killed by accident yearly, 70 per cent. being males, 30 females. Considering only males between 25 and 65 years of age, we find:—

##### *Accidental Deaths of 1000 Men who Die*

|                   |                      |                    |
|-------------------|----------------------|--------------------|
| Shoemakers . . 17 | Cotton-spinners . 30 | Blacksmiths . . 49 |
| Tailors . . . 18  | Ploughmen . . 33     | Costermongers . 53 |
| Bakers . . . 21   | Butchers . . 35      | Brewers . . . 64   |
| Printers . . . 24 | C. travellers . 36   | Painters . . . 73  |
| Gardeners . . 24  | Carpenters . 38      | Cab-drivers . . 84 |
| Potters . . . 24  | Publicans . . 45     | Fishermen . . 152  |
| Farmers . . . 30  | Bricklayers . 45     | Miners . . . 190   |

The general average for all males between 25 and 65 is 67 per thousand, from which it appears that miners, fishermen, and cab-drivers have extra hazardous occupations. Accidental deaths in 1891-95 averaged yearly as follows (England and Wales):—

| By                    | Males  | Females | Total  | Per Million |
|-----------------------|--------|---------|--------|-------------|
| Drowning . . . . .    | 2,282  | 414     | 2,696  | 91          |
| Fire . . . . .        | 1,078  | 1,324   | 2,402  | 81          |
| Suffocation . . . . . | 1,160  | 1,034   | 2,194  | 74          |
| Vehicles . . . . .    | 2,122  | 312     | 2,434  | 82          |
| Mines . . . . .       | 1,023  | 1       | 1,024  | 34          |
| Sundry . . . . .      | 4,107  | 1,908   | 6,015  | 202         |
| Total . . . . .       | 11,772 | 4,993   | 16,765 | 564         |

Accidental deaths in Italy during ten years to end of 1896 averaged 10,140 per annum, or 13 per thousand.

As regards Germany and Austria see *Insurance*, page 755. For other countries see page 180.

#### IRELAND AND SCOTLAND

Some of the causes of death in Ireland during ten years ending 1895, and in Scotland for the year 1893, were:—

|                          | Per 100,000 Inhabitants Yearly |          |
|--------------------------|--------------------------------|----------|
|                          | Ireland                        | Scotland |
| Diphtheria . . . . .     | 8                              | 24       |
| Influenza . . . . .      | 25                             | 30       |
| Typhoid . . . . .        | 17                             | 37       |
| Whooping-cough . . . . . | 27                             | 50       |
| Diarrhoea . . . . .      | 32                             | 65       |
| Violent . . . . .        | 40                             | 68       |
| Cancer . . . . .         | 46                             | 69       |
| Measles . . . . .        | 19                             | 90       |
| Phthisis . . . . .       | 213                            | 170      |
| Bronchitis . . . . .     | 314                            | 309      |

Under the last title is also included Pneumonia.

#### WORKMEN'S DWELLINGS

In 1891 was published a table comparing the death-rates of London with those of the Peabody and the Metropolitan Dwellings for Workmen, averaging two years previous, viz.:—

| Disease                  | Deaths Yearly per 100,000 Persons |         |              |
|--------------------------|-----------------------------------|---------|--------------|
|                          | London                            | Peabody | Metropolitan |
| Scarlatina . . . . .     | 23                                | 34      | 22           |
| Measles . . . . .        | 55                                | 104     | 59           |
| Whooping-cough . . . . . | 55                                | 86      | 48           |
| Diarrhoea . . . . .      | 57                                | 56      | 56           |
| Diphtheria . . . . .     | 34                                | 54      | 37           |
| Typhoid . . . . .        | 14                                | 7       | 7            |
| Tubercular . . . . .     | 254                               | 263     | 236          |
| Various . . . . .        | 1,304                             | 1,168   | 1,109        |
| Total . . . . .          | 1,796                             | 1,772   | 1,574        |

Infant mortality under twelve months was 153 per 1000 births in London, 136 in Peabody Buildings, and 121 in the Metropolitan Dwellings, during five years to December 1890.

#### FRANCE

In the years 1890-93 the mortality in France was 40,000 more than in preceding years, apparently due to influenza. The returns were as follows:—

| Period            | Deaths Yearly | Per 1000 Pop. |
|-------------------|---------------|---------------|
| 1885-89 . . . . . | 835,000       | 21.7          |
| 1890-93 . . . . . | 875,000       | 22.8          |

In 1890 there were recorded 38,000 deaths from influenza.

The death-rate of the French army is as follows:—

| <i>Per 1000 Men</i> |                 |                 |  |
|---------------------|-----------------|-----------------|--|
| France . . . 7      | Senegal . . 74  | Tonkin . . 77   |  |
| Algeria . . . 11    | Madagascar . 75 | Cayenne . . 237 |  |

Bertillon's table of male mortality (1892) is as follows for the city of Paris:—

|                     | Deaths Yearly for 1000 Living |       |       |       |
|---------------------|-------------------------------|-------|-------|-------|
|                     | 20-30                         | 30-40 | 40-50 | 50-60 |
| Grocers . . .       | 6.6                           | 7.0   | 8.7   | 11.4  |
| Druggists . . .     | 7.8                           | 9.2   | 11.1  | 15.7  |
| Schoolmasters . . . | 7.0                           | 8.5   | 5.8   | 17.0  |
| Dairymen . . .      | 5.7                           | 9.9   | 11.8  | 17.4  |
| Physicians . . .    | 9.9                           | 11.3  | 9.8   | 21.9  |
| Lawyers . . .       | 9.8                           | 11.6  | 11.1  | 22.8  |
| Watchmakers . . .   | 9.7                           | 14.0  | 14.9  | 24.7  |
| Tanners . . .       | 9.1                           | 10.5  | 15.9  | 26.4  |
| Butchers . . .      | 10.6                          | 14.0  | 22.2  | 27.5  |
| Waggoners . . .     | 17.6                          | 21.5  | 26.7  | 30.4  |
| Clergymen . . .     | 5.0                           | 8.2   | 9.0   | 30.5  |
| Carpenters . . .    | 10.5                          | 18.8  | 24.3  | 30.7  |
| Masons . . .        | 9.5                           | 16.0  | 23.7  | 31.4  |
| Hairdressers . . .  | 14.8                          | 14.2  | 18.1  | 33.2  |
| Shoemakers . . .    | 13.4                          | 19.2  | 20.4  | 35.3  |
| Bakers . . .        | 12.4                          | 16.2  | 24.4  | 39.0  |
| Tailors . . .       | 9.1                           | 11.3  | 23.4  | 39.8  |
| Printers . . .      | 17.8                          | 23.7  | 26.7  | 40.6  |
| Painters . . .      | 14.8                          | 23.0  | 28.8  | 42.0  |
| Cab-drivers . . .   | 16.4                          | 20.5  | 32.0  | 58.0  |
| Average . . .       | 11.1                          | 14.9  | 21.2  | 31.2  |

The heaviest death-rate falls to cab-drivers, painters, printers, tailors, and bakers, and of these classes only cab-drivers and painters are in the same position in the death-rate of England.

#### SWITZERLAND

Tables for four years ending December 1882 show male death-rates thus:—

|                       | Deaths Yearly per 1,000 Living |       |       |       |
|-----------------------|--------------------------------|-------|-------|-------|
|                       | 20-30                          | 30-40 | 40-50 | 50-60 |
| Farmers . . .         | 5.7                            | 7.9   | 12.1  | 21.7  |
| Clergymen . . .       | 7.2                            | 8.2   | 13.1  | 23.0  |
| Schoolmasters . . .   | 6.4                            | 8.7   | 14.8  | 24.3  |
| Cotton-spinners . . . | 8.0                            | 9.3   | 13.3  | 24.9  |
| Printers . . .        | 10.2                           | 14.3  | 16.2  | 27.0  |
| Bakers . . .          | 6.8                            | 11.4  | 15.9  | 28.9  |
| Merchants . . .       | 11.1                           | 14.1  | 18.7  | 29.2  |
| Butchers . . .        | 5.3                            | 17.9  | 21.5  | 29.9  |
| Tailors . . .         | 10.6                           | 11.9  | 17.9  | 30.0  |
| Shoemakers . . .      | 7.7                            | 10.0  | 14.2  | 30.0  |
| Physicians . . .      | 10.9                           | 12.3  | 20.7  | 30.4  |
| Carpenters . . .      | 6.5                            | 10.1  | 16.8  | 30.7  |
| Blacksmiths . . .     | 6.5                            | 11.3  | 16.6  | 32.5  |
| Innkeepers . . .      | 7.8                            | 16.9  | 24.2  | 32.8  |
| Masons . . .          | 9.5                            | 13.1  | 18.9  | 34.9  |
| Cab-drivers . . .     | 10.8                           | 18.3  | 26.0  | 51.0  |
| General average . . . | 7.9                            | 10.7  | 15.3  | 26.3  |

The most unhealthy occupations were cab-drivers, masons, innkeepers, and blacksmiths, and of these only cab-drivers stand in the same position in Bertillon's tables for Paris and in the official death-rates for England and Wales.

The following table shows the annual rate of mortality

of males from phthisis only, in Switzerland, according to occupation:—

|                       | Deaths Yearly per 1,000 Living |       |       |       |
|-----------------------|--------------------------------|-------|-------|-------|
|                       | 20-30                          | 30-40 | 40-50 | 50-60 |
| Farmers . . .         | 1.5                            | 2.0   | 2.0   | 2.4   |
| Physicians . . .      | 4.8                            | 4.7   | 5.3   | 3.2   |
| Clergymen . . .       | 3.9                            | 3.7   | 3.7   | 3.3   |
| Schoolmasters . . .   | 3.4                            | 3.8   | 4.6   | 3.3   |
| Cotton-spinners . . . | 4.0                            | 3.4   | 2.7   | 3.9   |
| Innkeepers . . .      | 4.4                            | 6.9   | 6.1   | 4.0   |
| Bakers . . .          | 2.9                            | 4.1   | 3.8   | 4.2   |
| Merchants . . .       | 5.8                            | 6.6   | 4.8   | 4.4   |
| Cab-drivers . . .     | 2.7                            | 4.8   | 5.8   | 4.5   |
| Carpenters . . .      | 1.9                            | 3.8   | 3.4   | 4.8   |
| Shoemakers . . .      | 3.0                            | 4.4   | 3.7   | 5.0   |
| Blacksmiths . . .     | 2.3                            | 4.1   | 5.6   | 5.3   |
| Tailors . . .         | 4.9                            | 5.6   | 5.5   | 5.5   |
| Masons . . .          | 2.8                            | 3.5   | 4.1   | 5.6   |
| Butchers . . .        | 5.6                            | 6.8   | 5.9   | 6.3   |
| Printers . . .        | 6.5                            | 7.9   | 6.6   | 6.7   |
| General average . . . | 3.1                            | 4.0   | 3.5   | 3.7   |

The worst trades are printers, butchers, and masons, whose rates of death from phthisis are double those of farmers, clergymen, and schoolmasters.

#### ITALY

Public health has improved in the last ten years, as shown by the diminished death-rate, viz.:—

|                     | Deaths Yearly per 1,000 Population |      |
|---------------------|------------------------------------|------|
|                     | 1887                               | 1896 |
| Cities . . . . .    | 28.9                               | 23.7 |
| All Italy . . . . . | 28.1                               | 24.3 |

In 1896 the urban death-rate was lower than that of the nation. The causes of death in the kingdom were:—

|                       | Per 100,000 Inhabitants |       |
|-----------------------|-------------------------|-------|
|                       | 1887                    | 1896  |
| Bronchitis . . . . .  | 217                     | 233   |
| Diarrhoea . . . . .   | 316                     | 346   |
| Consumption . . . . . | 212                     | 192   |
| Diphtheria . . . . .  | 84                      | 21    |
| Measles . . . . .     | 81                      | 37    |
| Malaria . . . . .     | 71                      | 45    |
| Various . . . . .     | 1,829                   | 1,556 |
| Total . . . . .       | 2,810                   | 2,430 |

In the northern provinces the death-rate is 30 per cent. less than in the southern, viz.:—

| <i>Per 10,000 Yearly</i> |     |                   |     |
|--------------------------|-----|-------------------|-----|
| Venetia . . . . .        | 198 | Umbria . . . . .  | 240 |
| Piedmont . . . . .       | 202 | Sicily . . . . .  | 252 |
| Tuscany . . . . .        | 229 | Romagna . . . . . | 256 |
| Lombardy . . . . .       | 236 | Naples . . . . .  | 288 |

Deaths from malaria and phthisis are as follows:—

| <i>Per 100,000 Inhabitants</i> |     |                    |     |
|--------------------------------|-----|--------------------|-----|
| <i>Malaria</i>                 |     | <i>Phthisis</i>    |     |
| Romagna . . . . .              | 66  | Lombardy . . . . . | 224 |
| Sicily . . . . .               | 99  | Tuscany . . . . .  | 236 |
| Sardinia . . . . .             | 171 | Liguria . . . . .  | 267 |
| Basilicata . . . . .           | 199 | Romagna . . . . .  | 283 |

## UNITED STATES

The census of 1890 showed the death-rate of certain cities thus :—

|                         | Per 1000 Persons |          |
|-------------------------|------------------|----------|
|                         | White            | Coloured |
| New York . . . . .      | 28.5             | 37.4     |
| Chicago . . . . .       | 21.0             | 23.3     |
| Philadelphia . . . . .  | 22.3             | 32.4     |
| St. Louis . . . . .     | 18.2             | 34.6     |
| Boston . . . . .        | 24.6             | 33.3     |
| Baltimore . . . . .     | 22.6             | 36.4     |
| San Francisco . . . . . | 23.6             | 24.1     |
| Cincinnati . . . . .    | 21.9             | 33.0     |
| New Orleans . . . . .   | 25.4             | 36.6     |
| Washington . . . . .    | 19.8             | 38.2     |
| Average . . . . .       | 22.8             | 32.9     |

The death-rate of the Union being, as Dr. Billings shows, 15.0 per thousand, it appears that the whites in the above 10 cities collectively have a death-rate which is relatively 52 per cent. higher. Moreover, in the same cities the death-rate of coloured persons is 44 per cent. higher than that of whites. The total number of deaths recorded in 1890 was :—

|                        | No.            | Ratio        | Per 100,000 Pop. |
|------------------------|----------------|--------------|------------------|
| Consumption . . . . .  | 102,199        | 11.6         | 164              |
| Pneumonia . . . . .    | 76,496         | 8.8          | 122              |
| Diarrhoea . . . . .    | 74,711         | 8.6          | 119              |
| Diphtheria . . . . .   | 41,677         | 4.7          | 67               |
| Typhoid . . . . .      | 27,058         | 3.1          | 43               |
| Cancer . . . . .       | 20,984         | 2.4          | 33               |
| Various . . . . .      | 532,395        | 60.8         | 852              |
| <b>Total . . . . .</b> | <b>875,520</b> | <b>100.0</b> | <b>1,400</b>     |

The above would show an annual death-rate of 14 per 1000, but the returns are supposed to be incomplete, and Dr. Billings considers the real death-rate to be 15.1 per thousand. In his report already mentioned (1886) he states the death-rates, urban and rural, from certain diseases as follows :—

|                              | Deaths Yearly per 100,000 Pop. |              | No. in 1000 Deaths |              |
|------------------------------|--------------------------------|--------------|--------------------|--------------|
|                              | Rural                          | Cities       | Rural              | Cities       |
| Consumption . . . . .        | 163                            | 286          | 124                | 138          |
| Nervous affections . . . . . | 146                            | 257          | 111                | 124          |
| Diarrhoea . . . . .          | 114                            | 199          | 87                 | 97           |
| Pneumonia . . . . .          | 123                            | 143          | 93                 | 69           |
| Heart disease . . . . .      | 79                             | 96           | 60                 | 46           |
| Accidents . . . . .          | 65                             | 85           | 50                 | 41           |
| Diphtheria . . . . .         | 75                             | 80           | 57                 | 39           |
| Apoplexy . . . . .           | 45                             | 51           | 34                 | 25           |
| Bronchitis . . . . .         | 16                             | 56           | 12                 | 28           |
| Croup . . . . .              | 35                             | 41           | 26                 | 20           |
| Cancer . . . . .             | 23                             | 40           | 17                 | 20           |
| Typhoid . . . . .            | 48                             | 35           | 36                 | 17           |
| Malarial fever . . . . .     | 43                             | 25           | 32                 | 12           |
| Scarlatina . . . . .         | 28                             | 55           | 21                 | 27           |
| Whooping-cough . . . . .     | 22                             | 20           | 16                 | 10           |
| Measles . . . . .            | 16                             | 15           | 12                 | 7            |
| Various diseases . . . . .   | 279                            | 576          | 212                | 280          |
| <b>Total . . . . .</b>       | <b>1,320</b>                   | <b>2,060</b> | <b>1,000</b>       | <b>1,000</b> |

## AUSTRALIA

The death-rates of the several colonies have been :—

|                           | Per 1000 of Population Yearly. |         |         |         |
|---------------------------|--------------------------------|---------|---------|---------|
|                           | 1861-70                        | 1871-80 | 1881-90 | 1891-95 |
| New South Wales . . . . . | 16.4                           | 15.3    | 14.7    | 12.8    |
| Victoria . . . . .        | 16.9                           | 15.5    | 15.3    | 14.1    |
| New Zealand . . . . .     | 13.0                           | 12.2    | 10.4    | 10.2    |
| Queensland . . . . .      | 19.4                           | 17.3    | 17.0    | 12.5    |
| South Australia . . . . . | 15.4                           | 15.4    | 13.6    | 12.2    |
| Tasmania . . . . .        | 14.7                           | 16.1    | 15.6    | 13.2    |
| West Australia . . . . .  | 16.3                           | 15.2    | 16.6    | 16.1    |
| General . . . . .         | 16.2                           | 14.9    | 14.4    | 12.7    |

In 1895 the ratio of sexes as to deaths showed as follows :—

|                           | Deaths        |               | Male Deaths to 1000 Female |
|---------------------------|---------------|---------------|----------------------------|
|                           | Males         | Females       |                            |
| New South Wales . . . . . | 8,671         | 6,243         | 1,383                      |
| Victoria . . . . .        | 8,801         | 6,758         | 1,314                      |
| New Zealand . . . . .     | 3,666         | 2,897         | 1,370                      |
| Queensland . . . . .      | 3,237         | 1,915         | 1,690                      |
| South Australia . . . . . | 2,203         | 1,760         | 1,252                      |
| Tasmania . . . . .        | 1,047         | 764           | 1,373                      |
| West Australia . . . . .  | 1,201         | 403           | 2,980                      |
| <b>Total . . . . .</b>    | <b>29,216</b> | <b>20,740</b> | <b>1,408</b>               |

The census of 1891 showed the number of males to 1000 females was 1150, that is to say, the male surplus was 15 per cent. ; as the above table shows the mortality of males to be almost 41 per cent. over that of females, it is evident that the death-rate of males is excessive. If it were in the same ratio as that of females, the deaths of males in 1895 would have reached only 23,850.

For Canada see *Vital Statistics*, page 815.

## DEATH-DUTIES

The total amount of property assessed for death-duties in the United Kingdom has been as follows :—

|                       | Annual Averages, £ |                    |                    |
|-----------------------|--------------------|--------------------|--------------------|
|                       | 1883-87            | 1888-92            | 1893-97            |
| England . . . . .     | 150,020,000        | 178,600,000        | 184,900,000        |
| Scotland . . . . .    | 18,010,000         | 19,400,000         | 21,300,000         |
| Ireland . . . . .     | 12,100,000         | 11,900,000         | 11,600,000         |
| <b>United Kingdom</b> | <b>180,130,000</b> | <b>209,900,000</b> | <b>217,800,000</b> |

Dividing the above amounts among the number of deaths, it would appear that the average fortune of each in the said periods was as follows :—

|                       | £ per Decree |            |            |
|-----------------------|--------------|------------|------------|
|                       | 1883-87      | 1888-92    | 1893-97    |
| England . . . . .     | 285          | 330        | 340        |
| Scotland . . . . .    | 240          | 255        | 260        |
| Ireland . . . . .     | 134          | 138        | 140        |
| <b>United Kingdom</b> | <b>261</b>   | <b>298</b> | <b>310</b> |

The ratios of property assessed to death-dues were as follows :—

|                           | No. of Estates |       | Value of Estates |       |
|---------------------------|----------------|-------|------------------|-------|
|                           | 1887           | 1897  | 1887             | 1897  |
| Over £100,000 . . .       | 3              | 5     | 221              | 273   |
| £10,000 to £100,000 . . . | 53             | 59    | 446              | 423   |
| £1,000 to £10,000 . . .   | 256            | 246   | 261              | 227   |
| Under £1,000 . . .        | 688            | 690   | 72               | 77    |
| Total . . .               | 1,000          | 1,000 | 1,000            | 1,000 |

The value of estates in 1897 was as follows :—

|                           | (000 omitted) |               |              |               |
|---------------------------|---------------|---------------|--------------|---------------|
|                           | England<br>£  | Scotland<br>£ | Ireland<br>£ | U. King.<br>£ |
| Over £100,000 . . .       | 53,000        | 5,100         | 2,200        | 60,300        |
| £10,000 to £100,000 . . . | 78,700        | 8,800         | 5,200        | 92,700        |
| £1,000 to £10,000 . . .   | 41,800        | 5,600         | 3,200        | 50,600        |
| Under £1,000 . . .        | 13,400        | 1,700         | 1,600        | 16,700        |
| Total . . .               | 186,900       | 21,200        | 12,200       | 220,300       |

The deaths among the wealthy classes in the three kingdoms in 1896-97 were as follows :—

|                | Number | Amount, £   | Average, £ |
|----------------|--------|-------------|------------|
| England . . .  | 2,886  | 131,800,000 | 47,700     |
| Scotland . . . | 348    | 13,900,000  | 40,000     |
| Ireland . . .  | 219    | 7,400,000   | 33,600     |
| Total . . .    | 3,453  | 153,100,000 | 44,400     |

Those among the middle classes were as follows :—

|                | Number | Amount, £  | Average, £ |
|----------------|--------|------------|------------|
| England . . .  | 10,916 | 41,800,000 | 3,830      |
| Scotland . . . | 1,554  | 5,600,000  | 3,600      |
| Ireland . . .  | 955    | 3,200,000  | 3,360      |
| Total . . .    | 13,425 | 50,600,000 | 3,770      |

Those among the artisan and tradesmen classes were as follows :—

|                | Number | Amount, £  | Average, £ |
|----------------|--------|------------|------------|
| England . . .  | 11,463 | 8,900,000  | 77         |
| Scotland . . . | 1,530  | 1,100,000  | 72         |
| Ireland . . .  | 1,440  | 900,000    | 63         |
| United Kingdom | 14,433 | 10,900,000 | 75         |

The rest of the wealth divided among the rest of the deaths of adults shows :—

|                | Number  | Amount, £ | Average, £ |
|----------------|---------|-----------|------------|
| England . . .  | 270,415 | 4,500,000 | 17         |
| Scotland . . . | 38,928  | 610,000   | 15         |
| Ireland . . .  | 53,406  | 720,000   | 14         |
| United Kingdom | 362,749 | 5,830,000 | 16         |

The total property which changed owners at death, divided among the number of adults who died in 1896, showed as follows :—

|                  | Number  | Amount, £   | Average, £ |
|------------------|---------|-------------|------------|
| England . . .    | 295,680 | 186,900,000 | 633        |
| Scotland . . .   | 42,360  | 21,200,000  | 501        |
| Ireland . . .    | 56,020  | 12,200,000  | 218        |
| U. Kingdom . . . | 394,060 | 220,300,000 | 558        |

The distribution of wealth in the three kingdoms shows the following ratios :—

| Class | Population to Wealth |             |             |             |
|-------|----------------------|-------------|-------------|-------------|
|       | England              | Scotland    | Ireland     | U. Kingdom  |
|       | Pop. = Wth.          | Pop. = Wth. | Pop. = Wth. | Pop. = Wth. |
| No. 1 | 1.0 70.5             | 0.8 65.6    | 0.4 60.5    | 0.9 69.4    |
| " 2   | 3.7 22.4             | 3.7 26.4    | 1.7 26.2    | 3.4 23.0    |
| " 3   | 3.9 4.7              | 5.2 2.5     | 7.4 3.6     | 5.0         |
| " 4   | 91.4 2.4             | 91.9 2.8    | 95.4 5.9    | 92.1 2.6    |
| Total | 100.0 100.0          | 100.0 100.0 | 100.0 100.0 | 100.0       |

The first and second classes in the United Kingdom combined form  $4\frac{1}{2}$  per cent. of the population, and possess  $92\frac{1}{2}$  per cent. of the wealth; the third and fourth classes combined represent  $95\frac{1}{2}$  per cent. of population and  $7\frac{1}{2}$  per cent. of wealth. The distribution of wealth is much more uneven in Ireland than in Great Britain; the second and third classes combined compare as follows :—

| Percentage          | England | Scotland | Ireland |
|---------------------|---------|----------|---------|
| In population . . . | 7.6     | 7.3      | 4.2     |
| In wealth . . .     | 27.1    | 31.6     | 33.6    |

At the same time the percentage of people of the poorest class is much greater in Ireland than in the sister kingdoms.

## DIET

See pages 190-192.

## DISEASES

See pages 193-216.

## DIVORCES

The average of divorces to 10,000 marriages shows increasing ratios, viz. :—

|                   | Per 10,000 Marriages |         |          |
|-------------------|----------------------|---------|----------|
|                   | 1877-86              | 1890-96 | Increase |
| England . . .     | 19                   | 16      | ...      |
| France . . .      | 121                  | 229     | 108      |
| Germany . . .     | 152                  | 170     | 18       |
| Austria . . .     | 10                   | 48      | 38       |
| Italy . . .       | 24                   | 28      | 4        |
| Belgium . . .     | 69                   | 110     | 41       |
| Holland . . .     | 91                   | 120     | 29       |
| Sweden . . .      | 73                   | 106     | 33       |
| Switzerland . . . | 468                  | 400     | ...      |
| Roumania . . .    | 106                  | 200     | 94       |

In Germany the ratio is by no means even: it is 100 in Wurtemberg, 140 in Bavaria, and 180 in Prussia, to



10,000 marriages. In Russia the rates are: among Roman Catholics 2, Greeks 17, Protestants 67, to 10,000 marriages. In Switzerland, 7 among Catholic, 27 among Protestant, and 40 among mixed marriages, per 10,000.

The following table shows the number of divorced persons in various countries, and their ratio to adult population:—

|                    | Men    | Women   | Total   | Per 100,000 |
|--------------------|--------|---------|---------|-------------|
| France . . .       | 16,680 | 19,920  | 36,600  | 131         |
| Germany . . .      | 25,270 | 49,600  | 74,870  | 234         |
| Austria . . .      | 7,590  | 9,730   | 17,320  | 110         |
| Hungary . . .      | 4,870  | 7,620   | 12,490  | 113         |
| Switzerland . . .  | 4,010  | 7,600   | 11,610  | 586         |
| Sweden . . .       | 1,300  | 2,590   | 3,890   | 122         |
| Norway . . .       | 310    | 440     | 750     | 57          |
| Denmark . . .      | 2,380  | 3,500   | 5,880   | 412         |
| Holland . . .      | 2,130  | 3,400   | 5,530   | 188         |
| Belgium . . .      | 1,550  | 2,140   | 3,690   | 90          |
| Bulgaria . . .     | 1,190  | 1,320   | 2,510   | 130         |
| 11 countries . . . | 67,280 | 107,860 | 175,140 | ...         |

## FRANCE

The number of divorces since 1887 compares with marriages thus:—

| Period        | Annual Average |           | Divorces in 10,000 marriages |
|---------------|----------------|-----------|------------------------------|
|               | Divorces       | Marriages |                              |
| 1887-90 . . . | 4,647          | 274,000   | 170                          |
| 1891-93 . . . | 5,903          | 287,000   | 205                          |
| 1894-96 . . . | 6,740          | 286,500   | 235                          |

The ratio of divorces has increased 40 per cent. in ten years.

See *Divorce*, pages 217-225.

## DOCKS AND HARBOURS

See page 226.

## DOGS

The number of dog-licences issued in 1897 was:—

|                |           |
|----------------|-----------|
| England . . .  | 1,270,000 |
| Scotland . . . | 110,000   |

Sheep-dogs go free of tax, as also those belonging to blind persons.

The number of dogs which paid tax in France in 1895 was 3,005,000.

For dogs in other countries see *Animals*, page 61, also page 35.

## DRAINAGE

The length of sewers in the principal cities is:—

|               | Length, Miles | Inches per Inhab. |                  | Length, Miles | Inches per Inhab. |
|---------------|---------------|-------------------|------------------|---------------|-------------------|
| London . . .  | 1,420         | 20                | Buda-Pesth . . . | 140           | 16                |
| Paris . . .   | 570           | 16                | Brussels . . .   | 78            | 10                |
| Vienna . . .  | 490           | 24                | Bordeaux . . .   | 46            | 11                |
| Berlin . . .  | 395           | 15                | Leipzig . . .    | 60            | 10                |
| Hamburg . . . | 190           | 20                | Rome . . .       | 51            | 7                 |
| Breslau . . . | 156           | 26                | Genoa . . .      | 51            | 15                |
| Dresden . . . | 100           | 19                | Palermo . . .    | 53            | 12                |

The above fourteen cities have an average of 16 inches of sewers per inhabitant. Rome, Brussels, and Leipzig have the lowest ratios.

## DRUGS

The following table shows the weight and value of all drugs, chemicals, and spices imported into the United Kingdom at certain dates:—

|                   | Tons Weight |         |           | Value £ (000 omitted) |        |        |
|-------------------|-------------|---------|-----------|-----------------------|--------|--------|
|                   | 1876        | 1886    | 1896      | 1876                  | 1886   | 1896   |
| Bones . . .       | 96,000      | 67,000  | 74,000    | 620                   | 370    | 280    |
| Caoutchouc . . .  | 7,900       | 9,700   | 21,600    | 1,540                 | 2,220  | 4,990  |
| Chinchona . . .   | 1,300       | 7,300   | 1,800     | 270                   | 800    | 60     |
| Cochineal . . .   | 1,500       | 700     | 300       | 340                   | 100    | 40     |
| Cutch . . .       | 26,000      | 28,000  | 27,000    | 610                   | 650    | 550    |
| Dye-woods . . .   | 89,000      | 78,000  | 91,000    | 590                   | 420    | 590    |
| Esparto . . .     | 148,000     | 195,000 | 187,000   | 1,210                 | 1,000  | 800    |
| Guano . . .       | 199,000     | 69,000  | 20,000    | 2,300                 | 540    | 100    |
| Gum . . .         | 13,000      | 16,000  | 24,000    | 1,030                 | 1,050  | 1,590  |
| Guttapercha . . . | 1,100       | 2,000   | 2,200     | 160                   | 270    | 400    |
| Indigo . . .      | 4,400       | 4,300   | 4,500     | 2,130                 | 1,910  | 1,530  |
| Nitre . . .       | 165,000     | 75,000  | 106,000   | 1,890                 | 750    | 840    |
| Opium . . .       | 180         | 230     | 220       | 390                   | 310    | 250    |
| Paints . . .      | ...         | ...     | ...       | 730                   | 780    | 990    |
| Pepper . . .      | 12,000      | 12,000  | 12,000    | 460                   | 870    | 300    |
| Rosin . . .       | 49,000      | 58,000  | 83,000    | 310                   | 290    | 420    |
| Saltpetre . . .   | 13,000      | 14,000  | 17,000    | 240                   | 240    | 280    |
| Sumach . . .      | 13,000      | 13,000  | 15,000    | 220                   | 180    | 150    |
| Sulphur . . .     | 44,000      | 32,000  | 23,000    | 280                   | 160    | 90     |
| Turpentine . . .  | 12,000      | 15,000  | 25,000    | 270                   | 390    | 490    |
| Valonia . . .     | 35,000      | 34,000  | 33,000    | 630                   | 480    | 330    |
| Wood-pulp . . .   | ...         | 80,000  | 330,000   | ...                   | 510    | 1,680  |
| Yeast . . .       | 8,000       | 15,000  | 9,000     | 410                   | 820    | 430    |
| Sundries . . .    | 65,000      | 127,000 | 74,000    | 1,690                 | 1,780  | 1,570  |
| Total . . .       | 1,003,380   | 952,230 | 1,180,620 | 18,320                | 16,890 | 18,750 |

The average value of imported drugs and chemicals was £18.3 per ton in 1876, and £15.8 in 1896.

Exports of drugs and chemicals were as follow:—

|                  | Tons Weight |         |         | Value £ (000 omitted) |        |        |
|------------------|-------------|---------|---------|-----------------------|--------|--------|
|                  | 1876        | 1886    | 1896    | 1876                  | 1886   | 1896   |
| Alkali . . .     | 270,000     | 310,000 | 240,000 | 2,220                 | 1,790  | 1,240  |
| Bleaching . . .  | 47,000      | 78,000  | 59,000  | 330                   | 500    | 410    |
| Caoutchouc . . . | 3,500       | 5,500   | 12,000  | 640                   | 1,300  | 2,640  |
| Chinchona . . .  | 1,700       | 5,900   | 1,300   | 390                   | 550    | 30     |
| Cochineal . . .  | 850         | 550     | 200     | 190                   | 80     | 20     |
| Cutch . . .      | 6,700       | 10,200  | 6,500   | 160                   | 260    | 160    |
| Guano . . .      | 53,000      | 7,400   | 1,700   | 650                   | 50     | 10     |
| Gum . . .        | 6,500       | 9,600   | 10,700  | 480                   | 630    | 750    |
| Gunpowder . . .  | 6,500       | 5,000   | 3,600   | 360                   | 290    | 190    |
| Indigo . . .     | 2,900       | 2,700   | 2,500   | 1,490                 | 1,170  | 910    |
| Manure . . .     | 150,000     | 300,000 | 350,000 | 890                   | 1,610  | 1,810  |
| Medicine . . .   | ...         | ...     | ...     | 640                   | 810    | 1,120  |
| Opium . . .      | 100         | 160     | 110     | 220                   | 220    | 120    |
| Paints . . .     | ...         | ...     | ...     | 1,070                 | 1,270  | 1,660  |
| Pepper . . .     | 7,700       | 9,000   | 5,200   | 320                   | 640    | 140    |
| Sundries . . .   | ...         | ...     | ...     | 2,330                 | 2,490  | 3,670  |
| Total . . .      | 556,250     | 744,610 | 692,810 | 13,030                | 13,710 | 14,880 |

## DRUNKENNESS

The number of persons tried for drunkenness in England from 1874 to 1894 was as follows:—

| Period         | No. Yearly | Per 100,000 Inhabitants |
|----------------|------------|-------------------------|
| 1874-78 . . .  | 196,500    | 812                     |
| 1879-83 . . .  | 181,800    | 698                     |
| 1884-88 . . .  | 174,900    | 636                     |
| 1889-94 . . .  | 176,400    | 604                     |
| 21 years . . . | 182,100    | 683                     |

In Scotland the Royal Commission of 1896 found that 72 per cent. of crime proceeded from drink.

Deaths from alcoholism of men between 25 and 65 years average 10 per thousand, or 1 per cent. of the total, in England and Wales, but vary exceedingly according to profession, viz. :—

*Deaths from Drink of 1000 Men who Die*

|                    |                   |                     |
|--------------------|-------------------|---------------------|
| Ploughman . . . 1  | Miner . . . 4     | Baker . . . 15      |
| Gardener . . . 2   | Stonecutter . . 5 | Costermonger . 19   |
| Printer . . . 3    | Farmer . . . 6    | Butcher . . . 23    |
| Cotton-spinner . 3 | Blacksmith . . 8  | Com. traveller . 23 |
| Cutler . . . 3     | Draper . . . 8    | Brewer . . . 25     |
| Carpenter . . . 4  | Grocer . . . 10   | Cab-driver . . 33   |
| Shoemaker . . . 4  | Tailor . . . 11   | Publican . . . 55   |
| Fisherman . . . 4  | Painter . . . 12  | Average . . . 10    |

**AUSTRALIA**

The following table shows the arrests for drunkenness and the average consumption of alcohol in the several colonies :—

|                       | Arrests for Drunkenness | Per 10,000 Pop. | Alcohol, Galls. per Head |
|-----------------------|-------------------------|-----------------|--------------------------|
| New South Wales . .   | 20,670                  | 170             | 2.7                      |
| Victoria . . . . .    | 15,890                  | 140             | 3.2                      |
| New Zealand . . . .   | 5,350                   | 80              | 1.8                      |
| Queensland . . . . .  | 4,915                   | 120             | 2.5                      |
| South Australia . . . | 2,715                   | 75              | 2.5                      |
| Tasmania . . . . .    | 920                     | 60              | 2.0                      |
| Total . . . . .       | 50,460                  | 125             | 2.6                      |

**CANADA**

Convictions for drunkenness in ten years ending 1894 averaged 12,026 yearly. In 1895 they were 11,558, that is 468 below the average, viz. :—

|                      | Convictions | Per 10,000 Pop. |
|----------------------|-------------|-----------------|
| Quebec . . . . .     | 4,307       | 28              |
| Ontario . . . . .    | 3,132       | 14              |
| Acadia . . . . .     | 2,934       | 33              |
| North-West . . . . . | 1,185       | 34              |
| Total . . . . .      | 11,558      | 24              |

From 1884 to 1890 the convictions for drunkenness rose 40 per cent. by a steady increase, but since 1890 there has been a continuous fall, and 1895 shows 17 per cent. less than 1890.

**DUELS**

A return of Italian duels for ten years down to 1890 shows that there were 2760, which resulted in 50 men killed, 1066 wounded, and 1644 unhurt. The percentage of combatants showed 30 military, 29 editors, 12 lawyers, and 29 per cent. various. The duels were influenced by the seasons in the following ratio :—

| Par being 230       |       |                    |       |
|---------------------|-------|--------------------|-------|
| Warm Months         |       | Cold Months        |       |
| May . . . . .       | 273   | November . . . .   | 92    |
| June . . . . .      | 319   | December . . . . . | 67    |
| July . . . . .      | 330   | January . . . . .  | 220   |
| August . . . . .    | 326   | February . . . . . | 263   |
| September . . . . . | 271   | March . . . . .    | 291   |
| October . . . . .   | 121   | April . . . . .    | 107   |
| Total . . . . .     | 1,640 | Total . . . . .    | 1,120 |

**E**

**EARTH**

Ravenstein estimates the fertile and the unproductive areas as follows :—

|                     | Square Miles |              |            |
|---------------------|--------------|--------------|------------|
|                     | Fertile      | Unproductive | Total      |
| Europe . . . . .    | 2,888,000    | 667,000      | 3,555,000  |
| Asia . . . . .      | 9,280,000    | 5,430,000    | 14,710,000 |
| Africa . . . . .    | 5,760,000    | 5,754,000    | 11,514,000 |
| Australia . . . . . | 1,167,000    | 2,121,000    | 3,288,000  |
| North America . . . | 4,946,000    | 1,500,000    | 6,446,000  |
| South America . . . | 4,228,000    | 2,609,000    | 6,837,000  |
| Total . . . . .     | 28,269,000   | 18,081,000   | 46,350,000 |

The actual population is 1420 millions, equal to 50 persons per square mile of fertile area, or one-fourth of the number that can conveniently be supported, allowing 15 acres to each family.

**EARTHQUAKES**

Careful records are kept at Tokio, Japan, of the occurrence of earthquakes. In eleven years ending

December 1886 there were 658, and the ratios, according to months, to barometer and thermometer showed thus :—

| Months              | Barometer |                 | Fahrenheit |                 |
|---------------------|-----------|-----------------|------------|-----------------|
| January . . . . .   | 96        | 29.9            | 13         | 0-32 88         |
| February . . . . .  | 94        | 30.0            | 21         | 32-37 129       |
| March . . . . .     | 128       | 30.1            | 23         | 37-42 124       |
| April . . . . .     | 75        | 30.2            | 91         | 42-47 112       |
| May . . . . .       | 94        | 30.3            | 144        | 47-52 85        |
| June . . . . .      | 76        | 30.4            | 146        | 52-57 78        |
| July . . . . .      | 53        | 30.5            | 155        | 57-62 114       |
| August . . . . .    | 58        | 30.6            | 181        | 62-67 53        |
| September . . . . . | 42        | 30.7            | 91         | 67-72 82        |
| October . . . . .   | 84        | 30.8            | 85         | 72-77 63        |
| November . . . . .  | 79        | 30.9            | 40         | 77-82 42        |
| December . . . . .  | 121       | 31.0            | 10         | Over 82 30      |
| Total . . . . .     | 1,000     | Total . . . . . | 1,000      | Total . . . . . |

The above shows that in Japan earthquakes are most frequent from December to March inclusive, that they occur mostly when the barometer stands between 30.2 and 30.7, and the thermometer between 32 and 47 Fahrenheit, the ordinary temperature at Tokio (Jeddo) being 58.

## EDUCATION

The educational condition of nations in 1896 was approximately as follows :—

|                           | Schools, No. | Pupils, No. | Percentage of Pop. | Expenditure, £ | Pence per Inhab. | Percentage Adults can Write |
|---------------------------|--------------|-------------|--------------------|----------------|------------------|-----------------------------|
| England . . . . .         | 19,850       | 4,420,000   | 14.4               | 10,500,000     | 82               | 96                          |
| Scotland . . . . .        | 3,080        | 590,000     | 14.1               | 2,400,000      | 134              | 97                          |
| Ireland . . . . .         | 8,610        | 540,000     | 11.7               | 1,300,000      | 70               | 85                          |
| United Kingdom . . . . .  | 31,540       | 5,550,000   | 14.0               | 14,200,000     | 86               | 94                          |
| France . . . . .          | 89,110       | 6,250,000   | 16.0               | 8,000,000      | 50               | 95                          |
| Germany . . . . .         | 56,560       | 7,930,000   | 15.5               | 12,100,000     | 54               | 99                          |
| Russia . . . . .          | 66,040       | 3,130,000   | 3.0                | 5,000,000      | 11               | 22                          |
| Austria . . . . .         | 37,510       | 5,910,000   | 14.5               | 3,000,000      | 17               | 69                          |
| Italy . . . . .           | 64,200       | 2,720,000   | 8.8                | 4,900,000      | 36               | 56                          |
| Spain . . . . .           | 30,100       | 1,840,000   | 10.5               | 1,200,000      | 16               | 42                          |
| Portugal . . . . .        | 5,340        | 240,000     | 5.0                | 400,000        | 20               | 30                          |
| Holland . . . . .         | 4,220        | 650,000     | 13.6               | 1,600,000      | 80               | 90                          |
| Scandinavia . . . . .     | 22,060       | 1,270,000   | 14.0               | 1,600,000      | 42               | 99                          |
| Belgium . . . . .         | 5,670        | 620,000     | 10.0               | 1,100,000      | 42               | 83                          |
| Switzerland . . . . .     | 9,620        | 530,000     | 17.5               | 1,500,000      | 120              | 99                          |
| Danubian States . . . . . | 7,620        | 660,000     | 6.0                | 1,600,000      | 34               | 24                          |
| Greece . . . . .          | 3,040        | 140,000     | 6.5                | 200,000        | 22               | 30                          |
| Europe . . . . .          | 432,630      | 37,440,000  | 9.5                | 56,400,000     | 34               | 60                          |
| United States . . . . .   | 252,000      | 9,750,000   | 13.7               | 38,500,000     | 130              | 83                          |
| Canada . . . . .          | 17,270       | 630,000     | 12.5               | 2,100,000      | 98               | 90                          |
| Australia . . . . .       | 8,040        | 540,000     | 13.0               | 2,300,000      | 132              | 90                          |
| India . . . . .           | 152,600      | 4,300,000   | 1.5                | 2,200,000      | 2                | 6                           |
| South Africa . . . . .    | 2,810        | 100,000     | 4.5                | 300,000        | 33               | ...                         |
| Ceylon . . . . .          | 3,870        | 180,000     | 5.5                | 100,000        | 13               | ...                         |
| Algeria . . . . .         | 1,220        | 120,000     | 2.7                | 200,000        | 11               | ...                         |
| Argentina . . . . .       | 3,750        | 260,000     | 6.5                | 700,000        | 42               | ...                         |
| Chile . . . . .           | 1,660        | 100,000     | 3.6                | 400,000        | 35               | ...                         |
| Venezuela . . . . .       | 1,570        | 100,000     | 4.4                | 100,000        | 11               | ...                         |
| Brazil . . . . .          | 7,500        | 300,000     | 2.2                | 200,000        | 4                | 24                          |
| Egypt . . . . .           | 9,000        | 190,000     | 2.0                | 100,000        | 2                | 7                           |
| Japan . . . . .           | 28,170       | 3,770,000   | 9.0                | 300,000        | 2                | ...                         |
| Total . . . . .           | 922,090      | 57,780,000  | 7.5                | 103,500,000    | 30               | ...                         |

## UNITED KINGDOM

The progress of instruction in the three kingdoms is very satisfactory :—

|                    | Schools |        | Pupils    |           |
|--------------------|---------|--------|-----------|-----------|
|                    | 1888    | 1897   | 1888      | 1897      |
| England . . . . .  | 19,221  | 19,958 | 3,615,000 | 4,489,000 |
| Scotland . . . . . | 3,105   | 3,086  | 496,000   | 605,000   |
| Ireland . . . . .  | 8,156   | 8,631  | 494,000   | 521,000   |
| Total . . . . .    | 30,522  | 31,675 | 4,605,000 | 5,615,000 |

The number of school-children on the registers is much greater than what is shown above, namely the average attendance, which is 82 per cent. of enrolled pupils in England, 84 per cent. in Scotland, and 66 per cent. in Ireland. The following table shows the percentage of school-children to population, and the percentage of adults who can write :—

|                      | Pupils per 100 Pop. |      | Adults can Write |      |
|----------------------|---------------------|------|------------------|------|
|                      | 1888                | 1896 | 1888             | 1896 |
| England . . . . .    | 12.7                | 14.4 | 91               | 96   |
| Scotland . . . . .   | 12.3                | 14.1 | 94               | 97   |
| Ireland . . . . .    | 10.4                | 11.7 | 77               | 85   |
| U. Kingdom . . . . . | 12.3                | 14.0 | 90               | 94   |

In England and Scotland the proportion of male adults who can write, as shown by signatures to the marriage

register, is greater than that of females : in Ireland the reverse takes place, women being 2 per cent. better instructed than men. School expenditure compared with population in the above years shows as follows :—

|                    | £ Sterling |            | Pence per Inhab. |      |
|--------------------|------------|------------|------------------|------|
|                    | 1888       | 1896       | 1888             | 1896 |
| England . . . . .  | 7,440,000  | 10,450,000 | 64               | 82   |
| Scotland . . . . . | 1,160,000  | 2,350,000  | 70               | 134  |
| Ireland . . . . .  | 1,090,000  | 1,330,000  | 54               | 70   |
| Total . . . . .    | 9,690,000  | 14,130,000 | 63               | 86   |

In Great Britain, without Ireland, the schools can accommodate 6,900,000 pupils, or 38 per cent. more than the average attendance.

Statistics for England and Wales in 1896 and 1890 compare thus :—

|                          | Average Attendance |           |          |
|--------------------------|--------------------|-----------|----------|
|                          | 1890               | 1896      | Increase |
| Board schools . . . . .  | 1,457,000          | 1,957,000 | 500,000  |
| Anglican . . . . .       | 1,681,000          | 1,872,000 | 191,000  |
| Roman Catholic . . . . . | 193,000            | 236,000   | 43,000   |
| Wesleyan . . . . .       | 132,000            | 126,000   | 0        |
| Various . . . . .        | 255,000            | 233,000   | 0        |
| Total . . . . .          | 3,718,000          | 4,424,000 | 706,000  |

## UNITED STATES

The returns for 1896 as regards average attendance at the schools compare with 1885 thus:—

|                 | School-children |           | Per 100 Pop. |      |
|-----------------|-----------------|-----------|--------------|------|
|                 | 1885            | 1896      | 1885         | 1896 |
| New England .   | 564,000         | 645,000   | 13.1         | 12.4 |
| Middle States . | 1,505,000       | 1,930,000 | 11.7         | 12.3 |
| Southern „ .    | 1,852,000       | 2,865,000 | 11.0         | 14.0 |
| Western „ .     | 3,099,000       | 4,310,000 | 13.9         | 14.5 |
| The Union . .   | 7,020,000       | 9,750,000 | 12.5         | 13.7 |

The number of children on the rolls in the above years was as follows:—

|                 | On Rolls   |            | Per 100 Pop. |      |
|-----------------|------------|------------|--------------|------|
|                 | 1885       | 1896       | 1885         | 1896 |
| New England .   | 800,000    | 890,000    | 18.6         | 17.1 |
| Middle States . | 2,460,000  | 2,860,000  | 19.1         | 18.2 |
| Southern „ .    | 2,980,000  | 4,390,000  | 17.7         | 21.4 |
| Western „ .     | 4,930,000  | 6,240,000  | 22.1         | 21.0 |
| The Union . .   | 11,170,000 | 14,380,000 | 19.8         | 20.2 |

Of the numbers on the rolls in 1896 the average attendance was 73 per cent. in New England, 68 in the Middle States, 65 in the Southern, and 69 per cent. in the Western States. The average for the whole Union was 68 per cent., against 63 in 1885. The expenditure, compared with population and the number of children on the rolls, was:—

|                 | £ Sterling | Shillings per Inhabitant | Shillings per Child |
|-----------------|------------|--------------------------|---------------------|
| New England .   | 4,100,000  | 16                       | 91                  |
| Middle States . | 10,700,000 | 14                       | 75                  |
| Southern „ .    | 4,300,000  | 4                        | 20                  |
| Western „ .     | 19,300,000 | 13                       | 62                  |
| The Union . .   | 38,400,000 | 11                       | 53                  |

The United States spend the same amount yearly on education as all the nations of the European Continent collectively. The contribution for schools is equal to 11 shillings per inhabitant, against 7 shillings in the United Kingdom and a little over 2 shillings on the European Continent in the aggregate.

## FRANCE

The expenditure on public schools is shown thus:—

|            | State, £  | Local, £  | Total, £  | Pence per Inhab. |
|------------|-----------|-----------|-----------|------------------|
| 1860 . . . | 200,000   | 1,200,000 | 1,400,000 | 9                |
| 1870 . . . | 440,000   | 2,060,000 | 2,500,000 | 16               |
| 1880 . . . | 800,000   | 2,500,000 | 3,300,000 | 21               |
| 1892 . . . | 5,000,000 | 2,400,000 | 7,400,000 | 46               |

## ITALY

The ratio of persons able to sign the marriage register in Italy in 1891 was as follows per 100:—

|              |      |                |      |               |      |
|--------------|------|----------------|------|---------------|------|
| Rome . . .   | 81.8 | Turin . . .    | 94.4 | Bologna . . . | 82.3 |
| Naples . . . | 63.9 | Genoa . . .    | 89.5 | Venice . . .  | 70.8 |
| Milan . . .  | 93.6 | Florence . . . | 88.1 | Palermo . . . | 63.4 |

The amount spent yearly on schools is £4,900,000, of which £1,700,000 is expended by the State, and £3,200,000 by local authorities.

## INDIA

In 1893 the sum expended for education was as follows:—

|                | Amount, £ |           |           |
|----------------|-----------|-----------|-----------|
|                | Grants    | Fees, &c. | Total     |
| University . . | 100,000   | 100,000   | 200,000   |
| High Schools . | 280,000   | 520,000   | 800,000   |
| Primary „ . .  | 360,000   | 340,000   | 700,000   |
| Staff, &c. „ . | 320,000   | 100,000   | 420,000   |
| Total . . .    | 1,060,000 | 1,060,000 | 2,120,000 |

See *Education*, in Part I., pages 231-243.

## EGGS

Production and consumption yearly in some countries are approximately as follows:—

|                   | Millions   |             | Consumption per Inhab. |
|-------------------|------------|-------------|------------------------|
|                   | Production | Consumption |                        |
| United Kingdom .  | 2,120      | 3,810       | 95                     |
| France . . .      | 3,500      | 3,220       | 84                     |
| Germany . . .     | 3,000      | 4,400       | 84                     |
| United States . . | 9,810      | 9,820       | 140                    |

Importing and exporting countries show approximately as follows:—

| Importers           | Millions | Exporters        | Millions |
|---------------------|----------|------------------|----------|
| Great Britain . .   | 1,690    | Russia . . . .   | 1,480    |
| Germany . . . .     | 1,400    | Austria . . . .  | 1,150    |
| Switzerland . . .   | 120      | Italy . . . . .  | 520      |
| United States . .   | 10       | France . . . . . | 280      |
| Other countries . . | 450      | Denmark . . . .  | 160      |
|                     |          | Canada . . . . . | 80       |
| Total . . .         | 3,670    | Total . . .      | 3,670    |

The value of eggs exported in the above table is about 7 millions sterling, say 10 million eggs daily, worth £20,000.

## ELECTIONS

There have been sixteen in the United Kingdom since the Reform Law of 1832, which resulted as follows (Home-Rulers being counted as Liberals since 1886):—

| Year | Won by        | Maj. | Year | Won by        | Maj. |
|------|---------------|------|------|---------------|------|
| 1832 | Liberals      | 370  | 1865 | Liberals      | 78   |
| 1835 | „             | 112  | 1868 | „             | 116  |
| 1837 | „             | 18   | 1874 | Conservatives | 98   |
| 1841 | Conservatives | 76   | 1880 | Liberals      | 115  |
| 1847 | Liberals      | 18   | 1885 | „             | 86   |
| 1852 | Conservatives | 20   | 1886 | Conservatives | 114  |
| 1857 | Liberals      | 80   | 1892 | Liberals      | 40   |
| 1859 | „             | 50   | 1895 | Conservatives | 152  |

The election of 1895 resulted as follows :—

|                    | Conservatives | Liberals   | Total      |
|--------------------|---------------|------------|------------|
| England . . .      | 349           | 116        | 465        |
| Wales . . .        | 8             | 22         | 30         |
| Scotland . . .     | 33            | 39         | 72         |
| Ireland . . .      | 21            | 82         | 103        |
| <b>Total . . .</b> | <b>411</b>    | <b>259</b> | <b>670</b> |
| Boroughs . . .     | 200           | 84         | 284        |
| Counties . . .     | 202           | 175        | 377        |
| Universities . . . | 9             | ...        | 9          |
| <b>Total . . .</b> | <b>411</b>    | <b>259</b> | <b>670</b> |

The number of electors and that of voters, and the ratios to population at the election of 1895, were as follows (England including also Wales) :—

|                       | Electors,<br>Number | Voters,<br>Number | Per 100 Inhab. |           |
|-----------------------|---------------------|-------------------|----------------|-----------|
|                       |                     |                   | Electors       | Voters    |
| England . . .         | 4,956,000           | 3,726,000         | 16             | 12        |
| Scotland . . .        | 638,000             | 466,000           | 16             | 11        |
| Ireland . . .         | 737,000             | 395,000           | 16             | 9         |
| <b>United Kingdom</b> | <b>6,331,000</b>    | <b>4,587,000</b>  | <b>16</b>      | <b>11</b> |

Of the total number of electors on the roll only 72 per cent. voted.

The franchise in 1895 was held as follows :—

|                             | Counties         | Boroughs         | Total            |
|-----------------------------|------------------|------------------|------------------|
| England . . .               | 2,820,000        | 2,136,000        | 4,956,000        |
| Scotland . . .              | 352,000          | 286,000          | 638,000          |
| Ireland . . .               | 623,000          | 114,000          | 737,000          |
| <b>United Kingdom . . .</b> | <b>3,795,000</b> | <b>2,534,000</b> | <b>6,331,000</b> |

Of 1000 voters, in Scotland 9 were unable to write their names, in England 12, in Ireland 214, the ratio for the whole United Kingdom being 29 per 1000.

#### FRANCE

The number of names on the lists of franchise, and that of persons who voted at five general elections, were :—

| Date           | On Lists   | Voted     | Ratio |
|----------------|------------|-----------|-------|
| 1877 . . . . . | 9,948,000  | 8,013,000 | 80.5  |
| 1881 . . . . . | 10,125,000 | 6,945,000 | 68.8  |
| 1885 . . . . . | 10,181,000 | 7,896,000 | 77.4  |
| 1889 . . . . . | 10,387,000 | 7,953,000 | 76.5  |
| 1893 . . . . . | 10,446,000 | 7,427,000 | 71.0  |

#### GERMANY

The growth of the Socialist party is shown by the number of votes it polled, viz. :—

|                |           |
|----------------|-----------|
| 1881 . . . . . | 550,000   |
| 1891 . . . . . | 1,342,000 |
| 1893 . . . . . | 1,734,000 |

Thus in twelve years this party trebled its strength.

#### UNITED STATES

The election of 1896 resulted thus :—

| States             | Voters           |                  | Electors   |            |
|--------------------|------------------|------------------|------------|------------|
|                    | M'Kinley         | Bryan            | M'Kinley   | Bryan      |
| New England . . .  | 613,000          | 235,000          | 39         | ...        |
| Middle . . .       | 1,901,000        | 1,233,000        | 89         | ...        |
| South . . .        | 1,127,000        | 1,740,000        | 18         | 113        |
| West . . .         | 3,482,000        | 3,291,000        | 126        | 62         |
| <b>Union . . .</b> | <b>7,123,000</b> | <b>6,499,000</b> | <b>272</b> | <b>175</b> |

See *Electors*, page 243.

#### EMIGRATION

The following table shows the emigration that has taken place from 1890 to the end of 1896 : \*—

| From               | Destination      |                |                  |                  |
|--------------------|------------------|----------------|------------------|------------------|
|                    | U. States        | S. America     | Various          | Total            |
| U. Kingdom         | 938,000          | ..             | 1,082,000        | 2,020,000        |
| France . . .       | 12,000           | 25,000         | 166,000          | 203,000          |
| Germany . . .      | 491,000          | 35,000         | 7,000            | 533,000          |
| Austria . . .      | 409,000          | 16,000         | 31,000           | 456,000          |
| Russia . . .       | 407,000          | ...            | ...              | 407,000          |
| Italy . . .        | 308,000          | 737,000        | 762,000          | 1,807,000        |
| Portugal . . .     | 10,000           | 163,000        | 14,000           | 187,000          |
| Holland . . .      | 17,000           | ...            | ...              | 17,000           |
| Denmark . . .      | 46,000           | ...            | 5,000            | 51,000           |
| Sweden . . .       | 169,000          | ...            | 26,000           | 195,000          |
| Norway . . .       | 78,000           | ...            | ...              | 78,000           |
| Switzerland . . .  | 39,000           | 2,000          | ...              | 41,000           |
| <b>Total . . .</b> | <b>2,924,000</b> | <b>978,000</b> | <b>2,093,000</b> | <b>5,995,000</b> |

There were also about 60,000 yearly from Spain (mostly to South America), that is 420,000 in the above period, which would bring up the total to 6,400,000, that is, an average of 910,000 yearly. Italian emigration to South America appears in the above table to have averaged 105,000 yearly, but in reality it reached double the figure given above, as the majority of those marked "various" proceeded to French or other ports to embark for Brazil, &c. In the above 7 years South America absorbed about 1,400,000 Italians, 400,000 Spaniards, and 350,000 Portuguese, Germans, &c.

Emigrants, as a rule, are of the age when their labour is likely to be most productive. Thus the returns of United States records during 31 years show that 53 per cent. of those who arrived were between 20 and 40, whereas the proportions of persons of that age in the United Kingdom, France, Germany, and Austria, averaged only 29½ per cent. Emigration, in a word, drew nearly double its proportion of persons in the prime of life.

Comparing the foreign element in each country with the whole population, we find the ratio stands thus :—

#### Foreigners per Thousand Inhabitants

|                  |                  |                  |
|------------------|------------------|------------------|
| England . . . 8  | Germany . . . 9  | Belgium . . . 24 |
| Scotland . . . 4 | Austria . . . 5  | Italy . . . 2    |
| Ireland . . . 3  | Switzerland . 77 | Russia . . . 1   |
| France . . . 30  | Holland . . . 10 | Scandinavia . 3  |

\* At pages 245-254 there are tables of European emigration during 70 years.

The following table shows the numbers of foreign settlers in various countries of Europe (Irish being included with British):—

|                         | U. Kingdom | France    | Germany | Austria | Italy  | Switzerland | Holland | Belgium | Various | Total     |
|-------------------------|------------|-----------|---------|---------|--------|-------------|---------|---------|---------|-----------|
| British . . . . .       | ...        | 40,000    | 16,000  | 2,000   | 7,000  | 3,000       | 1,000   | 4,000   | 13,000  | 86,000    |
| French . . . . .        | 23,000     | ...       | 32,000  | 3,000   | 11,000 | 54,000      | 1,000   | 51,000  | 8,000   | 183,000   |
| Germans . . . . .       | 54,000     | 114,000   | ...     | 103,000 | 5,000  | 112,000     | 29,000  | 34,000  | 97,000  | 548,000   |
| Russians . . . . .      | 48,000     | 14,000    | 53,000  | 18,000  | 1,000  | 1,000       | ...     | ...     | 5,000   | 140,000   |
| Austrians . . . . .     | 6,000      | 12,000    | 206,000 | ...     | 16,000 | 14,000      | ...     | ...     | 47,000  | 301,000   |
| Italians . . . . .      | 19,000     | 206,000   | 15,000  | 53,000  | ...    | 42,000      | ...     | ...     | 46,000  | 471,000   |
| Swiss . . . . .         | 7,000      | 83,000    | 41,000  | 7,000   | 12,000 | ...         | ...     | ...     | 4,000   | 154,000   |
| Spaniards . . . . .     | ...        | 78,000    | ...     | ...     | 1,000  | ...         | ...     | ...     | 2,000   | 81,000    |
| Scandinavians . . . . . | 17,000     | ...       | 38,000  | ...     | ...    | ...         | ...     | ...     | 7,000   | 62,000    |
| Belgians . . . . .      | 4,000      | 466,000   | ...     | ...     | ...    | ...         | 14,000  | ...     | ...     | 484,000   |
| Greeks . . . . .        | ...        | ...       | ...     | ...     | 1,000  | ...         | ...     | ...     | 105,000 | 106,000   |
| Various . . . . .       | 97,000     | 37,000    | 123,000 | 15,000  | 6,000  | 4,000       | 3,000   | 54,000  | 135,000 | 474,000   |
| Total . . . . .         | 275,000    | 1,140,000 | 524,000 | 201,000 | 60,000 | 230,000     | 48,000  | 143,000 | 469,000 | 3,090,000 |

The following table shows approximately the number of persons living abroad in 1897:—

| From                     | Resident in |               |            |                |         | Total      |
|--------------------------|-------------|---------------|------------|----------------|---------|------------|
|                          | Europe      | United States | S. America | Brit. Possess. | Various |            |
| United Kingdom . . . . . | 86,000      | 3,530,000     | 45,000     | 1,750,000      | 39,000  | 5,450,000  |
| France . . . . .         | 183,000     | 140,000       | 220,000    | 26,000         | 341,000 | 910,000    |
| Germany . . . . .        | 548,000     | 3,110,000     | 35,000     | 87,000         | 10,000  | 3,790,000  |
| Russia . . . . .         | 140,000     | 640,000       | 32,000     | 16,000         | 12,000  | 840,000    |
| Austria . . . . .        | 301,000     | 560,000       | 81,000     | 7,000          | 6,000   | 955,000    |
| Italy . . . . .          | 471,000     | 460,000       | 1,770,000  | 31,000         | 18,000  | 2,750,000  |
| Spain . . . . .          | 81,000      | 10,000        | 730,000    | 2,000          | 57,000  | 880,000    |
| Portugal . . . . .       | 10,000      | 20,000        | 240,000    | ...            | 20,000  | 290,000    |
| Scandinavia . . . . .    | 62,000      | 1,130,000     | 17,000     | 32,000         | 4,000   | 1,245,000  |
| Holland . . . . .        | 73,000      | 90,000        | 3,000      | ...            | 14,000  | 180,000    |
| Belgium . . . . .        | 434,000     | 30,000        | 7,000      | ...            | 4,000   | 525,000    |
| Switzerland . . . . .    | 154,000     | 110,000       | 53,000     | ...            | 13,000  | 330,000    |
| Greece . . . . .         | 106,000     | 10,000        | 12,000     | 38,000         | 44,000  | 210,000    |
| Various . . . . .        | 181,000     | 50,000        | 95,000     | 111,000        | 28,000  | 465,000    |
| Europe . . . . .         | 2,880,000   | 9,890,000     | 3,340,000  | 2,100,000      | 610,000 | 18,820,000 |
| United States . . . . .  | 72,000      | ...           | 12,000     | 115,000        | 11,000  | 210,000    |
| Canada . . . . .         | 2,000       | 980,000       | 1,000      | 5,000          | 2,000   | 990,000    |
| Total . . . . .          | 2,954,000   | 10,870,000    | 3,353,000  | 2,220,000      | 623,000 | 20,020,000 |

The total number of foreign settlers in the various countries of Europe, as shown in the first table, is 3,090,000, of whom 2,880,000 are Europeans; the rest are Americans, Asiatics, &c.

It appears from the above table that there are (exclusive of Asiatics) no fewer than 20 million persons living out of their native country, made up thus:—

| From                        | Number     | Ratio |
|-----------------------------|------------|-------|
| United Kingdom . . . . .    | 5,450,000  | 27.2  |
| Germany . . . . .           | 3,790,000  | 19.0  |
| Italy . . . . .             | 2,750,000  | 13.7  |
| Scandinavia . . . . .       | 1,245,000  | 6.2   |
| France . . . . .            | 910,000    | 4.5   |
| Spain . . . . .             | 880,000    | 4.4   |
| Various countries . . . . . | 4,995,000  | 25.0  |
| Total . . . . .             | 20,020,000 | 100.0 |

The foreign-born (including British) in the British possessions are:—

| Born in               | Canada  | Australia | Egypt   | India, &c. | Total     |
|-----------------------|---------|-----------|---------|------------|-----------|
| U. Kingdom . . . . .  | 480,000 | 1,040,000 | 20,000  | 210,000    | 1,750,000 |
| France . . . . .      | 5,000   | 5,000     | 14,000  | 2,000      | 26,000    |
| Germany . . . . .     | 28,000  | 50,000    | 1,000   | 8,000      | 87,000    |
| Russia . . . . .      | 10,000  | 3,000     | 3,000   | ...        | 16,000    |
| Austria . . . . .     | ...     | ...       | 7,000   | ...        | 7,000     |
| Italy . . . . .       | 1,000   | 4,000     | 25,000  | 1,000      | 31,000    |
| Scandinavia . . . . . | 8,000   | 21,000    | ...     | 3,000      | 32,000    |
| Greece . . . . .      | ...     | ...       | 38,000  | ...        | 38,000    |
| U. States . . . . .   | 81,000  | 10,000    | ...     | 24,000     | 115,000   |
| Canada . . . . .      | ...     | 4,000     | ...     | 1,000      | 5,000     |
| Various . . . . .     | 27,000  | 73,000    | 5,000   | 8,000      | 113,000   |
| Total . . . . .       | 640,000 | 1,210,000 | 113,000 | 257,000    | 2,220,000 |

The purport of the foregoing tables may be summed up by saying that there are at present 16 million European settlers living beyond the seas, of whom the United States possess 10 millions, due in great measure to liberal land laws, especially the Homestead Law of 1862 (see page 347). On the other hand, the total number of emigrants from the European Continent now resident in British Colonies is barely 160,000, or if we include Egypt, 250,000. The failure of our colonies to attract European settlers is chiefly the result of Crown lands having been leased for long terms of years at nominal rents (one penny per acre) to squatters and other men of large fortunes. In Australia 2 per cent. of the population is made up of Germans and Scandinavians. In Canada only 1 per cent. of the inhabitants are natives of Continental Europe.

If we take each nationality, adding together those at home and abroad, we shall find the proportion that live abroad as in the following table:—

|                  | At Home     | Abroad     | Total       | Ratio<br>Abroad |
|------------------|-------------|------------|-------------|-----------------|
| British . . .    | 35,050,000  | 2,890,000  | 37,940,000  | 7.5             |
| Irish . . .      | 4,540,000   | 2,560,000  | 7,100,000   | 36.0            |
| Brit. Islands    | 39,590,000  | 5,450,000  | 45,040,000  | 12.0            |
| French . . .     | 37,400,000  | 910,000    | 38,310,000  | 2.4             |
| Germans . . .    | 51,970,000  | 3,790,000  | 55,760,000  | 6.8             |
| Russians . . .   | 106,000,000 | 810,000    | 106,810,000 | 0.8             |
| Austrians . . .  | 41,400,000  | 955,000    | 42,355,000  | 2.3             |
| Italians . . .   | 31,200,000  | 2,750,000  | 33,950,000  | 8.0             |
| Spaniards . . .  | 17,900,000  | 880,000    | 18,780,000  | 4.6             |
| Portuguese . . . | 5,000,000   | 290,000    | 5,290,000   | 5.5             |
| Scandinavians    | 9,300,000   | 1,245,000  | 10,545,000  | 11.8            |
| Hollanders . . . | 4,880,000   | 180,000    | 5,060,000   | 3.6             |
| Belgians . . .   | 6,300,000   | 525,000    | 6,825,000   | 7.8             |
| Swiss . . .      | 2,800,000   | 330,000    | 3,130,000   | 10.5            |
| Various . . .    | 13,460,000  | 705,000    | 14,165,000  | 5.0             |
| Europe . . .     | 367,200,000 | 18,820,000 | 386,020,000 | 4.7             |
| United States    | 61,000,000  | 210,000    | 61,210,000  | 0.3             |
| Canadians . . .  | 3,600,000   | 990,000    | 4,590,000   | 21.5            |
| Total . . .      | 431,800,000 | 20,020,000 | 451,820,000 | 4.3             |

The Canadians can hardly be considered living out of their own country, as they are mostly in the New England States, just over the border. The nations which have the largest proportion of their people abroad are the Irish, Scandinavians, and Swiss.

The returns for 1897 of emigrants sailing from the United Kingdom were:—

| To                  | British | Irish  | Foreign | Total   |
|---------------------|---------|--------|---------|---------|
| United States . . . | 52,000  | 33,000 | 47,000  | 132,000 |
| Canada . . .        | 15,000  | 1,000  | 7,000   | 23,000  |
| Cape Colony . . .   | 20,000  | 1,000  | 8,000   | 29,000  |
| Australia . . .     | 11,000  | 1,000  | ...     | 12,000  |
| Other parts . . .   | 13,000  | ...    | 5,000   | 18,000  |
| Total . . .         | 111,000 | 36,000 | 67,000  | 214,000 |

The aggregate returns for ten years (1888-97) show as follows:—

|               | Total Emi-<br>gration |                    | British<br>and Irish |
|---------------|-----------------------|--------------------|----------------------|
| English . . . | 1,290,000             | To United States   | 1,388,000            |
| Scotch . . .  | 216,000               | .. Canada . . .    | 321,000              |
| Irish . . .   | 534,000               | .. Australia . . . | 172,000              |
| Foreign . . . | 937,000               | .. Cape, &c. . .   | 259,000              |
| Total . . .   | 2,977,000             | Total . . .        | 2,040,000            |

For emigration from 1815-88 see page 248.

#### SOUTH AMERICA

The Argentine Republic shows as follows:—

|                    | Immigrants | Per Annum |
|--------------------|------------|-----------|
| 1873-82 . . . . .  | 493,000    | 49,300    |
| 1883-92 . . . . .  | 1,110,000  | 111,500   |
| 1893-97 . . . . .  | 343,000    | 68,600    |
| 25 years . . . . . | 1,952,000  | 78,000    |

About one-third of the above returned to Europe. The

last five years showed: immigrants, 343,000; returned to Europe, 117,000; net immigration, 226,000—say 45,000 per annum.

#### UNITED STATES

In the last seven years the arrivals of immigrants were:—

|                         | Number    | Annual<br>Average | Ratio |
|-------------------------|-----------|-------------------|-------|
| British . . . . .       | 344,000   | 49,100            | 11.8  |
| Irish . . . . .         | 270,000   | 38,600            | 9.4   |
| Germans . . . . .       | 491,000   | 70,100            | 17.4  |
| Russians . . . . .      | 407,000   | 58,200            | 14.3  |
| Italians . . . . .      | 419,000   | 59,800            | 14.7  |
| Austrians . . . . .     | 382,000   | 54,600            | 13.4  |
| Scandinavians . . . . . | 305,000   | 43,600            | 10.7  |
| Various . . . . .       | 237,000   | 33,800            | 8.3   |
| Total . . . . .         | 2,855,000 | 407,800           | 100.0 |

The increase of foreign population during the decade ending 1890 was equal to 60 per cent. of the number of immigrants; as the current decade promises 4,000,000 immigrants, we may expect an increase of 2,400,000 in the number of foreign residents over last census, wherefore that of 1900 ought to show 11,650,000 foreigners in a population of 77,000,000 souls. This would give a ratio of 15 per cent. for the foreign population, the same as it was in 1890.

#### ITALY

An unofficial statement (1898) gives the number of Italian emigrants in 22 years, from 1875, as 625,000 to North America, and 1,350,000 to South America. The *Journal de Commercio* of Rio Janeiro estimates the number of Italian settlers in Brazil at 1,374,000. The Argentine census of 1895 shows 610,000 Italians in Argentina; there are also 70,000 in Uruguay, and 20,000 in Paraguay.

#### ALGERIA

The European population (including children born in the colony) has increased 80 per cent. in 10 years, viz.:—

|                        | 1888    | 1898    | Increase |
|------------------------|---------|---------|----------|
| French . . . . .       | 220,000 | 318,000 | 98,000   |
| Spaniards, &c. . . . . | 206,000 | 446,000 | 240,000  |
| Total . . . . .        | 426,000 | 764,000 | 338,000  |

#### CANADA.

The census of 1891 compares the number of foreign settlers with the same in 1881 thus:—

|                      | Number    |           | Ratio |       |
|----------------------|-----------|-----------|-------|-------|
|                      | 1881      | 1891      | 1881  | 1891  |
| English . . . . .    | 170,000   | 220,000   | 3.9   | 4.6   |
| Scotch . . . . .     | 115,000   | 108,000   | 2.7   | 2.2   |
| Irish . . . . .      | 186,000   | 149,000   | 4.3   | 3.1   |
| Germans . . . . .    | 25,000    | 28,000    | 0.6   | 0.6   |
| Russians . . . . .   | 6,000     | 10,000    | 0.1   | 0.2   |
| Scands . . . . .     | 8,000     | 8,000     | 0.2   | 0.2   |
| Various . . . . .    | 99,000    | 124,000   | 2.3   | 2.5   |
| Foreigners . . . . . | 609,000   | 647,000   | 14.1  | 13.4  |
| Natives . . . . .    | 3,716,000 | 4,186,000 | 85.9  | 86.6  |
| Total pop. . . . .   | 4,325,000 | 4,833,000 | 100.0 | 100.0 |

Except English, all foreign-born settlers have relatively lost ground: the foreign population is only 13½ per cent.

of the total, whereas it is 15 per cent. in the United States, and 29 per cent. in Australia. The foreign settlers in the several provinces showed as follows :—

|                | 1881    | 1891    | Increase |
|----------------|---------|---------|----------|
| Quebec . . .   | 77,000  | 82,000  | 5,000    |
| Ontario . . .  | 430,000 | 406,000 | ...      |
| Acadia . . .   | 69,000  | 55,000  | ...      |
| North-West . . | 33,000  | 104,000 | 71,000   |
| Total . . .    | 609,000 | 647,000 | 38,000   |

Taking the old provinces collectively, the foreign population has diminished by 33,000, but the new North-West, including Manitoba, British Columbia, &c., shows an increase of 71,000, so that, on the whole, the decade shows a gain of 38,000, or 6 per cent. on the foreign population of 1881.

#### AUSTRALIA.

In 25 years, ending December 1895, the net immigration into the colonies was as follows :—

|                      | Number  | Per Annum | Ratio |
|----------------------|---------|-----------|-------|
| New S. Wales . . .   | 309,000 | 12,300    | 38.4  |
| Victoria . . .       | 49,000  | 2,000     | 6.2   |
| New Zealand . . .    | 157,000 | 6,300     | 19.8  |
| Queensland . . .     | 197,000 | 7,900     | 24.7  |
| South Australia . .  | 23,000  | 900       | 2.8   |
| West Australia . . . | 60,000  | 2,400     | 7.5   |
| Tasmania . . .       | 5,000   | 200       | 0.6   |
| Total . . .          | 800,000 | 32,000    | 100.0 |

The following table shows the number of foreign settlers (including British) according to census returns for 1881 and 1891, and an estimate of the existing number in 1896 :—

|                    | 1881      | 1891      | 1896      |
|--------------------|-----------|-----------|-----------|
| New S. Wales . . . | 240,000   | 315,000   | 325,000   |
| Victoria . . .     | 323,000   | 350,000   | 275,000   |
| New Zealand . . .  | 311,000   | 244,000   | 240,000   |
| Queensland . . .   | 133,000   | 189,000   | 196,000   |
| S. Australia . . . | 83,000    | 92,000    | 90,000    |
| Tasmania . . .     | 32,000    | 32,000    | 31,000    |
| W. Australia . . . | 6,000     | 19,000    | 68,000    |
| Total . . .        | 1,128,000 | 1,241,000 | 1,225,000 |

Between 1891 and 1896 there was a net immigration of 77,000 persons, but a mean death-rate of 15 per 1000 in the same period would amount to 93,000, so that the foreign population in 1896 would not exceed 1,225,000. Comparing native and foreign born we find as follows :—

|                  | Number    |           | Ratio |       |
|------------------|-----------|-----------|-------|-------|
|                  | 1881      | 1896      | 1881  | 1896  |
| Australian . . . | 1,688,000 | 3,015,000 | 60.0  | 71.0  |
| Foreign . . .    | 1,128,000 | 1,225,000 | 40.0  | 29.0  |
| Total pop. . .   | 2,816,000 | 4,240,000 | 100.0 | 100.0 |

The foreign element is diminishing rapidly, whereas in most new countries it is on the increase. The colony of Victoria lost 50,000 by emigration between 1891 and 1896.

#### ENERGY

The energy or working-power of a nation consists of: (1) human, which is computed at 300 foot-tons daily for a man between 15 and 60 years of age, 200 foot-tons for

a woman, and 100 foot-tons for a child of 10 to 15 years; (2) the force of animals, that of a full-grown horse being 5000 foot-tons daily; (3) steam-power of three kinds, fixed, railway, and steamboats; (4) water-power; (5) the force represented by wind-mills; (6) the amount of power now exercised by electricity. The following table shows the first three powers, subject to these reservations: the power of women and children is not taken into account; that of horses is estimated at 3000 foot-tons, because statistics of same include horses of all ages; mules are counted as horses, but no account is taken of asses, oxen, or other animals. Water-power is added to steam whenever it can be ascertained; wind-mills and electricity are omitted.

|                     | Millions of Foot-Tons Daily |         |         |         |
|---------------------|-----------------------------|---------|---------|---------|
|                     | Hand                        | Horse   | Steam   | Total   |
| United Kingdom . .  | 3,200                       | 6,330   | 54,800  | 64,330  |
| France . . .        | 3,500                       | 9,300   | 23,680  | 36,480  |
| Germany . . .       | 4,200                       | 11,500  | 32,320  | 48,020  |
| Russia . . .        | 9,100                       | 62,700  | 12,400  | 84,200  |
| Austria . . .       | 3,530                       | 10,700  | 10,080  | 24,310  |
| Italy . . .         | 2,940                       | 3,800   | 7,080   | 13,820  |
| Spain . . .         | 1,590                       | 2,640   | 4,720   | 8,950   |
| Portugal . . .      | 350                         | 420     | 680     | 1,450   |
| Sweden . . .        | 420                         | 1,500   | 2,040   | 3,960   |
| Norway . . .        | 180                         | 450     | 1,640   | 2,270   |
| Denmark . . .       | 200                         | 1,240   | 1,020   | 2,460   |
| Holland . . .       | 420                         | 810     | 2,400   | 3,630   |
| Belgium . . .       | 560                         | 810     | 4,720   | 6,090   |
| Switzerland . . .   | 270                         | 300     | 2,320   | 2,890   |
| Roumania, &c. . .   | 1,620                       | 3,500   | 2,280   | 7,400   |
| Europe . . .        | 32,080                      | 116,000 | 162,180 | 310,260 |
| United States . . . | 6,400                       | 54,600  | 72,240  | 133,240 |
| Canada . . .        | 420                         | 4,200   | 5,560   | 10,180  |
| Australia . . .     | 340                         | 5,700   | 3,360   | 9,400   |
| Total . . .         | 39,240                      | 180,500 | 243,340 | 463,080 |

Energy may be classified as productive and distributive, the first including all that is human, all the power of fixed engines, and half that of horses. The account will then stand thus for 1896 :—

|                     | Millions of Foot-Tons Daily |               |         | Foot-Tons per Inhab. |
|---------------------|-----------------------------|---------------|---------|----------------------|
|                     | Pro-ductive                 | Distri-butive | Total   |                      |
| United Kingdom . .  | 15,570                      | 48,760        | 64,330  | 1,620                |
| France . . .        | 12,670                      | 23,810        | 36,480  | 950                  |
| Germany . . .       | 19,550                      | 28,470        | 48,020  | 920                  |
| Russia . . .        | 42,170                      | 42,030        | 84,200  | 750                  |
| Austria . . .       | 10,800                      | 13,510        | 24,310  | 560                  |
| Italy . . .         | 5,560                       | 8,260         | 13,820  | 440                  |
| Spain . . .         | 3,110                       | 5,840         | 8,950   | 520                  |
| Portugal . . .      | 600                         | 850           | 1,450   | 310                  |
| Sweden . . .        | 1,290                       | 2,670         | 3,960   | 800                  |
| Norway . . .        | 450                         | 1,820         | 2,270   | 1,130                |
| Denmark . . .       | 860                         | 1,600         | 2,460   | 1,100                |
| Holland . . .       | 1,150                       | 2,480         | 3,630   | 760                  |
| Belgium . . .       | 2,530                       | 3,560         | 6,090   | 950                  |
| Switzerland . . .   | 780                         | 2,110         | 2,890   | 960                  |
| Roumania, &c. . .   | 4,170                       | 3,230         | 7,400   | 450                  |
| Europe . . .        | 121,260                     | 189,000       | 310,260 | 810                  |
| United States . . . | 49,460                      | 83,780        | 133,240 | 1,880                |
| Canada . . .        | 3,800                       | 6,380         | 10,180  | 1,990                |
| Australia . . .     | 4,230                       | 5,170         | 9,400   | 2,240                |
| Total . . .         | 178,750                     | 284,330       | 463,080 | 1,020                |

Productive energy stands for 38 per cent., distributive



62 per cent. of the total. The latter has increased much more rapidly than the former, viz. :—

|                    | Millions of Foot-Tons Daily |         |          | Rate of Increase per Cent. |
|--------------------|-----------------------------|---------|----------|----------------------------|
|                    | 1840                        | 1896    | Increase |                            |
| Productive . . .   | 73,700                      | 178,750 | 105,050  | 142                        |
| Distributive . . . | 50,300                      | 284,330 | 234,030  | 465                        |
| Total . . .        | 124,000                     | 463,080 | 339,080  | 273                        |

See *Steam*, page 807.

## ENGINEERING

Blackwall tunnel under the Thames, at London, was completed in May 1897, having occupied 800 men during 5 years: length 2100 yards, diameter 27 feet, with central road and foot-walk on each side. It is ventilated by 4 shafts of 48 feet diameter, and lit with 700 electric lights of 32-candle power. It comprises 3 sections :—

North side, 900 yards, incline 1 in 34.

Central, 400 yards, level.

South side, 800 yards, incline 1 in 36.

In mid-river the works are 5 feet below water; the men were protected by a steel shield and progressed 4 feet

daily. They excavated 500,000 tons, and the materials for the tunnel comprised 7,000,000 bricks, 1,000,000 tiles, 110,000 tons concrete, 20,000 tons cement, and 17,000 tons cast iron. Total cost £871,000, equal to £410 per lineal yard, whereas Brunel's tunnel cost £1300 per yard.

In Holland the pumping-out of Lake Haarlem, area 45,000 acres, depth 15 feet, was completed in 1852, after 11 years of labour: the land was sold at £17 per acre, and the work cost £1,080,000, that is £300,000 over the price of the land. In 1894 a project was laid before the Dutch Parliament to pump out the Zuyder Zee, area 480,000 acres, depth 12 feet, at an estimated cost of £26,000,000, or £54 for each acre of land reclaimed, the work to be finished in 33 years. The principal work would be a wall 25 miles long, 200 feet thick, and 18 feet over sea-level, to take 9 years in construction.

## EXPLORATION

Nansen returned to Norway, after 3 years' absence, in August 1896, having reached 86.15 N. Lat., in 102 E. Long., in 1895, only 260 English miles from the North Pole. The furthest previous expedition was the United States schooner *Jeannette*, in September 1893, which reached Sanrikoft, 458 English miles from the Pole.

## F

## FAMINES

Besides those mentioned at page 256, an Indian blue-book states that in the famines of 1866-68-78 no fewer than 11,300,000 persons perished, viz. :—

|              |           |               |           |
|--------------|-----------|---------------|-----------|
| Orissa . . . | 1,300,000 | Madras . . .  | 4,085,000 |
| Punjab . . . | 1,450,000 | Oude, &c. . . | 4,486,000 |

No returns are yet published as to the famine of 1896.

## FINANCES

The finances of European States at four periods in the 19th century are shown as follows :—

|                   | Revenue, Millions £ |      |      |      | Debt, Millions £ |       |       |       |
|-------------------|---------------------|------|------|------|------------------|-------|-------|-------|
|                   | 1816                | 1830 | 1869 | 1898 | 1816             | 1830  | 1869  | 1898  |
| U. Kingdom        | 61.3                | 63   | 72   | 116  | 902              | 838   | 803   | 638   |
| France . . .      | 35.2                | 41   | 84   | 134  | 140              | 191   | 504   | 1,244 |
| Germany . . .     | 18.1                | 20   | 41   | 187  | 39               | 58    | 128   | 620   |
| Russia . . .      | 14.1                | 17   | 70   | 138  | 145              | 56    | 342   | 692   |
| Austria . . .     | 12.7                | 15   | 43   | 101  | 99               | 60    | 340   | 555   |
| Italy . . .       | 7.2                 | 9    | 33   | 67   | 25               | 50    | 333   | 516   |
| Spain . . .       | 7.7                 | 6    | 22   | 31   | 117              | 167   | 285   | 283   |
| Portugal . . .    | 1.9                 | 2    | 4    | 11   | 7                | 14    | 59    | 134   |
| Sweden . . .      | 1.2                 | 2    | 2    | 6    | 3                | 6     | 4     | 16    |
| Norway . . .      | 0.5                 | 1    | 1    | 4    | 1                | 2     | 2     | 9     |
| Denmark . . .     | 1.1                 | 2    | 3    | 4    | 4                | 11    | 13    | 11    |
| Holland . . .     | 6.4                 | 7    | 9    | 11   | 110              | 157   | 76    | 92    |
| Belgium . . .     | ...                 | ...  | 7    | 16   | ...              | ...   | 28    | 93    |
| Switzerland . . . | 0.4                 | 1    | 2    | 4    | ...              | ...   | 2     | 13    |
| Turkey . . .      | 2.3                 | 4    | 14   | 19   | 3                | 8     | 92    | 162   |
| Roumania . . .    | ...                 | ...  | 2    | 9    | ...              | ...   | ...   | 50    |
| Servia . . .      | ...                 | ...  | ...  | 3    | ...              | ...   | ...   | 16    |
| Bulgaria . . .    | ...                 | ...  | ...  | 3    | ...              | ...   | ...   | 7     |
| Greece . . .      | ...                 | 1    | 1    | 4    | ...              | ...   | 18    | 37    |
| Total . . .       | 170.1               | 190  | 410  | 868  | 1,595            | 1,618 | 3,029 | 5,188 |

In many of the above States a considerable portion of revenue arises from Government railways, and these also represent a great share of national debt. Deducting railways from both accounts, we find in 1898 as follows :—

|                   | Revenue, Millions £ | Debt, Millions £ | £ per Inhab. |      |
|-------------------|---------------------|------------------|--------------|------|
|                   |                     |                  | Revenue      | Debt |
| United Kingdom    | 116                 | 638              | 2.9          | 16.0 |
| France . . .      | 134                 | 1,214            | 3.5          | 31.8 |
| Germany . . .     | 124                 | 115              | 2.4          | 2.3  |
| Russia . . .      | 109                 | 326              | 1.0          | 3.0  |
| Austria . . .     | 83                  | 324              | 1.9          | 8.0  |
| Italy . . .       | 64                  | 386              | 2.1          | 12.5 |
| Spain . . .       | 31                  | 283              | 1.8          | 15.5 |
| Portugal . . .    | 11                  | 120              | 2.3          | 28.0 |
| Sweden & Norway   | 9                   | ...              | 1.3          | ...  |
| Denmark . . .     | 4                   | ...              | 1.8          | ...  |
| Holland . . .     | 11                  | 70               | 2.3          | 14.5 |
| Belgium . . .     | 9                   | 36               | 1.5          | 5.7  |
| Switzerland . . . | 4                   | 13               | 2.3          | 4.3  |
| Roumania . . .    | 9                   | 24               | 1.5          | 4.2  |
| Servia . . .      | 3                   | 8                | 1.2          | 3.5  |
| Bulgaria . . .    | 3                   | 5                | 1.0          | 1.5  |
| Greece . . .      | 4                   | 37               | 1.8          | 16.5 |
| Turkey . . .      | 18                  | 162              | 1.0          | 8.5  |
| Total . . .       | 746                 | 3,775            | 2.0          | 10.1 |

See *Taxes*, page 810.

In the subjoined table are shown the amount raised by taxes, the income of State Railways, and the item of Sundries, which include postal service, crown lands, and the receipts from all Government properties or services, except lotteries and monopolies, which are put under taxes. It is to be observed that Germany and most countries count the gross receipts of State railways, while Holland and some others count only the net income

from same. As regards France, there are 1700 miles of recently made State railways, but they seem to produce nothing.

|                         | Revenue, £ (000 omitted) |          |          |           |
|-------------------------|--------------------------|----------|----------|-----------|
|                         | Taxes                    | Railways | Sundries | Total     |
| United Kingdom . . .    | 98,000                   | ...      | 18,000   | 116,000   |
| France . . . . .        | 117,800                  | ...      | 16,700   | 134,500   |
| Germany . . . . .       | 84,500                   | 63,400   | 39,500   | 187,400   |
| Russia . . . . .        | 99,000                   | 29,300   | 9,700    | 138,000   |
| Austria . . . . .       | 68,000                   | 18,400   | 14,600   | 101,000   |
| Italy . . . . .         | 59,700                   | 3,100    | 4,200    | 67,000    |
| Spain . . . . .         | 29,900                   | ...      | 1,100    | 31,000    |
| Portugal . . . . .      | 9,600                    | 400      | 1,400    | 11,400    |
| Sweden . . . . .        | 4,800                    | 800      | 600      | 6,200     |
| Norway . . . . .        | 2,500                    | 500      | 800      | 3,800     |
| Denmark . . . . .       | 2,800                    | 300      | 700      | 3,800     |
| Holland . . . . .       | 9,500                    | 300      | 1,400    | 11,200    |
| Belgium . . . . .       | 7,800                    | 6,200    | 1,500    | 15,500    |
| Switzerland . . . . .   | 2,100                    | ...      | 1,500    | 3,600     |
| Greece . . . . .        | 3,300                    | ...      | 500      | 3,800     |
| Roumania . . . . .      | 6,900                    | ...      | 1,700    | 8,600     |
| Servia . . . . .        | 2,300                    | ...      | 200      | 2,500     |
| Bulgaria . . . . .      | 3,100                    | ...      | 200      | 3,300     |
| Turkey . . . . .        | 18,400                   | ...      | ...      | 18,400    |
| Europe . . . . .        | 630,000                  | 122,700  | 114,300  | 867,000   |
| United States . . . . . | 71,800                   | ...      | 17,600   | 89,400    |
| Canada . . . . .        | 6,400                    | 600      | 800      | 7,800     |
| Australia . . . . .     | 11,700                   | 10,600   | 8,400    | 30,700    |
| India . . . . .         | 42,800                   | 12,900   | 4,200    | 59,900    |
| Cape Colony . . . . .   | 2,400                    | 4,100    | 300      | 6,800     |
| Egypt . . . . .         | 8,400                    | 1,800    | 300      | 10,500    |
| Total . . . . .         | 773,500                  | 152,700  | 145,900  | 1,072,100 |

## DEBT.

Considering only national debt, that is, excluding communal, county, and municipal, and deducting the value of State railways, we can compare the same with the wealth of nations thus :—

|                         | Millions £ Sterling |       | Ratio of Debt | £ Debt per Inhab. |
|-------------------------|---------------------|-------|---------------|-------------------|
|                         | Wealth              | Debt  |               |                   |
| United Kingdom . . .    | 11,806              | 638   | 5.3           | 16.0              |
| France . . . . .        | 9,690               | 1,214 | 12.5          | 31.5              |
| Germany . . . . .       | 8,052               | 115   | 1.4           | 2.2               |
| Russia . . . . .        | 6,425               | 326   | 5.0           | 3.0               |
| Austria . . . . .       | 4,512               | 324   | 7.2           | 7.5               |
| Italy . . . . .         | 3,160               | 386   | 12.2          | 12.2              |
| Spain . . . . .         | 2,380               | 283   | 11.9          | 16.1              |
| Portugal . . . . .      | 411                 | 120   | 29.0          | 24.0              |
| Sweden . . . . .        | 570                 | ...   | ...           | ...               |
| Norway . . . . .        | 220                 | ...   | ...           | ...               |
| Denmark . . . . .       | 506                 | ...   | ...           | ...               |
| Holland . . . . .       | 880                 | 70    | 8.0           | 14.0              |
| Belgium . . . . .       | 988                 | 36    | 3.6           | 5.7               |
| Switzerland . . . . .   | 492                 | 13    | 2.6           | 4.3               |
| Roumania . . . . .      | 519                 | 24    | 4.6           | 4.2               |
| Servia . . . . .        | 211                 | 8     | 3.8           | 3.0               |
| Bulgaria . . . . .      | 296                 | 5     | 1.7           | 1.5               |
| Greece . . . . .        | 222                 | 37    | 16.5          | 17.0              |
| Europe . . . . .        | 51,340              | 3,613 | 7.0           | 10.0              |
| United States . . . . . | 16,350              | 378   | 2.3           | 5.3               |
| Canada . . . . .        | 1,003               | 57    | 5.7           | 11.5              |
| Australia . . . . .     | 1,076               | 96    | 8.9           | 22.0              |
| Argentina . . . . .     | 616                 | 88    | 14.3          | 22.0              |
| Total . . . . .         | 70,385              | 4,232 | 6.0           | 9.5               |

## UNITED KINGDOM

The revenue of the United Kingdom for the year ending March 31, 1898, and the estimates for 1899, compare with the revenue of 1897 as follows :—

|                       | £ Sterling  |             |             |
|-----------------------|-------------|-------------|-------------|
|                       | 1897        | 1898        | 1899        |
| Customs . . . . .     | 21,460,000  | 22,010,000  | 21,290,000  |
| Excise . . . . .      | 32,370,000  | 33,270,000  | 33,810,000  |
| Income-tax . . . . .  | 16,650,000  | 17,250,000  | 17,700,000  |
| Stamps . . . . .      | 7,350,000   | 7,650,000   | 7,600,000   |
| Duties . . . . .      | 16,390,000  | 17,780,000  | 16,310,000  |
| All taxes . . . . .   | 94,220,000  | 97,960,000  | 96,710,000  |
| Post-Office . . . . . | 14,770,000  | 15,180,000  | 15,740,000  |
| Sundries . . . . .    | 3,210,000   | 2,880,000   | 2,880,000   |
| Total . . . . .       | 112,200,000 | 116,020,000 | 115,330,000 |

A portion of the above was given in aid of Local Taxation accounts, viz :—

|                             | 1897        | 1898        |
|-----------------------------|-------------|-------------|
| Local subsidies . . . . .   | 8,250,000   | 9,400,000   |
| Imperial Treasury . . . . . | 103,950,000 | 106,620,000 |
| Total . . . . .             | 112,200,000 | 116,020,000 |

The average revenue and expenditure for five years ending March 1896 were :—

| Revenue               | £           | Expenditure             | £           |
|-----------------------|-------------|-------------------------|-------------|
| Customs . . . . .     | 20,200,000  | National Debt           | 25,100,000  |
| Excise . . . . .      | 29,300,000  | Civil Service . . . . . | 20,000,000  |
| Income-tax . . . . .  | 14,800,000  | Local grants . . . . .  | 7,400,000   |
| Duties, &c. . . . .   | 17,300,000  | Army & Navy . . . . .   | 34,800,000  |
| Post-Office . . . . . | 13,200,000  | Post-Office . . . . .   | 10,000,000  |
| Sundries . . . . .    | 6,400,000   | Sundries . . . . .      | 4,300,000   |
| Total . . . . .       | 101,200,000 | Total . . . . .         | 101,600,000 |

Expenditure for 1896 and 1897 was as follows :—

|                         | £ Sterling  |             |           |
|-------------------------|-------------|-------------|-----------|
|                         | 1896        | 1897        | Increase  |
| National Debt . . . . . | 25,000,000  | 25,000,000  | ...       |
| Civil Service . . . . . | 21,250,000  | 21,470,000  | 220,000   |
| Local grants . . . . .  | 7,400,000   | 8,200,000   | 800,000   |
| Army and Navy . . . . . | 38,330,000  | 41,460,000  | 3,130,000 |
| Post-Office . . . . .   | 10,480,000  | 10,830,000  | 350,000   |
| Sundries . . . . .      | 4,790,000   | 4,540,000   | ...       |
| Total . . . . .         | 107,250,000 | 111,500,000 | 4,250,000 |

While other nations, with few exceptions, have increased their debt in the last fifty years, ours has been reduced, viz :—

| Year           | Debt, £     | Interest, £ | Per Inhabitant |          |
|----------------|-------------|-------------|----------------|----------|
|                |             |             | Debt, £        | Interest |
| 1848 . . . . . | 773,000,000 | 27,700,000  | 28.4           | 215.     |
| 1857 . . . . . | 808,100,000 | 28,500,000  | 28.8           | 205.     |
| 1870 . . . . . | 798,000,000 | 27,100,000  | 25.5           | 185.     |
| 1889 . . . . . | 694,400,000 | 24,800,000  | 18.2           | 135.     |
| 1898 . . . . . | 615,000,000 | 23,500,000  | 15.5           | 125.     |

The nominal amount of debt on March 31st, 1898, was £638,300,000, from which deducting the value of Suez

Canal shares, the actual debt was as stated above. National debt is at present equal to 5½ per cent. of the estimated wealth of the nation, whereas in the year of Queen Victoria's accession (1837) it was over 20 per cent. of wealth.

An official return of the imperial revenue, showing the portions furnished by Great Britain and Ireland, is as follows:—

| Year       | Millions £ Sterling |         |            |
|------------|---------------------|---------|------------|
|            | G. Britain          | Ireland | U. Kingdom |
| 1840 . . . | 46.3*               | 5.4     | 51.7       |
| 1860 . . . | 61.4                | 7.7     | 69.1       |
| 1880 . . . | 69.8                | 7.3     | 77.1       |
| 1890 . . . | 84.9                | 7.9     | 92.8       |
| 1897 . . . | 101.9               | 8.2     | 110.1      |

The above, compared with population, shows per head as follows:—

| Year       | Shillings per Head |         |            |
|------------|--------------------|---------|------------|
|            | G. Britain         | Ireland | U. Kingdom |
| 1840 . . . | 50                 | 13      | 39         |
| 1860 . . . | 53                 | 27      | 48         |
| 1880 . . . | 48                 | 28      | 44         |
| 1890 . . . | 51                 | 34      | 49         |
| 1897 . . . | 57                 | 36      | 55         |

Comparing 1897 with 1840, we find that revenue in Great Britain has increased 7 shillings, in Ireland 23 shillings per head. The ratio of increase has been 14 per cent. in Great Britain, 177 per cent. in Ireland. The receipts from the three kingdoms in 1897 were as follows:—

| £ Sterling (000 omitted) |         |          |         |          |
|--------------------------|---------|----------|---------|----------|
|                          | England | Scotland | Ireland | U. King. |
| Customs . .              | 17,030  | 2,110    | 2,330   | 21,470   |
| Excise . .               | 24,830  | 4,330    | 3,140   | 32,300   |
| Taxes . .                | 34,690  | 3,690    | 1,700   | 40,080   |
| Post-Office .            | 12,540  | 1,450    | 810     | 14,800   |
| Sundries . .             | 1,150   | 110      | 170     | 1,430    |
| Total . .                | 90,240  | 11,690   | 8,150   | 110,080  |

See *Taxation*, page 810.

#### FRANCE

Revenue and expenditure accounts show as follows:—

| Revenue          | Millions £ Sterling |       |       |       |
|------------------|---------------------|-------|-------|-------|
|                  | 1880                | 1890  | 1894  | 1898  |
| Direct tax . .   | 15.2                | 19.2  | 20.6  | 19.3  |
| Customs . .      | 14.7                | 15.0  | 19.2  | 16.5  |
| Stamp-duties . . | 27.9                | 28.5  | 28.4  | 29.9  |
| Post-Office . .  | 5.5                 | 8.1   | 8.8   | 9.2   |
| Excise . .       | 43.1                | 47.8  | 48.0  | 43.2  |
| Sundries . .     | 30.8                | 34.7  | 13.4  | 16.4  |
| Total . .        | 137.2               | 153.3 | 138.4 | 134.5 |

\* To read thus: 46.3 signifies £46,300,000.

| Expenditure      | Millions £ Sterling |       |       |       |
|------------------|---------------------|-------|-------|-------|
|                  | 1880                | 1890  | 1894  | 1898  |
| Debt . . .       | 49.7                | 50.7  | 49.4  | 50.0  |
| Army . . .       | 22.4                | 23.2  | 25.9  | 25.2  |
| Navy . . .       | 7.8                 | 8.0   | 14.2  | 10.3  |
| Public works . . | 26.2                | 14.4  | 13.0  | 7.8   |
| Commerce . .     | 1.7                 | 9.6   | 8.1   | 8.2   |
| Instruction . .  | 4.4                 | 7.6   | 8.2   | 8.5   |
| Local grants . . | 1.1                 | 8.6   | 1.6   | 1.6   |
| Sundries . .     | 37.1                | 27.7  | 18.8  | 22.1  |
| Total . .        | 150.4               | 149.8 | 139.2 | 133.7 |

In 1890 the amount of revenue refunded to Communes was 7 millions sterling more than at present, which accounts in some measure for the reduction of expenditure. The ratio of revenue per head of population at various dates shows thus:—

| Year       | £           | £ per Inhab. |
|------------|-------------|--------------|
| 1860 . . . | 68,500,000  | 1.8          |
| 1880 . . . | 135,700,000 | 3.5          |
| 1898 . . . | 134,500,000 | 3.4          |

National debt has more than doubled since the year preceding the Franco-German war, as the following table shows:—

| Year       | Millions £ |          |       | £ per Inhabitant |
|------------|------------|----------|-------|------------------|
|            | Funded     | Floating | Total |                  |
| 1869 . . . | 468        | 36       | 504   | 13.2             |
| 1887 . . . | 828        | 118      | 946   | 24.8             |
| 1890 . . . | 1,040      | 204      | 1,244 | 32.4             |

The floating debt properly so called is only 46 millions, but the "annuity" and other unfunded debts being added make a total of 204 millions. Interest on funded debt amounts to £32,500,000, being 3½ per cent. on principal, and the other expenses, especially those of floating debt, bring up the annual burthen of this department to a total of 50 millions, equal to 26 shillings per inhabitant, against 12 shillings in the United Kingdom.

#### GERMANY

The revenue of the States composing the Empire has grown as follows:—

|                  | 1867<br>£  | 1890<br>£   | 1897<br>£   |
|------------------|------------|-------------|-------------|
| Prussia . . .    | 25,300,000 | 79,300,000  | 97,000,000  |
| Bavaria . . .    | 5,900,000  | 12,200,000  | 17,200,000  |
| Saxony . . .     | 2,200,000  | 3,900,000   | 7,500,000   |
| Wurtemberg . .   | 1,300,000  | 2,800,000   | 3,700,000   |
| Small States . . | 5,800,000  | 9,500,000   | 18,000,000  |
| Imperial tax . . | ...        | 47,000,000  | 44,000,000  |
| Total . .        | 40,500,000 | 154,700,000 | 187,400,000 |

The imperial revenue is in reality £65,000,000, but this includes £21,000,000 contributed by the various States as "matriculas" and already included in the revenues raised by those States. If we exclude railway

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receipts, and apportion imperial taxes according to population, the revenue shows thus :—

|                        | £           | £ per Inhab. |
|------------------------|-------------|--------------|
| Prussia . . . . .      | 74,400,000  | 2.4          |
| Bavaria . . . . .      | 16,100,000  | 2.7          |
| Saxony . . . . .       | 8,500,000   | 2.3          |
| Wurtemberg . . . . .   | 4,800,000   | 2.3          |
| Other States . . . . . | 20,200,000  | 2.3          |
| Total . . . . .        | 124,000,000 | 2.4          |

The average budget for the empire in five years ending 1897 showed thus :—

| Revenue              | Millions £ | Expenses                | Millions £ |
|----------------------|------------|-------------------------|------------|
| Customs . . . . .    | 17.6       | Debt . . . . .          | 3.5        |
| Excise . . . . .     | 13.6       | Army . . . . .          | 29.0       |
| Matriculas . . . . . | 19.1       | Navy . . . . .          | 4.2        |
| Stamps . . . . .     | 2.3        | Civil Service . . . . . | 18.8       |
| Sundries . . . . .   | 9.8        | Sundries . . . . .      | 7.9        |
| Total . . . . .      | 62.4       | Total . . . . .         | 63.4       |

Matriculas in the above table represent the contributions of the several States to defray imperial expenses, that of Prussia amounting to £12,800,000, of Bavaria to £2,600,000, and the other States making up between them £3,700,000 sterling.

National debt has grown as follows :—

|                        | Millions £ |      |      |
|------------------------|------------|------|------|
|                        | 1867       | 1890 | 1897 |
| Prussia . . . . .      | 49         | 230  | 325  |
| Bavaria . . . . .      | 30         | 68   | 71   |
| Other States . . . . . | 49         | 105  | 118  |
| Total . . . . .        | 128        | 403  | 514  |
| Imperial . . . . .     | ...        | 62   | 106  |
| Grand total . . . . .  | 128        | 465  | 620  |

The increase of debt since 1867 has been caused by the purchase or construction of railways for the State, which have at present a length of 26,440 miles, representing a cost of 505 millions sterling. Deducting this from the above sum it will be seen that the real debt of Germany is only 115 millions sterling, or a fraction over £2 per inhabitant, against £16 in the United Kingdom and £32 in France.

## RUSSIA

The growth of revenue and debt in late years has been as follows :—

|                | Millions £ |      | Shillings per Inhab. |      |
|----------------|------------|------|----------------------|------|
|                | Revenue    | Debt | Revenue              | Debt |
| 1875 . . . . . | 74         | 370  | 18                   | 90   |
| 1889 . . . . . | 90         | 610  | 19                   | 128  |
| 1898 . . . . . | 138        | 692  | 27                   | 133  |

Excluding State railways, the revenue and debt in 1896 were :—

|                   | £ Sterling  | Shillings per Inhabitant |
|-------------------|-------------|--------------------------|
| Revenue . . . . . | 112,000,000 | 21                       |
| Debt . . . . .    | 326,000,000 | 61                       |

Revenue and expenditure during five years to December 1896 averaged as follows :—

| Revenue               | Millions £ | Expenses                | Millions £ |
|-----------------------|------------|-------------------------|------------|
| Customs . . . . .     | 15.8*      | Debt . . . . .          | 26.1       |
| Excise . . . . .      | 38.0       | Army . . . . .          | 27.0       |
| Railways . . . . .    | 15.2       | Navy . . . . .          | 5.4        |
| Land-tax . . . . .    | 14.0       | Public works . . . . .  | 11.0       |
| Stamps . . . . .      | 7.1        | Civil Service . . . . . | 8.3        |
| Post Office . . . . . | 3.7        | Schools . . . . .       | 2.2        |
| Sundries . . . . .    | 21.2       | Sundries . . . . .      | 45.7       |
| Total . . . . .       | 115.0      | Total . . . . .         | 126.0      |

Excess of expenditure from 1892 to 1897 was caused by the purchase or construction of 9000 miles of railway for the State, at a cost of 135 millions sterling, which amount was obtained by loans: thus the national debt rose from 540 millions in 1885 to 700 millions sterling in 1895, an average increase of 16 millions per annum. The Government has expended 366 millions sterling on railways, of which 284 millions are represented by 17,000 miles of State Railways, and 82 millions by shares on lines built by companies. Deducting this from the imperial debt, the latter is reduced to 326 millions, say 61 shillings per inhabitant.

## FINLAND

The finances of this duchy are kept distinct from those of Russia; the budget for 1896 was as follows :—

| Revenue              | £         | Expenses             | £         |
|----------------------|-----------|----------------------|-----------|
| Customs, &c. . . . . | 1,200,000 | Debt . . . . .       | 240,000   |
| Land-tax . . . . .   | 300,000   | Army . . . . .       | 400,000   |
| Sundries . . . . .   | 1,700,000 | Government . . . . . | 2,560,000 |
| Total . . . . .      | 3,200,000 | Total . . . . .      | 3,200,000 |

Public debt amounts to £4,400,000 sterling.

## AUSTRIA-HUNGARY

The total revenue of the monarchy is shown as follows :—

|                            | Millions £ Sterling |       |                  |
|----------------------------|---------------------|-------|------------------|
|                            | 1893                | 1897  | Average, 5 Years |
| Imperial customs . . . . . | 4.6                 | 4.3   | 4.3              |
| Austrian budget . . . . .  | 55.0                | 57.5  | 54.4             |
| Hungarian budget . . . . . | 38.8                | 39.2  | 39.3             |
| Total . . . . .            | 98.4                | 101.0 | 98.0             |

From the budgets of Austria and Hungary an annual quota is drawn, to defray the expenses common to the monarchy, the dual revenue showing thus :—

|                            | Millions £ Sterling |      |                  |
|----------------------------|---------------------|------|------------------|
|                            | 1893                | 1897 | Average, 5 Years |
| Imperial customs . . . . . | 4.6                 | 4.3  | 4.3              |
| Austrian quota . . . . .   | 5.4                 | 6.1  | 5.7              |
| Hungarian quota . . . . .  | 2.5                 | 2.8  | 2.6              |
| Total . . . . .            | 12.5                | 13.2 | 12.6             |

\* To read thus: Customs, £15,800,000.

Joint expenditure for 1898 is estimated at £13,400,000, of which £11,700,000 for the army, £1,200,000 for the navy, and £400,000 for diplomatic agents.

The Austrian budgets for five years ending 1895 averaged as follows:—

| Revenue            | Millions<br>£ | Expenses             | Millions<br>£ |
|--------------------|---------------|----------------------|---------------|
| Customs . . .      | 3.7           | Imperial quota . . . | 5.7           |
| Excise . . .       | 18.5          | Debt . . .           | 12.8          |
| Income-tax . . .   | 9.3           | Public works . . .   | 9.4           |
| Stamps . . .       | 5.0           | Agriculture . . .    | 1.5           |
| Railways . . .     | 6.7           | Militia . . .        | 1.6           |
| Post-Office . . .  | 3.0           | Worship . . .        | 2.0           |
| Sundries . . .     | 6.3           | Sundries . . .       | 18.6          |
| <b>Total . . .</b> | <b>52.5</b>   | <b>Total . . .</b>   | <b>51.6</b>   |

Hungarian budgets for five years averaged as follows:—

| Revenue            | Millions<br>£ | Expenses             | Millions<br>£ |
|--------------------|---------------|----------------------|---------------|
| Excise . . .       | 12.2          | Imperial quota . . . | 2.6           |
| Income-tax . . .   | 8.2           | Debt . . .           | 10.9          |
| Stamps . . .       | 2.8           | Public works . . .   | 6.3           |
| Railways . . .     | 6.7           | Agriculture . . .    | 1.2           |
| Post-Office . . .  | 1.3           | Militia . . .        | 1.1           |
| Sundries . . .     | 6.5           | Sundries . . .       | 15.3          |
| <b>Total . . .</b> | <b>37.7</b>   | <b>Total . . .</b>   | <b>37.4</b>   |

If we exclude railways, Post-Office, and other public services, in order to arrive at the precise amount of taxation, we find, for the whole monarchy:—

|                        |                   |
|------------------------|-------------------|
| Excise . . . . .       | £ 30,700,000      |
| Customs . . . . .      | 8,500,000         |
| Income-tax . . . . .   | 17,500,000        |
| Stamps, &c. . . . .    | 11,300,000        |
| <b>Total . . . . .</b> | <b>68,000,000</b> |

National debt is as follows:—

|                        | Millions of Florins |              |              | Millions<br>£ Sterling |
|------------------------|---------------------|--------------|--------------|------------------------|
|                        | Gold                | Silver       | Paper        |                        |
| General . . . . .      | 500                 | 400          | 2,170        | 264                    |
| Austrian . . . . .     | ...                 | 1,000        | 270          | 106                    |
| Hungarian . . . . .    | 710                 | 1,200        | 170          | 185                    |
| <b>Total . . . . .</b> | <b>1,210</b>        | <b>2,600</b> | <b>2,080</b> | <b>555</b>             |

In apportioning the general debt Austria took 70, Hungary 30, per cent., which makes the total debt of the former 291, that of the latter 264 millions sterling. But if the value of State railways be deducted the net debt of Austria will be 184, that of Hungary 140, millions sterling. The total service of debt costs 24 millions sterling, or nearly 4½ per cent. on the capital sum: it averages not quite 12 shillings per inhabitant, against 26 shillings in France, and 12 in the United Kingdom.

#### ITALY

The revenue and debt of the kingdom are shown as follows:—

|                | Millions £ |      | £ per Head |      |
|----------------|------------|------|------------|------|
|                | Revenue    | Debt | Revenue    | Debt |
| 1880 . . . . . | 55         | 393  | 2.0        | 14.0 |
| 1891 . . . . . | 64         | 489  | 2.1        | 16.3 |
| 1898 . . . . . | 67         | 516  | 2.2        | 16.6 |

The budgets of revenue and expenditure for five years ending 1896 give the following averages:—

| Revenue                | Millions<br>£ | Expenses                | Millions<br>£ |
|------------------------|---------------|-------------------------|---------------|
| Customs . . . . .      | 11.9          | Debt . . . . .          | 23.6          |
| Excise . . . . .       | 10.3          | Army . . . . .          | 11.1          |
| Income-tax . . . . .   | 17.9          | Navy . . . . .          | 4.2           |
| Stamps . . . . .       | 7.4           | Schools . . . . .       | 1.7           |
| Railways . . . . .     | 2.8           | Public works . . . . .  | 4.2           |
| Post-Office . . . . .  | 2.6           | Civil service . . . . . | 10.6          |
| Sundries . . . . .     | 12.3          | Sundries . . . . .      | 18.1          |
| <b>Total . . . . .</b> | <b>65.2</b>   | <b>Total . . . . .</b>  | <b>73.5</b>   |

There was a nominal deficit of 41 millions in the above five years, which was covered by 25 millions increase of debt, and 16 millions from sale of properties, &c.

If we deduct the cost of State railways (130 millions sterling), the national debt will amount to 386 millions sterling, equal to 12 per cent. of national wealth, being the same ratio as in France.

#### SPAIN

Revenue and national debt have been as follows:—

| Year           | Millions £ |      | £ per Inhabitant |      |
|----------------|------------|------|------------------|------|
|                | Revenue    | Debt | Revenue          | Debt |
| 1878 . . . . . | 30         | 550  | 1.8              | 32.0 |
| 1888 . . . . . | 35         | 260  | 2.0              | 15.0 |
| 1898 . . . . . | 31         | 283  | 1.8              | 16.2 |

The debt was repudiated in 1882, when bondholders were compelled to take new bonds of £40, for £100 old. Revenue and expenditure in the last five years averaged:—

|                       |             |
|-----------------------|-------------|
| Revenue . . . . .     | £29,200,000 |
| Expenditure . . . . . | 31,200,000  |

The average deficit in the past ten years has been £2,300,000. The budget for 1898 shows as follows:—

| Revenue                 | Millions<br>£ | Expenses               | Millions<br>£ |
|-------------------------|---------------|------------------------|---------------|
| Excise, &c. . . . .     | 12.3          | Debt . . . . .         | 13.0          |
| Property tax . . . . .  | 11.9          | Army . . . . .         | 9.6           |
| Monopolies, &c. . . . . | 6.8           | Sundries . . . . .     | 12.4          |
| <b>Total . . . . .</b>  | <b>31.0</b>   | <b>Total . . . . .</b> | <b>35.0</b>   |

In 1840 the debt was repudiated, bondholders receiving 30 per cent. in new scrip: this operation was repeated in 1882, bondholders being forced to accept 40 per cent. Thus the holder of a bond of £1000 in 1840 received new scrip for £300, and in 1882 this was again exchanged for £120 of newer scrip, so that 88 per cent. of the money due by Spain was thus wiped out, the actual debt representing only 12 per cent. of what should be the capital sum. This is exclusive of Cuban debt, amounting to 80 millions sterling, secured by revenues of that island.

#### PORTUGAL

Revenue and national debt were as follows:—

| Year           | Millions £ |       | £ per Inhabitant |      |
|----------------|------------|-------|------------------|------|
|                | Revenue    | Debt  | Revenue          | Debt |
| 1878 . . . . . | 5.7        | 94.0  | 1.3              | 22.5 |
| 1888 . . . . . | 8.4        | 113.0 | 1.8              | 25.0 |
| 1898 . . . . . | 11.5       | 134.0 | 2.4              | 27.2 |

The budgets of five years ending 1896 gave the following average :—

|                       |             |
|-----------------------|-------------|
| Revenue . . . . .     | £10,100,000 |
| Expenditure . . . . . | 11,200,000  |

The average deficit from 1888 to 1897 was 2 millions sterling per annum, and consequently the debt, as shown above, rose 21 millions in that interval.

The budget for 1898 showed as follows :—

| Revenue               | £          | Expenses                | £          |
|-----------------------|------------|-------------------------|------------|
| Customs . . . . .     | 5,500,000  | Debt . . . . .          | 4,000,000  |
| Income-tax . . . . .  | 2,600,000  | Army . . . . .          | 1,300,000  |
| Stamps . . . . .      | 1,100,000  | Public works . . . . .  | 1,300,000  |
| Railways . . . . .    | 400,000    | Civil Service . . . . . | 1,400,000  |
| Post-Office . . . . . | 300,000    | Colonies . . . . .      | 900,000    |
| Sundries . . . . .    | 1,600,000  | Sundries . . . . .      | 3,500,000  |
| Total . . . . .       | 11,500,000 | Total . . . . .         | 12,400,000 |

The amount raised by taxation is £9,600,000, equal to 40 shillings per inhabitant or 15 per cent. of national earnings. In 1893 the finances were so distracted that the Government compelled bondholders to accept a new arrangement whereby the interest on internal bonds was reduced to 70 per cent., that on the foreign or external debt to 33 per cent. of the interest previously paid. State railways stand for one-tenth of the national debt.

#### SWEDEN

Revenue and debt are shown as follows :—

| Year           | Revenue<br>£ | Debt<br>£  | £ per Head |      |
|----------------|--------------|------------|------------|------|
|                |              |            | Revenue    | Debt |
| 1878 . . . . . | 4,100,000    | 9,800,000  | 1.0        | 2.4  |
| 1888 . . . . . | 4,800,000    | 13,700,000 | 1.1        | 3.0  |
| 1897 . . . . . | 6,200,000    | 16,100,000 | 1.2        | 3.2  |

Budgets for the last five years give the following averages :—

| Revenue               | £         | Expenses                | £         |
|-----------------------|-----------|-------------------------|-----------|
| Customs . . . . .     | 2,100,000 | Debt . . . . .          | 600,000   |
| Excise . . . . .      | 1,200,000 | Army . . . . .          | 1,600,000 |
| Income-tax . . . . .  | 600,000   | Navy . . . . .          | 600,000   |
| Railways . . . . .    | 800,000   | Schools . . . . .       | 800,000   |
| Post-Office . . . . . | 600,000   | Civil Service . . . . . | 1,400,000 |
| Sundries . . . . .    | 1,200,000 | Sundries . . . . .      | 1,200,000 |
| Total . . . . .       | 6,500,000 | Total . . . . .         | 6,200,000 |

The amount raised by taxation is £4,800,000. The national debt is represented by State railways, which give a net profit of £500,000, or 3 per cent. on their cost of construction.

#### NORWAY

Revenue and debt have been as follows :—

| Year           | Revenue<br>£ | Debt<br>£ | £ per Head |      |
|----------------|--------------|-----------|------------|------|
|                |              |           | Revenue    | Debt |
| 1878 . . . . . | 2,400,000    | 4,000,000 | 1.3        | 2.2  |
| 1888 . . . . . | 2,400,000    | 5,900,000 | 1.2        | 3.0  |
| 1898 . . . . . | 3,800,000    | 8,800,000 | 1.8        | 4.2  |

Budgets of the last five years give the following averages :—

| Revenue               | £         | Expenses               | £         |
|-----------------------|-----------|------------------------|-----------|
| Customs . . . . .     | 1,300,000 | Debt . . . . .         | 300,000   |
| Excise . . . . .      | 400,000   | Army . . . . .         | 500,000   |
| Taxes . . . . .       | 500,000   | Navy . . . . .         | 200,000   |
| Railways . . . . .    | 400,000   | Public works . . . . . | 600,000   |
| Post-Office . . . . . | 300,000   | Schools . . . . .      | 300,000   |
| Sundries . . . . .    | 300,000   | Sundries . . . . .     | 1,400,000 |
| Total . . . . .       | 3,200,000 | Total . . . . .        | 3,300,000 |

The amount of revenue raised by taxation is £2,500,000. National debt is represented by a complete network of more than 1000 miles of railway, but the earnings do not suffice to pay the interest on the debt.

#### DENMARK

Notwithstanding the loss of Sleswig-Holstein in 1864, the Danish finances have improved in the last thirty years, viz. :—

| Year           | Revenue<br>£ | Debt<br>£  | £ per Head |      |
|----------------|--------------|------------|------------|------|
|                |              |            | Revenue    | Debt |
| 1866 . . . . . | 2,000,000    | 14,800,000 | 1.2        | 8.4  |
| 1889 . . . . . | 3,000,000    | 10,400,000 | 1.4        | 4.8  |
| 1898 . . . . . | 3,800,000    | 10,900,000 | 1.7        | 4.9  |

Budgets of the last five years give the following averages :—

| Revenue              | £         | Expenses               | £         |
|----------------------|-----------|------------------------|-----------|
| Customs . . . . .    | 1,400,000 | Debt . . . . .         | 400,000   |
| Excise . . . . .     | 300,000   | Army . . . . .         | 800,000   |
| Income-tax . . . . . | 500,000   | Navy . . . . .         | 400,000   |
| Stamps . . . . .     | 400,000   | Public works . . . . . | 300,000   |
| Sundries . . . . .   | 700,000   | Sundries . . . . .     | 1,700,000 |
| Total . . . . .      | 3,300,000 | Total . . . . .        | 3,600,000 |

The debt is fully represented by the State railways, besides which the Treasury has always a reserve of 5½ millions sterling to provide against sudden emergency.

#### HOLLAND

Revenue and debt have progressed as follows :—

| Year           | Revenue<br>£ | Debt<br>£  | £ per Head |      |
|----------------|--------------|------------|------------|------|
|                |              |            | Revenue    | Debt |
| 1879 . . . . . | 9,400,000    | 80,500,000 | 2.4        | 20.1 |
| 1888 . . . . . | 10,000,000   | 89,200,000 | 2.2        | 19.8 |
| 1898 . . . . . | 11,200,000   | 92,200,000 | 2.3        | 18.4 |

The budgets of the last five years gave the following averages :—

| Revenue              | £          | Expenses               | £          |
|----------------------|------------|------------------------|------------|
| Customs . . . . .    | 500,000    | Debt . . . . .         | 3,200,000  |
| Excise . . . . .     | 3,700,000  | Army . . . . .         | 3,100,000  |
| Direct tax . . . . . | 2,800,000  | Public works . . . . . | 900,000    |
| Sundries . . . . .   | 4,000,000  | Sundries . . . . .     | 4,100,000  |
| Total . . . . .      | 11,000,000 | Total . . . . .        | 11,300,000 |

The revenue raised by taxation was £9,500,000. National debt is 92 millions, of which 22 millions stand for State railways, leaving a real debt of 70 millions sterling.

## BELGIUM

Revenue and debt have grown as follows :—

|            | Millions £ |      | £ per Head |      |
|------------|------------|------|------------|------|
|            | Revenue    | Debt | Revenue    | Debt |
| 1878 . . . | 10.2       | 42.0 | 2.0        | 8.0  |
| 1890 . . . | 12.9       | 77.4 | 2.1        | 12.8 |
| 1898 . . . | 15.5       | 93.1 | 2.4        | 14.4 |

The budgets of five years ending December 1895 gave the following averages :—

| Revenue       | £          | Expenses     | £          |
|---------------|------------|--------------|------------|
| Taxes . . .   | 6,900,000  | Debt . . .   | 4,200,000  |
| Railways . .  | 6,600,000  | Army . . .   | 2,100,000  |
| Post-Office . | 500,000    | Railways . . | 4,200,000  |
| Sundries . .  | 200,000    | Sundries . . | 5,600,000  |
| Total . . .   | 14,200,000 | Total . . .  | 16,100,000 |

Surplus expenditure since 1890 has averaged two millions sterling per annum, caused by the construction of railways, which give a net profit of 4 per cent. on their cost. The State possesses 2050 miles of railway, which have cost 57 millions sterling, and if this be deducted the national debt will be reduced to 36 millions sterling.

## SWITZERLAND

The Federal Government has an annual revenue of £3,400,000, and a public debt of £3,200,000, but if the finances of the 22 Cantons be taken into account the figures will stand thus—

|                | Revenue £ | Debt, £    |
|----------------|-----------|------------|
| Federal . . .  | 3,600,000 | 3,200,000  |
| Cantonal . . . | 3,200,000 | 10,400,000 |
| Total . . .    | 6,800,000 | 13,600,000 |

The federal budget for 1898 is made up thus :—

| Revenue         | £         | Expenses        | £         |
|-----------------|-----------|-----------------|-----------|
| Customs . . .   | 1,800,000 | Army . . .      | 1,000,000 |
| Post-Office . . | 1,500,000 | Post-Office . . | 1,500,000 |
| Sundries . . .  | 300,000   | Sundries . . .  | 1,100,000 |
| Total . . .     | 3,600,000 | Total . . .     | 3,600,000 |

Between federal and local taxes the total is about 6 millions sterling, or 40 shillings per inhabitant, or 9 per cent. of national earnings. The total of federal and cantonal debts is hardly 3 per cent. of national wealth.

## DANUBIAN STATES.

The finances of these States may be briefly summed up thus :—

|                | Revenue, £ (000 omitted). |        |          |
|----------------|---------------------------|--------|----------|
|                | Roumania                  | Servia | Bulgaria |
| Customs . . .  | 2,500                     | 200    | 900      |
| Taxes . . .    | 1,500                     | 1,100  | 1,700    |
| Sundries . . . | 4,600                     | 1,200  | 1,000    |
| Total . . .    | 8,600                     | 2,500  | 3,600    |

Expenditure, £ (000 omitted).

|                | Roumania | Servia | Bulgaria |
|----------------|----------|--------|----------|
| Debt . . .     | 3,200    | 700    | 800      |
| Army . . .     | 1,800    | 600    | 900      |
| Sundries . . . | 3,600    | 1,200  | 1,600    |
| Total . . .    | 8,600    | 2,500  | 3,300    |

The following shows public debt and how much of it is accounted for by State railways :—

|                | Millions £ |          |           |
|----------------|------------|----------|-----------|
|                | Debt       | Railways | Real Debt |
| Roumania . . . | 50         | 26       | 24        |
| Servia . . .   | 16         | 8        | 8         |
| Bulgaria . . . | 7          | 2        | 5         |
| Total . . .    | 73         | 36       | 37        |

## GREECE

Revenue and debt have grown as follows :—

| Year       | Revenue, £ | Debt, £    | £ per Head |      |
|------------|------------|------------|------------|------|
|            |            |            | Revenue    | Debt |
| 1879 . . . | 1,600,000  | 19,400,000 | 1.0        | 12.0 |
| 1889 . . . | 3,400,000  | 22,700,000 | 1.5        | 10.3 |
| 1893 . . . | 3,800,000  | 37,000,000 | 1.6        | 15.0 |

Expenditure exceeded revenue, the aggregate for the past ten years showing as follows :—

|                         |             |
|-------------------------|-------------|
| Revenues, 1888-97 . . . | £34,800,000 |
| Expenses, „ . . .       | 43,600,000  |

The annual deficit has been close on a million sterling, and the debt now reaches 37 millions, this sum including the indemnity of 4 millions sterling payable to Turkey. Debt is equal to 17 per cent. of national wealth.

## TURKEY

The financial position of the Ottoman empire is shown thus :—

| Year       | Revenue, £ | Debt, £     |
|------------|------------|-------------|
| 1878 . . . | 15,000,000 | 245,000,000 |
| 1887 . . . | 16,200,000 | 180,000,000 |
| 1898 . . . | 18,500,000 | 162,000,000 |

The budget of 1898 is made up as follows :—

| Revenue         | £          | Expenses       | £          |
|-----------------|------------|----------------|------------|
| Customs . . .   | 2,000,000  | Debt . . .     | 6,500,000  |
| Excise . . .    | 2,600,000  | Army . . .     | 6,000,000  |
| Rural taxes . . | 8,600,000  | Sultan . . .   | 900,000    |
| Sundries . . .  | 5,300,000  | Sundries . . . | 5,100,000  |
| Total . . .     | 18,500,000 | Total . . .    | 18,500,000 |

In five years down to 1896 the expenditure averaged one million sterling over revenue. No fewer than 26 loans have been issued since 1854, amounting as follows :—

| Period        | No. of Loans | Millions £ |
|---------------|--------------|------------|
| 1854-64 . . . | 6            | 31         |
| 1865-80 . . . | 10           | 207        |
| 1881-96 . . . | 10           | 40         |
| Total . . .   | 26           | 278        |

Fifteen of the above loans were converted by new  
2 Y

issues in 1881-90-91-94. On the 8th December 1881, the empire was declared bankrupt, when loans and arrears of interest, amounting to 240 millions sterling, were reduced by 90 millions by an issue of new stock to foreign bondholders, leaving also an internal debt of 40 millions, besides 32 millions of war indemnity due to Russia, which made a total of 162 millions. Since then there have been loans and lottery bonds to the amount of 50 millions, and the funded debt in July 1897 amounted to £130,500,000, to which must be added £31,500,000 for Russian indemnity, making a total of 162 millions sterling.

## EGYPT

The finances were rearranged in 1885: revenue and debt are shown thus:—

| Year           | Revenue, £ | Debt, £     |
|----------------|------------|-------------|
| 1878 . . . . . | 7,400,000  | 85,000,000  |
| 1889 . . . . . | 9,700,000  | 103,400,000 |
| 1897 . . . . . | 10,500,000 | 104,600,000 |

The revenue of 1897 compares with that of 1889 as follows:—

|                    | 1889      | 1897       |
|--------------------|-----------|------------|
| Customs . . . . .  | 1,000,000 | 800,000    |
| Land tax . . . . . | 4,000,000 | 5,000,000  |
| Railways . . . . . | 1,300,000 | 1,800,000  |
| Sundries . . . . . | 2,500,000 | 2,900,000  |
| Total . . . . .    | 9,700,000 | 10,500,000 |

The expenditure of the same years compares thus:—

|                      | 1889      | 1897      |
|----------------------|-----------|-----------|
| Debt . . . . .       | 4,100,000 | 4,200,000 |
| Police . . . . .     | 700,000   | 800,000   |
| Government . . . . . | 4,600,000 | 4,900,000 |
| Total . . . . .      | 9,400,000 | 9,900,000 |

The railways are State property, and give a net profit of £1,030,000 a year, equal to 6½ per cent. on their cost. The actual debt of £104,600,000 is accounted for thus: canals, £19,400,000; railways, £16,200,000; mills, harbours, &c., £13,500,000; discount on loans, £26,400,000; ballet-dancers, palaces, &c., £47,300,000. The actual sum realised by the loans was 78 millions sterling, and the service of the debt is nearly 5½ per cent. on same. It is impossible to say what were the profits of Messrs. Goschen, Oppenheim, Bischoffsheim, and Rothschild in the loans.

## UNITED STATES

Finances compared with population at various dates show thus:—

| Year           | Millions £ |      | £ per Inhabitant |      |
|----------------|------------|------|------------------|------|
|                | Revenue    | Debt | Revenue          | Debt |
| 1870 . . . . . | 71.5       | 490  | 1.9              | 12.6 |
| 1880 . . . . . | 69.2       | 441  | 1.4              | 8.8  |
| 1890 . . . . . | 96.5       | 323  | 1.5              | 5.1  |
| 1897 . . . . . | 89.4       | 378  | 1.2              | 5.4  |

The budgets of the last eight years give the following averages of revenue:—

|                       | 1880-83<br>Millions £ | 1894-97<br>Millions £ | 1890-97<br>Millions £ |
|-----------------------|-----------------------|-----------------------|-----------------------|
| Customs . . . . .     | 43.2                  | 32.2                  | 37.7                  |
| Excise . . . . .      | 31.2                  | 30.2                  | 30.7                  |
| Post-Office . . . . . | 14.1                  | 16.5                  | 15.3                  |
| Sundries . . . . .    | 5.5                   | 4.3                   | 4.9                   |
| Total . . . . .       | 94.0                  | 83.2                  | 88.6                  |

Expenditure averaged as follows:—

|                       | 1890-93 | 1894-97 | 1890-97 |
|-----------------------|---------|---------|---------|
| Debt . . . . .        | 6.4     | 6.8     | 6.6     |
| Army . . . . .        | 10.4    | 11.0    | 10.7    |
| Navy . . . . .        | 5.6     | 6.4     | 6.0     |
| Post-Office . . . . . | 15.8    | 19.0    | 17.4    |
| Interior . . . . .    | 31.2    | 33.2    | 32.2    |
| Sundries . . . . .    | 16.6    | 15.0    | 15.8    |
| Total . . . . .       | 86.0    | 91.4    | 88.7    |

The first four years showed an average surplus of 8 millions sterling of revenue over expenditure, but the second four years showed the reverse, so that revenue and expenditure for the whole eight years were even. The budget of 1897 was as follows:—

| Revenue               | £          | Expenses             | £          |
|-----------------------|------------|----------------------|------------|
| Customs . . . . .     | 36,700,000 | Debt . . . . .       | 7,900,000  |
| Excise . . . . .      | 30,500,000 | Army . . . . .       | 10,600,000 |
| Post-Office . . . . . | 17,200,000 | Navy . . . . .       | 7,300,000  |
| Sundries . . . . .    | 5,000,000  | Government . . . . . | 67,500,000 |
| Total . . . . .       | 89,400,000 | Total . . . . .      | 93,300,000 |

The national debt has varied between 1880 and 1897 as follows:—

| Debt                       | Millions £ Sterling |      |      |
|----------------------------|---------------------|------|------|
|                            | 1880                | 1890 | 1897 |
| Bearing interest . . . . . | 358                 | 150  | 176  |
| No interest . . . . .      | 82                  | 172  | 202  |
| Total . . . . .            | 440                 | 322  | 378  |
| Cash in Treasury . . . . . | 41                  | 137  | 172  |
| Net debt . . . . .         | 399                 | 185  | 206  |

Local taxation exceeds national: the former almost doubled between 1870 and 1890. See *Local Finance*.

## CANADA

Revenue and debt have grown as follows:—

|                | Millions £ |      | £ per Head |      |
|----------------|------------|------|------------|------|
|                | Revenue    | Debt | Revenue    | Debt |
| 1880 . . . . . | 5.1*       | 32.1 | 1.1        | 7.0  |
| 1889 . . . . . | 7.8        | 49.2 | 1.6        | 10.2 |
| 1897 . . . . . | 7.8        | 69.0 | 1.5        | 13.8 |

\* To read thus: Revenue, £5,100,000.



The budget for 1897 was as follows :—

| Revenue            | £                | Expenses           | £                |
|--------------------|------------------|--------------------|------------------|
| Customs . . .      | 4,000,000        | Debt . . .         | 2,600,000        |
| Excise . . .       | 1,900,000        | Subsidies . . .    | 900,000          |
| Post-Office . . .  | 700,000          | Militia . . .      | 400,000          |
| Sundries . . .     | 1,200,000        | Government . . .   | 4,000,000        |
| <b>Total . . .</b> | <b>7,800,000</b> | <b>Total . . .</b> | <b>7,900,000</b> |

The subsidies are grants to the several Provinces for local affairs, averaging 3 shillings per inhabitant. Each Province has also its own budget. See *Local Finance*.

Debt amounts to 69 millions, of which 59 have been expended on public works. The Intercolonial railway, belonging to Government, cost 12 millions sterling, deducting which the debt would be reduced to 57 millions. The Treasury is said to possess assets altogether worth 15 millions, and the real debt is officially put down at 54 millions sterling.

#### AUSTRALIA

Revenue has trebled since 1871, viz. :—

|                    | £ Sterling (ooo omitted) |               |               |               |
|--------------------|--------------------------|---------------|---------------|---------------|
|                    | 1871                     | 1881          | 1891          | 1897          |
| N. S. Wales . . .  | 2,240                    | 6,710         | 10,040        | 9,310         |
| Victoria . . .     | 3,730                    | 5,190         | 8,340         | 6,630         |
| New Zealand . . .  | 1,340                    | 3,760         | 4,190         | 4,800         |
| Queensland . . .   | 800                      | 1,970         | 3,350         | 3,610         |
| W. Australia . . . | 110                      | 210           | 500           | 2,840         |
| S. Australia . . . | 780                      | 2,170         | 2,730         | 2,700         |
| Tasmania . . .     | 270                      | 510           | 760           | 800           |
| <b>Total . . .</b> | <b>9,270</b>             | <b>20,520</b> | <b>29,910</b> | <b>30,690</b> |

The above revenues gave the following averages per inhabitant :—

|                    | Shillings per Head |      |      |      |
|--------------------|--------------------|------|------|------|
|                    | 1871               | 1881 | 1891 | 1897 |
| N. S. Wales . . .  | 88                 | 175  | 182  | 144  |
| Victoria . . .     | 101                | 119  | 147  | 113  |
| New Zealand . . .  | 104                | 153  | 135  | 135  |
| Queensland . . .   | 133                | 174  | 171  | 153  |
| W. Australia . . . | 84                 | 140  | 215  | 412  |
| S. Australia . . . | 84                 | 157  | 171  | 150  |
| Tasmania . . .     | 54                 | 87   | 105  | 98   |
| General . . .      | 96                 | 148  | 159  | 142  |

The revenue of 1897 was made up as follows :—

|                    | £ Sterling (ooo omitted) |               |              |               |
|--------------------|--------------------------|---------------|--------------|---------------|
|                    | Taxes                    | Railways      | Sundries     | Total         |
| N. S. Wales . . .  | 2,460                    | 3,370         | 3,480        | 9,310         |
| Victoria . . .     | 2,630                    | 2,600         | 1,400        | 6,630         |
| New Zealand . . .  | 2,520                    | 1,290         | 990          | 4,800         |
| Queensland . . .   | 1,500                    | 1,140         | 970          | 3,610         |
| W. Australia . . . | 1,160                    | 940           | 740          | 2,840         |
| S. Australia . . . | 940                      | 1,040         | 720          | 2,700         |
| Tasmania . . .     | 470                      | 160           | 170          | 800           |
| <b>Total . . .</b> | <b>11,680</b>            | <b>10,540</b> | <b>8,470</b> | <b>30,690</b> |

Expenditure in 1897 was made up as follows :—

|                    | Debt         | Railways     | Sundries      | Total         |
|--------------------|--------------|--------------|---------------|---------------|
| N. S. Wales . . .  | 2,310        | 1,830        | 5,180         | 9,320         |
| Victoria . . .     | 1,890        | 1,510        | 3,180         | 6,580         |
| New Zealand . . .  | 1,710        | 780          | 2,020         | 4,510         |
| Queensland . . .   | 1,260        | 680          | 1,660         | 3,600         |
| W. Australia . . . | 250          | 580          | 2,010         | 2,840         |
| S. Australia . . . | 970          | 640          | 1,150         | 2,760         |
| Tasmania . . .     | 310          | 120          | 320           | 750           |
| <b>Total . . .</b> | <b>8,700</b> | <b>6,140</b> | <b>15,520</b> | <b>30,360</b> |

The following table shows the sources of revenue in 1897 compared with population :—

|                  | Shillings per Head |          |       |           |          | Total |
|------------------|--------------------|----------|-------|-----------|----------|-------|
|                  | Taxes              | Railways | Lands | P.-Office | Sundries |       |
| N. S. Wales . .  | 38                 | 52       | 30    | 11        | 13       | 144   |
| Victoria . . .   | 45                 | 44       | 7     | 9         | 8        | 113   |
| N. Zealand . .   | 71                 | 36       | 8     | 12        | 8        | 135   |
| Queensland . .   | 64                 | 48       | 22    | 10        | 9        | 153   |
| W. Australia . . | 169                | 136      | 27    | 30        | 50       | 412   |
| S. Australia . . | 52                 | 58       | 10    | 14        | 16       | 150   |
| Tasmania . . .   | 57                 | 20       | 7     | 9         | 5        | 98    |
| Australasia . .  | 54                 | 49       | 17    | 11        | 11       | 142   |

Expenditure in 1897, compared with population, resulted as follows :—

|                  | Shillings per Head |          |         |           |          | Total |
|------------------|--------------------|----------|---------|-----------|----------|-------|
|                  | Debt               | Railways | Schools | P.-Office | Sundries |       |
| N. S. Wales . .  | 36                 | 28       | 11      | 11        | 58       | 144   |
| Victoria . . .   | 32                 | 26       | 10      | 10        | 34       | 112   |
| New Zealand . .  | 48                 | 22       | 13      | 10        | 34       | 127   |
| Queensland . .   | 54                 | 29       | 10      | 13        | 47       | 153   |
| W. Australia . . | 36                 | 84       | 6       | 45        | 241      | 412   |
| S. Australia . . | 54                 | 35       | 9       | 11        | 44       | 153   |
| Tasmania . . .   | 38                 | 15       | 5       | 8         | 26       | 92    |
| Australasia . .  | 40                 | 28       | 10      | 12        | 51       | 141   |

The following table shows the growth of public debt since 1871 :—

|                    | £ Sterling (ooo omitted) |               |                |                |
|--------------------|--------------------------|---------------|----------------|----------------|
|                    | 1871                     | 1881          | 1891           | 1897           |
| N. S. Wales . . .  | 10,600                   | 16,900        | 53,000         | 61,000         |
| Victoria . . .     | 12,000                   | 22,400        | 43,600         | 47,500         |
| New Zealand . . .  | 8,900                    | 29,700        | 38,800         | 44,400         |
| Queensland . . .   | 4,000                    | 13,300        | 29,500         | 34,500         |
| W. Australia . . . | ...                      | 500           | 1,600          | 7,300          |
| S. Australia . . . | 2,200                    | 11,200        | 20,400         | 24,400         |
| Tasmania . . .     | 1,300                    | 2,000         | 7,100          | 8,300          |
| <b>Total . . .</b> | <b>39,000</b>            | <b>96,000</b> | <b>194,000</b> | <b>227,500</b> |

Public works represent 94 per cent. of the actual debt, namely, 213 millions sterling, including 156 millions spent on railways, telegraphs, water-supply, &c., which bring in a gross annual income of 12 millions sterling, or 40 per cent. of the total revenue. The remaining 57 millions were expended on roads, bridges, parks, public

buildings, &c., which produce no income, though of equal utility. The expenditure has been as follows :—

| £ Sterling (000 omitted) |          |                  |            |         |
|--------------------------|----------|------------------|------------|---------|
|                          | Railways | Water-works, &c. | Roads, &c. | Total   |
| N. S. Wales . .          | 40,300   | 8,700            | 9,500      | 58,500  |
| Victoria . . .           | 35,700   | 8,100            | 2,600      | 46,400  |
| New Zealand . .          | 15,300   | 1,400            | 24,900     | 41,600  |
| Queensland . .           | 19,500   | 1,200            | 9,200      | 29,900  |
| W. Australia . .         | 4,500    | 300              | 1,800      | 6,600   |
| S. Australia . .         | 12,800   | 4,900            | 4,700      | 22,400  |
| Tasmania . . .           | 3,700    | 100              | 3,800      | 7,600   |
| Total . . .              | 131,800  | 24,700           | 56,500     | 213,000 |

The following table shows the net profit yearly on railways, the net burthen of public debt after deducting the railway profits, and the ratio of the latter to population :—

|                  | Railway Profits, £ | Net Debt Charge, £ | Shillings per Head of Interest |
|------------------|--------------------|--------------------|--------------------------------|
| N. S. Wales . .  | 1,540,000          | 770,000            | 12                             |
| Victoria . . .   | 1,090,000          | 800,000            | 14                             |
| New Zealand . .  | 510,000            | 1,200,000          | 33                             |
| Queensland . .   | 460,000            | 800,000            | 34                             |
| W. Australia . . | 360,000            | ...                | ...                            |
| S. Australia . . | 400,000            | 570,000            | 32                             |
| Tasmania . . .   | 40,000             | 270,000            | 32                             |
| Total . . .      | 4,400,000          | 4,300,000          | 20                             |

This shows that the annual charge for public debt, after deducting the net profits of railways, is exactly 20 shillings per inhabitant; if we deduct from this the revenue received from public lands (17 shillings), it appears that the debt of Australasia imposes a burthen of only 3 shillings per inhabitant out of ordinary revenue.

#### SOUTH AFRICA

The revenue and debt of Cape Colony and Natal have been as follows :—

|                 | Revenue, £ |           | Debt, £    |            |
|-----------------|------------|-----------|------------|------------|
|                 | 1887       | 1896      | 1887       | 1896       |
| Cape Colony . . | 3,160,000  | 6,800,000 | 22,500,000 | 27,400,000 |
| Natal . . . .   | 820,000    | 1,460,000 | 4,000,000  | 8,100,000  |
| Total . . . .   | 3,980,000  | 8,260,000 | 26,500,000 | 35,500,000 |

The finances of Cape Colony in 1896 were as follows :—

| Revenue        | £         | Expenses       | £         |
|----------------|-----------|----------------|-----------|
| Taxes . . . .  | 2,420,000 | Debt . . . .   | 1,240,000 |
| Railways . . . | 4,080,000 | Railways . . . | 1,920,000 |
| Sundries . . . | 300,000   | Government . . | 3,200,000 |
| Total . . . .  | 6,800,000 | Total . . . .  | 6,360,000 |

The finances of Natal in 1896 showed thus :—

| Revenue        | £         | Expenses       | £         |
|----------------|-----------|----------------|-----------|
| Railways . . . | 750,000   | Railways . . . | 400,000   |
| Customs, &c. . | 710,000   | Government . . | 880,000   |
| Total . . . .  | 1,460,000 | Total . . . .  | 1,280,000 |

The aggregate debt of the two colonies is 35½ millions sterling, the whole expended on railways and other public works. The State railways cost 24½ millions, leaving the net debt only 11 millions sterling; the railways give a net profit of £2,500,000 per annum, or 10 per cent. on capital.

#### INDIA

Revenue and debt have progressed as follows :—

| Year         | Millions of Rupees |       | Millions £ Sterling |       |
|--------------|--------------------|-------|---------------------|-------|
|              | Revenue            | Debt  | Revenue             | Debt  |
| 1880 . . . . | 684                | 1,530 | 57.0                | 127.5 |
| 1890 . . . . | 857                | 2,185 | 64.3                | 163.8 |
| 1897 . . . . | 957                | 2,323 | 59.9                | 145.0 |

Rupees were worth 20 pence in 1880, 18 pence in 1890, and 15 pence in 1897. The budgets of 1890 and 1897, reduced to English money, compared thus :—

|                  | Revenue, £ |            |
|------------------|------------|------------|
|                  | 1890       | 1897       |
| Land tax . . .   | 17,600,000 | 16,000,000 |
| Railways . . .   | 12,600,000 | 12,900,000 |
| Opium . . . .    | 6,200,000  | 3,600,000  |
| Salt tax . . . . | 6,000,000  | 5,500,000  |
| Post-Office . .  | 1,700,000  | 1,500,000  |
| Irrigation . . . | 1,400,000  | 2,000,000  |
| Sundries . . . . | 18,800,000 | 18,000,000 |
| Total . . . .    | 64,300,000 | 59,500,000 |

|                  | Expenditure, £ |            |
|------------------|----------------|------------|
|                  | 1890           | 1897       |
| Debt . . . . .   | 4,400,000      | 3,600,000  |
| Army . . . . .   | 16,600,000     | 15,200,000 |
| Railways . . . . | 14,100,000     | 14,700,000 |
| Roads . . . . .  | 4,100,000      | 3,600,000  |
| Canals . . . . . | 1,900,000      | 2,000,000  |
| Sundries . . . . | 21,000,000     | 22,300,000 |
| Total . . . . .  | 62,100,000     | 61,400,000 |

Expenditure, counted in rupees, has risen 26 per cent. in ten years, viz. :—

| Expended           | Millions of Rupees |      |      |
|--------------------|--------------------|------|------|
|                    | 1886               | 1891 | 1896 |
| In India . . . .   | 558                | 614  | 694  |
| In Great Britain . | 184                | 206  | 275  |
| Total . . . . .    | 772                | 820  | 969  |

#### WEST INDIES, BRITISH

Revenue and debt have progressed as follows :—

| Year         | £ Sterling |           | Shillings per Inhab. |      |
|--------------|------------|-----------|----------------------|------|
|              | Revenue    | Debt      | Revenue              | Debt |
| 1881 . . . . | 1,850,000  | 2,020,000 | 24                   | 27   |
| 1890 . . . . | 2,340,000  | 3,600,000 | 28                   | 43   |
| 1896 . . . . | 2,440,000  | 4,900,000 | 30                   | 58   |

The various islands and British Guiana showed in 1896 as follows :—

|                  | Revenue, £ | Debt, £   | Shillings per Head |      |
|------------------|------------|-----------|--------------------|------|
|                  |            |           | Revenue            | Debt |
| Jamaica . . .    | 780,000    | 2,200,000 | 22                 | 63   |
| Trinidad . . .   | 580,000    | 600,000   | 50                 | 52   |
| Barbados . . .   | 180,000    | 400,000   | 19                 | 42   |
| Small Islands .  | 350,000    | 800,000   | 23                 | 52   |
| British Guiana . | 550,000    | 900,000   | 40                 | 66   |
| West Indies . .  | 2,440,000  | 4,900,000 | 30                 | 58   |

Although debt has risen 150 per cent. in fifteen years it is still light, being under £3 per inhabitant, against £12 in Canada.

#### ALGERIA

Revenue rose from £1,700,000 in 1885 to £2,100,000 in 1897, the budget for last year showing as follows :—

| Revenue        | £         | Expenses         | £         |
|----------------|-----------|------------------|-----------|
| Customs . . .  | 520,000   | Public works . . | 1,250,000 |
| Land tax . . . | 480,000   | Gov. farms . . . | 620,000   |
| Stamps . . .   | 550,000   | Schools . . .    | 300,000   |
| Sundries . . . | 550,000   | Sundries . . .   | 630,000   |
| Total . . .    | 2,100,000 | Total . . .      | 2,800,000 |

Interest on debt, as well as army and navy expenses, are charged to the Colonial Department of the budget of France.

#### SPANISH WEST INDIES

In 1894 the revenue of these islands showed :—

|                  | £         | Shillings per Head |
|------------------|-----------|--------------------|
| Cuba . . .       | 4,900,000 | 60                 |
| Porto Rico . . . | 800,000   | 20                 |
| Total . . .      | 5,700,000 | 47                 |

The Cuban budget was made up thus :—

| Revenue        | £         | Expenses      | £         |
|----------------|-----------|---------------|-----------|
| Customs . . .  | 2,300,000 | Debt . . .    | 2,500,000 |
| Sundries . . . | 2,600,000 | Army, &c. . . | 2,700,000 |
| Total . . .    | 4,900,000 | Total . . .   | 5,200,000 |

That of Porto Rico was as follows :—

| Revenue        | £       | Expenses       | £       |
|----------------|---------|----------------|---------|
| Customs . . .  | 460,000 | Garrison . . . | 200,000 |
| Sundries . . . | 340,000 | Sundries . . . | 600,000 |
| Total . . .    | 800,000 | Total . . .    | 800,000 |

The debt of Cuba rose from 25 millions sterling in 1889 to 40 millions in 1894. Since the present revolution began Spain has piled up debt on Cuba, the amount in December 1897 reaching 91 millions sterling.

#### JAVA

Revenue and expenditure have been as follows :—

| Year       | Revenue, £ | Expenditure, £ |
|------------|------------|----------------|
| 1870 . . . | 10,300,000 | 9,600,000      |
| 1880 . . . | 12,200,000 | 12,200,000     |
| 1890 . . . | 11,500,000 | 10,600,000     |
| 1896 . . . | 11,000,000 | 12,000,000     |

The following table shows the annual average revenues for six years :—

|                | £ Sterling |            |            |
|----------------|------------|------------|------------|
|                | 1892-93    | 1894-95    | 1896-97    |
| Taxes . . .    | 4,100,000  | 3,900,000  | 4,100,000  |
| Products . . . | 5,500,000  | 5,200,000  | 5,100,000  |
| Sundries . . . | 1,500,000  | 1,700,000  | 1,900,000  |
| Total . . .    | 11,100,000 | 10,800,000 | 11,100,000 |

The revenue from products includes monopolies on opium and salt, as well as the profits from Government coffee-farms, &c.

#### CEYLON

Revenue and debt have progressed as follows :—

| Year       | Revenue, £ | Debt, £   | Shillings per Head |      |
|------------|------------|-----------|--------------------|------|
|            |            |           | Revenue            | Debt |
| 1881 . . . | 1,140,000  | 1,940,000 | 8                  | 14   |
| 1890 . . . | 1,220,000  | 2,520,000 | 8                  | 17   |
| 1896 . . . | 1,300,000  | 3,700,000 | 8                  | 23   |

The budget for 1896 was made up as follows :—

| Revenues       | £         | Expenses         | £         |
|----------------|-----------|------------------|-----------|
| Customs . . .  | 300,000   | Debt . . .       | 180,000   |
| Railway . . .  | 400,000   | Public works . . | 150,000   |
| Excise . . .   | 250,000   | Garrison . . .   | 100,000   |
| Sundries . . . | 350,000   | Government . .   | 870,000   |
| Total . . .    | 1,300,000 | Total . . .      | 1,300,000 |

The debt, amounting to £3,700,000, is represented by productive works, including piers, waterworks, and a railway of 300 miles.

#### ARGENTINA

Revenue and debt have grown as follows :—

| Year       | Millions £ |      | £ per Head |      |
|------------|------------|------|------------|------|
|            | Revenue    | Debt | Revenue    | Debt |
| 1870 . . . | 3.0        | 10.1 | 1.5        | 5.0  |
| 1880 . . . | 3.9        | 23.0 | 1.3        | 8.0  |
| 1890 . . . | 5.4        | 46.5 | 1.5        | 13.0 |
| 1897 . . . | 9.4        | 88.0 | 2.3        | 22.0 |

The returns for five years, ending December 1896, gave the following averages :—

|                   |            |
|-------------------|------------|
| Revenue . . .     | £7,700,000 |
| Expenditure . . . | 10,200,000 |

The budget for 1898 showed as follows :—

| Revenue        | £         | Expenses        | £          |
|----------------|-----------|-----------------|------------|
| Customs . . .  | 6,400,000 | Debt . . .      | 4,600,000  |
| Excise . . .   | 1,200,000 | Army and navy . | 2,000,000  |
| Sundries . . . | 1,800,000 | Sundries . . .  | 4,200,000  |
| Total . . .    | 9,400,000 | Total . . .     | 10,800,000 |

Each of the 14 provinces has also its budget, the aggregate revenue amounting to £2,300,000. The total taxation amounts to £11,500,000, or £3 per inhabitant, as compared with £2 in Canada and £2½ in the United States.

Debt rose more than 40 millions between 1890 and

1897, because the Federal Government took over the debts of the provinces, amounting to 37 millions, besides redeeming the guarantees given to certain railway companies. There are still municipal debts to the sum of 5 millions sterling, bringing up the total to 93 millions sterling, or 15 per cent. of the wealth of the nation.

## URUGUAY

Revenue and debt have grown as follows :—

| Year       | Revenue, £ | Debt, £    | £ per Inhabitant |      |
|------------|------------|------------|------------------|------|
|            |            |            | Revenue          | Debt |
| 1870 . . . | 900,000    | 8,000,000  | 2.2              | 20.0 |
| 1880 . . . | 1,600,000  | 11,000,000 | 3.5              | 24.0 |
| 1890 . . . | 2,400,000  | 15,000,000 | 3.2              | 20.0 |
| 1897 . . . | 3,400,000  | 25,300,000 | 4.0              | 30.0 |

The budget of 1897 showed as follows :—

| Revenue        |           | Expenses       |           |
|----------------|-----------|----------------|-----------|
|                | £         |                | £         |
| Customs . . .  | 1,900,000 | Debt . . .     | 1,100,000 |
| Sundries . . . | 1,500,000 | Sundries . . . | 2,300,000 |
| Total . . .    | 3,400,000 | Total . . .    | 3,400,000 |

Taxation, national and local, including £200,000 for the city of Monte Video, is about 4 millions sterling, or nearly £5 per inhabitant, against £3 in Argentina. Debt is equal to 21 per cent. of national wealth, against 15 per cent. in Argentina.

## CHILE

The budgets of five years to December 1896 give the following averages :—

|                       |            |
|-----------------------|------------|
| Revenue . . . . .     | £5,800,000 |
| Expenditure . . . . . | 5,500,000  |

The budget for 1897 was as follows :—

| Revenue          |           | Expenses      |           |
|------------------|-----------|---------------|-----------|
|                  | £         |               | £         |
| Customs . . .    | 1,700,000 | Debt . . .    | 900,000   |
| Nitrate dues . . | 2,900,000 | Army and Navy | 1,500,000 |
| Sundries . . .   | 1,300,000 | Government .  | 3,500,000 |
| Total . . .      | 5,900,000 | Total . . .   | 5,900,000 |

The debt of Chile amounts to £19,800,000, or £7 per inhabitant, against £13 in Argentina. The annual service of debt costs 7 shillings per inhabitant in Chile.

## PERU

Revenue and expenditure during five years to end of 1896 averaged thus :—

|                       |          |
|-----------------------|----------|
| Revenue . . . . .     | £800,000 |
| Expenditure . . . . . | 800,000  |

The budget for 1897 was as follows :—

| Revenue        |           | Expenses       |           |
|----------------|-----------|----------------|-----------|
|                | £         |                | £         |
| Customs . . .  | 630,000   | Army . . .     | 300,000   |
| Taxes . . .    | 250,000   | Interior . . . | 260,000   |
| Sundries . . . | 190,000   | Sundries . . . | 570,000   |
| Total . . .    | 1,070,000 | Total . . .    | 1,130,000 |

Peru borrowed 32 millions sterling in England in 1870-72, and soon after became bankrupt; in 1890 she handed over the State railways and mines to the bondholders, who agreed to cancel the debt. There is still an internal debt of 4 millions sterling.

## VENEZUELA

The budget of 1896 shows as follows :—

| Revenue        |           | Expenses     |           |
|----------------|-----------|--------------|-----------|
|                | £         |              | £         |
| Customs . . .  | 1,100,000 | Debt . . .   | 400,000   |
| Sundries . . . | 1,000,000 | Government . | 2,200,000 |
| Total . . .    | 2,100,000 | Total . . .  | 2,600,000 |

Debt amounts to 8 millions sterling, or £3½ per inhabitant.

## MEXICO

Budgets of the last five years give the following averages :—

|                       |            |
|-----------------------|------------|
| Revenue . . . . .     | £5,200,000 |
| Expenditure . . . . . | 4,900,000  |

The budget for 1898 was made up thus :—

| Revenue        |           | Expenses     |           |
|----------------|-----------|--------------|-----------|
|                | £         |              | £         |
| Customs . . .  | 2,500,000 | Debt . . .   | 1,900,000 |
| Excise . . .   | 2,200,000 | Army . . .   | 1,200,000 |
| Sundries . . . | 500,000   | Government . | 2,100,000 |
| Total . . .    | 5,200,000 | Total . . .  | 5,200,000 |

Public debt amounts to 30 millions sterling. There is local taxation, between States and municipalities, which sums up £3,000,000 per annum. Thus the total taxation is about 8 millions sterling, or 14 shillings per inhabitant.

## BRAZIL

The budgets of five years to end of 1897 gave the following averages :—

|                       |             |
|-----------------------|-------------|
| Revenue . . . . .     | £12,600,000 |
| Expenditure . . . . . | 13,800,000  |

The budget for 1898 showed as follows :—

| Revenue        |           | Expenses       |           |
|----------------|-----------|----------------|-----------|
|                | £         |                | £         |
| Customs . . .  | 6,800,000 | Debt . . .     | 3,500,000 |
| Railways . . . | 900,000   | Army and Navy  | 2,200,000 |
| Sundries . . . | 1,800,000 | Sundries . . . | 3,200,000 |
| Total . . .    | 9,500,000 | Total . . .    | 8,900,000 |

The budget is unreliable as regards expenditure, which always exceeds revenue. The foreign debt amounts to 39 millions sterling, the internal to 1600 millions of milreis, nominally worth 176 millions sterling, but at the present rate of exchange, only 44 millions sterling. This includes 700 million milreis of paper-money, which bears no interest. The national debt, excluding this paper-money, may be set down at 63 millions sterling, besides local debts amounting to £2,500,000 sterling.

## CHINA

The revenues of 1889 and 1893 showed as follows :—

|                | £ Sterling |            |
|----------------|------------|------------|
|                | 1889       | 1893       |
| Land tax . . . | 4,800,000  | 7,500,000  |
| Customs . . .  | 5,500,000  | 3,500,000  |
| Salt tax . . . | 2,300,000  | 2,200,000  |
| Sundries . . . | 6,400,000  | 1,800,000  |
| Total . . .    | 19,000,000 | 15,000,000 |

Foreign debt amounts to 55, internal to 5 millions, making altogether 60 millions sterling, the whole originating out of the war with Japan.

# FIRES

711

# FISH

## JAPAN

Budgets of the last five years give the following averages :—

|                       |             |
|-----------------------|-------------|
| Revenue . . . . .     | £16,200,000 |
| Expenditure . . . . . | 15,600,000  |

Estimates for 1898 are as follows :—

| Revenue               | £          | Expenses               | £          |
|-----------------------|------------|------------------------|------------|
| Land Tax . . . . .    | 5,800,000  | Debt . . . . .         | 4,400,000  |
| Excise . . . . .      | 6,300,000  | Army . . . . .         | 4,400,000  |
| Customs . . . . .     | 1,000,000  | Navy . . . . .         | 1,500,000  |
| Post-Office . . . . . | 1,800,000  | Public works . . . . . | 1,800,000  |
| Sundries . . . . .    | 3,300,000  | Sundries . . . . .     | 5,000,000  |
| Total . . . . .       | 18,200,000 | Total . . . . .        | 17,100,000 |

The above does not include an extraordinary expenditure of 20 millions sterling, probably a result of the late war. There are provincial taxes for local purposes, averaging 8 millions sterling per annum. Public debt 62 millions sterling.

## TRANSAAL.

Revenue has quadrupled in five years, viz. :—

|                       | £ Sterling |           |
|-----------------------|------------|-----------|
|                       | 1892       | 1897      |
| Revenue . . . . .     | 1,260,000  | 4,900,000 |
| Expenditure . . . . . | 1,190,000  | 4,700,000 |

Public debt is £2,700,000, which is fully covered by the value of public lands.

## FIRES

In 1891 the fires and fire-brigades showed as follows :—

|                      | Fires | Firemen | Cost, £ | Pence per Inhab. |
|----------------------|-------|---------|---------|------------------|
| London . . . . .     | 2,427 | 820     | 123,000 | 7.0              |
| Paris . . . . .      | 2,708 | 1,750   | 104,000 | 10.0             |
| Berlin . . . . .     | 3,290 | 780     | 70,000  | 11.5             |
| Vienna . . . . .     | 540   | 270     | 12,000  | 2.5              |
| Hamburg . . . . .    | 840   | 180     | 40,000  | 16.0             |
| Dresden . . . . .    | 330   | 130     | 11,000  | 8.0              |
| Leipzig . . . . .    | 290   | 130     | 15,000  | 10.0             |
| Buda-Pesth . . . . . | 406   | 150     | 12,000  | 5.5              |
| Breslau . . . . .    | 140   | 190     | 15,000  | 9.5              |
| Brussels . . . . .   | 120   | 170     | 11,000  | 5.2              |
| Bordeaux . . . . .   | 640   | 100     | 8,500   | 8.0              |
| Rome . . . . .       | 345   | 300     | 9,000   | 4.8              |
| Naples . . . . .     | 90    | 200     | 12,000  | 5.0              |
| Milan . . . . .      | 260   | 160     | 7,000   | 4.0              |
| Genoa . . . . .      | 120   | 120     | 6,000   | 6.6              |
| Florence . . . . .   | 150   | 130     | 3,000   | 4.0              |

The average cost of the fire-brigade in the above 16 cities is 7 pence per inhabitant yearly. Hamburg, Berlin, and Paris are much higher.

Fires in London since 1870 show thus :—

|                   | Annual Average | Inhab. to a Fire |
|-------------------|----------------|------------------|
| 1870-80 . . . . . | 1,795          | 2,150            |
| 1881-89 . . . . . | 2,160          | 1,780            |
| 1893-97 . . . . . | 3,444          | 1,320            |

The number of lives endangered, rescued, and lost, is shown as follows :—

| Lives                | Yearly Average |         |
|----------------------|----------------|---------|
|                      | 1888-92        | 1893-97 |
| Endangered . . . . . | 202            | 232     |
| Rescued . . . . .    | 146            | 142     |
| Lost . . . . .       | 56             | 90      |

Loss of life in the second period shows an increase of 60 per cent. over the quinquennium 1888-92, although the number of fires had risen only 15 per cent.

The following table shows the nature of the premises for an average of four years ending December 1897, and the causes as far as ascertained in the year 1897 :—

| Premises                 | No.   | Causes                 | No.   |
|--------------------------|-------|------------------------|-------|
| Private houses . . . . . | 926   | Lamps . . . . .        | 758   |
| Lodgings . . . . .       | 712   | Gas . . . . .          | 268   |
| Liquor shops . . . . .   | 82    | Candles . . . . .      | 253   |
| Drug stores . . . . .    | 44    | Children . . . . .     | 190   |
| Shoemakers . . . . .     | 41    | Ovens . . . . .        | 88    |
| Cabinetmakers . . . . .  | 30    | Hot ashes . . . . .    | 87    |
| Bakers . . . . .         | 27    | Airing linen . . . . . | 72    |
| Various . . . . .        | 1,590 | Various . . . . .      | 1,784 |
| Total . . . . .          | 3,452 | Total . . . . .        | 3,500 |

The London fire brigade has 999 men, 67 engines, 115 hose-carts, 36 miles of hose, 235 fire-escapes, 159 horses, 8 steam-tugs, and 592 fire-alarm call points.

## FRANCE

Fires in the city of Paris in 1890 destroyed property to the value of £360,000, being most numerous in December and January.

## FISH

The fisheries of the world may be set down approximately as follows :—

|                              | Fishermen | Tons Fish | Tons per Man |
|------------------------------|-----------|-----------|--------------|
| Great Britain . . . . .      | 93,000    | 670,000   | 7.2          |
| Ireland . . . . .            | 27,000    | 30,000    | 1.1          |
| United Kingdom . . . . .     | 120,000   | 700,000   | 5.8          |
| France . . . . .             | 85,000    | 150,000   | 1.8          |
| Germany . . . . .            | 20,000    | 60,000    | 3.0          |
| Russia . . . . .             | 75,000    | 220,000   | 3.0          |
| Italy . . . . .              | 70,000    | 100,000   | 1.5          |
| Spain and Portugal . . . . . | 50,000    | 90,000    | 1.8          |
| Scandinavia . . . . .        | 165,000   | 510,000   | 3.1          |
| Holland . . . . .            | 18,000    | 120,000   | 6.6          |
| Europe . . . . .             | 603,000   | 1,950,000 | 3.3          |
| United States . . . . .      | 192,000   | 880,000   | 4.6          |
| Canada . . . . .             | 71,000    | 240,000   | 3.4          |
| Total . . . . .              | 866,000   | 3,070,000 | 3.5          |

## FRANCE

France produced 1170 millions of oysters in 1890, of which 350 millions were exported and 820 millions retained for home consumption—that is, 43 per inhabitant.

Production multiplied twenty-fold in sixteen years, viz. :—

| Year           | Million Oysters | Value, £ |
|----------------|-----------------|----------|
| 1874 . . . . . | 64              | 74,000   |
| 1876 . . . . . | 259             | ...      |
| 1890 . . . . . | 1,170           | 440,000  |

## RUSSIA

Caviare is produced in large quantities, the export showing thus :—

| Year           | Tons  | Value, £ | £ per Ton |
|----------------|-------|----------|-----------|
| 1874 . . . . . | 1,800 | 180,000  | 100       |
| 1884 . . . . . | 5,100 | 340,000  | 67        |
| 1894 . . . . . | 2,400 | 180,000  | 75        |

A sturgeon weighing 200 lbs. will give 40 lbs. of caviare.

## UNITED KINGDOM

Since 1888 the weight of fish taken has increased 25 per cent., the value 27 per cent., viz. :—

|                    | Tons    |         | Value, £  |           |
|--------------------|---------|---------|-----------|-----------|
|                    | 1888    | 1896    | 1888      | 1896      |
| Herrings . . . . . | 230,000 | 280,000 | 1,090,000 | 1,090,000 |
| Haddock . . . . .  | 120,000 | 180,000 | 940,000   | 1,660,000 |
| Various . . . . .  | 230,000 | 270,000 | 3,490,000 | 4,250,000 |
| Total . . . . .    | 580,000 | 730,000 | 5,520,000 | 7,000,000 |

The above is exclusive of salmon and shell-fish worth £1,300,000, making a total value of £8,300,000.

In 1890 London consumed 50,000 tons of oysters.

## UNITED STATES

The figures for 1892 compare with those of 1880 thus :—

|                         | 1880      | 1892      | Increase     |
|-------------------------|-----------|-----------|--------------|
| Fishermen . . . . .     | 131,000   | 192,000   | 45 per cent. |
| Fish, value £ . . . . . | 8,600,000 | 9,400,000 | 10 "         |

The average value of fish taken per man was £66 in 1880, and only £49 in 1892.

## CANADA

The fisheries of 1895 show a value of £500,000 more than in 1885, viz. :—

|                               | Value, £  |           |
|-------------------------------|-----------|-----------|
|                               | 1885      | 1895      |
| Nova Scotia . . . . .         | 1,660,000 | 1,240,000 |
| New Brunswick . . . . .       | 800,000   | 880,000   |
| British Columbia, &c. . . . . | 1,080,000 | 1,920,000 |
| Total . . . . .               | 3,540,000 | 4,040,000 |

The principal fish taken in 1895 were :—

|                    | Tons    | Value, £  |
|--------------------|---------|-----------|
| Herring . . . . .  | 60,000  | 560,000   |
| Salmon . . . . .   | 10,000  | 740,000   |
| Sardines . . . . . | 12,000  | 80,000    |
| Various . . . . .  | 156,000 | 2,660,000 |
| Total . . . . .    | 238,000 | 4,040,000 |

## FLAX AND LINEN

The production of flax has been approximately as follows :—

|                         | Acres     |           | Tons Flax |         |
|-------------------------|-----------|-----------|-----------|---------|
|                         | 1885      | 1895      | 1885      | 1895    |
| U. Kingdom . . . . .    | 111,000   | 97,000    | 21,000    | 13,000  |
| France . . . . .        | 109,000   | 83,000    | 28,000    | 22,000  |
| Germany . . . . .       | 270,000   | 270,000   | 44,000    | 44,000  |
| Russia . . . . .        | 3,250,000 | 5,480,000 | 330,000   | 670,000 |
| Austria . . . . .       | 240,000   | 250,000   | 47,000    | 48,000  |
| Italy . . . . .         | 170,000   | 130,000   | 20,000    | 20,000  |
| Belgium . . . . .       | 98,000    | 100,000   | 21,000    | 24,000  |
| Other States . . . . .  | 102,000   | 120,000   | 15,000    | 19,000  |
| Europe . . . . .        | 4,350,000 | 6,530,000 | 526,000   | 860,000 |
| United States . . . . . | 400,000   | 1,320,000 | 40,000    | 80,000  |
| Total . . . . .         | 4,750,000 | 7,850,000 | 566,000   | 940,000 |

In the above interval of ten years the price of flax declined 15 per cent., that of linen 20 per cent. : the fall in price has naturally led to a great increase of consumption. The flax factories of Europe now consume nearly 3000 tons daily, or 50 per cent. more than they did ten years ago.

The production and consumption of linen goods show approximately thus :—

|                          | Production, Millions £ | Consumption |                    |
|--------------------------|------------------------|-------------|--------------------|
|                          |                        | Millions £  | Shillings per Head |
| United Kingdom . . . . . | 13.0                   | 7.0         | 3.5                |
| France . . . . .         | 10.5                   | 10.0        | 5.2                |
| Germany . . . . .        | 9.0                    | 9.0         | 3.5                |
| Russia . . . . .         | 20.0                   | 20.0        | 3.5                |
| Austria . . . . .        | 8.0                    | 7.0         | 3.3                |
| Italy . . . . .          | 5.0                    | 5.0         | 3.2                |
| Belgium . . . . .        | 5.5                    | 2.0         | 6.0                |
| Other States . . . . .   | 4.0                    | 8.0         | 3.0                |
| Europe . . . . .         | 75.0                   | 68.0        | 3.5                |
| United States . . . . .  | 15.0                   | 20.0        | 5.5                |
| Total . . . . .          | 90.0                   | 88.0        | 4.0                |

This industry has declined as follows in the United Kingdom :—

| Year           | Spindles  | Power-Looms | Operatives |
|----------------|-----------|-------------|------------|
| 1870 . . . . . | 1,550,000 | 35,000      | 125,000    |
| 1895 . . . . . | 1,200,000 | 49,000      | 108,000    |

The consumption of flax is about 100,000 tons, against 120,000 in 1870. Exports of linen goods from United Kingdom have been as follows :—

| Year           | Linen Exports, Millions of Yards | Value £ Exported |            |           |
|----------------|----------------------------------|------------------|------------|-----------|
|                |                                  | Linen            | Yarns, &c. | Total     |
| 1860 . . . . . | 144                              | 4,800,000        | 1,800,000  | 6,600,000 |
| 1870 . . . . . | 226                              | 7,300,000        | 2,200,000  | 9,500,000 |
| 1880 . . . . . | 165                              | 5,800,000        | 1,000,000  | 6,800,000 |
| 1890 . . . . . | 184                              | 5,700,000        | 900,000    | 6,600,000 |
| 1897 . . . . . | 165                              | 4,800,000        | 1,000,000  | 5,800,000 |

Flax-mills in Ireland consume 46,000 tons of flax, and turn out 200 million yards of linen; that is, half the output of the United Kingdom.

## FOOD

The principal items of food are grain, potatoes, and meat, which may be reduced to a common denominator if we consider one ton of meat equal to eight tons of grain, and three of potatoes to one of grain.

| Year       | Production, Millions Tons |      |          | Equivalent in Grain |
|------------|---------------------------|------|----------|---------------------|
|            | Grain                     | Meat | Potatoes |                     |
| 1880 . . . | 204                       | 13.3 | 80       | 337                 |
| 1895 . . . | 232                       | 15.2 | 96       | 386                 |

In order to estimate the total food production of countries, we may adopt the following scale for arriving at a common denominator:—

*Equivalents to a Ton of Grain*

Meat, 280 lbs.      Sugar,  $\frac{1}{2}$  ton      Wine, 100 galls.  
Butter, 224 lbs.      Fish,  $\frac{1}{2}$  ton      Potatoes, 3 tons

All kinds of food being reduced as above to a common denominator of grain, we find the production compared with population gives the following averages:—

*Tons of Food produced per 100 Inhabitants*

|                        |                   |                         |
|------------------------|-------------------|-------------------------|
| Great Britain . . . 45 | Spain . . . 83    | Switzerland . . . 75    |
| Ireland . . . 126      | Portugal . . . 54 | Danub. States . . . 110 |
| France . . . 115       | Sweden . . . 112  | Greece . . . 60         |
| Germany . . . 90       | Norway . . . 99   | U. States . . . 172     |
| Russia . . . 80        | Denmark . . . 180 | Canada . . . 190        |
| Austria . . . 86       | Holland . . . 94  | Australia . . . 178     |
| Italy . . . 58         | Belgium . . . 81  | Argentina . . . 170     |

Denmark, Ireland, and France, among European nations, produce the highest ratios of food to population, while

Great Britain, Portugal, Italy, and Switzerland occupy the lowest places in the above scale. The average for Europe is considerably less than one ton per inhabitant, whereas in the United States and the colonies above cited it is nearly two. The production and consumption of grain average as follows:—

|                     | Wheat, Millions Bushels |          | All grain, Millions Bushels |          |
|---------------------|-------------------------|----------|-----------------------------|----------|
|                     | Produc.                 | Consump. | Produc.                     | Consump. |
| Great Britain . . . | 57                      | 220      | 245                         | 530      |
| Ireland . . .       | 1                       | 20       | 55                          | 120      |
| France . . .        | 304                     | 340      | 725                         | 760      |
| Germany . . .       | 120                     | 180      | 680                         | 820      |
| Russia . . .        | 330                     | 210      | 2,210                       | 1,880    |
| Austria . . .       | 190                     | 185      | 780                         | 760      |
| Italy . . .         | 120                     | 150      | 260                         | 290      |
| Spain . . .         | 90                      | 104      | 230                         | 245      |
| Portugal . . .      | 8                       | 13       | 30                          | 35       |
| Sweden & Nor. . .   | 4                       | 14       | 130                         | 140      |
| Denmark . . .       | 4                       | 9        | 85                          | 100      |
| Holland . . .       | 5                       | 27       | 40                          | 70       |
| Belgium . . .       | 18                      | 30       | 75                          | 140      |
| Switzerland . . .   | 2                       | 18       | 10                          | 30       |
| Danub. States . . . | 100                     | 50       | 280                         | 190      |
| Greece . . .        | 7                       | 10       | 15                          | 20       |
| Europe . . .        | 1,360                   | 1,580    | 5,850                       | 6,150    |
| U. States . . .     | 470                     | 330      | 3,050                       | 2,850    |
| Canada . . .        | 60                      | 45       | 210                         | 180      |
| Australia . . .     | 30                      | 20       | 60                          | 50       |
| Argentina . . .     | 50                      | 25       | 100                         | 70       |
| Total . . .         | 1,970                   | 2,000    | 9,270                       | 9,300    |

There is a deficit of 30 million bushels in the above table, which is covered by imports from India, Chile, and other countries.

The following table shows the weight of each kind of food produced, and the equivalent of all in grain (butter and cheese are under the head of butter):—

|                       | Tons (000 omitted) |          |        |       |        |       | Wine, Millions Gallons | Equivalent in Tons of Grain |
|-----------------------|--------------------|----------|--------|-------|--------|-------|------------------------|-----------------------------|
|                       | Grain              | Potatoes | Meat   | Sugar | Butter | Fish  |                        |                             |
| Great Britain . . .   | 6,200              | 3,400    | 760    | ...   | 140    | 670   | ...                    | 16,150,000                  |
| Ireland . . .         | 1,400              | 2,700    | 340    | ...   | 60     | 30    | ...                    | 5,680,000                   |
| France . . .          | 18,100             | 12,800   | 1,200  | 700   | 200    | 150   | 840                    | 44,070,000                  |
| Germany . . .         | 17,100             | 31,800   | 1,520  | 1,800 | 300    | 60    | 70                     | 47,280,000                  |
| Russia . . .          | 55,100             | 20,700   | 2,290  | 800   | 350    | 220   | 40                     | 86,260,000                  |
| Austria . . .         | 10,500             | 12,400   | 1,210  | 980   | 170    | 30    | 115                    | 38,020,000                  |
| Italy . . .           | 6,400              | 700      | 390    | ...   | 145    | 100   | 605                    | 17,450,000                  |
| Spain . . .           | 5,800              | 1,600    | 430    | ...   | 40     | 50    | 460                    | 14,870,000                  |
| Portugal . . .        | 800                | 300      | 100    | ...   | 10     | 40    | 70                     | 2,580,000                   |
| Sweden . . .          | 2,800              | 1,500    | 160    | ...   | 60     | 200   | ...                    | 5,580,000                   |
| Norway . . .          | 500                | 600      | 70     | ...   | 20     | 260   | ...                    | 1,980,000                   |
| Denmark . . .         | 2,100              | 400      | 130    | ...   | 60     | 50    | ...                    | 3,970,000                   |
| Holland . . .         | 1,000              | 2,200    | 130    | 200   | 120    | 120   | ...                    | 4,610,000                   |
| Belgium . . .         | 1,900              | 3,400    | 110    | 300   | 60     | ...   | ...                    | 5,110,000                   |
| Switzerland . . .     | 200                | 1,200    | 80     | ...   | 70     | ...   | 30                     | 2,240,000                   |
| Danubian States . . . | 6,700              | 300      | 400    | ...   | 50     | ...   | 170                    | 12,200,000                  |
| Greece . . .          | 400                | ...      | 60     | ...   | 10     | 10    | 40                     | 1,400,000                   |
| Europe . . .          | 145,000            | 96,000   | 9,380  | 4,700 | 1,865  | 1,990 | 2,440                  | 309,450,000                 |
| United States . . .   | 74,000             | 6,300    | 4,500  | 400   | 610    | 880   | 25                     | 121,010,000                 |
| Canada . . .          | 5,000              | 1,200    | 300    | ...   | 130    | 240   | ...                    | 9,580,000                   |
| Australia . . .       | 1,500              | 500      | 600    | 80    | 55     | 20    | 3                      | 7,260,000                   |
| Argentina . . .       | 2,500              | 100      | 420    | 120   | 20     | 20    | 32                     | 6,700,000                   |
| Total . . .           | 229,000            | 104,100  | 15,200 | 5,300 | 2,680  | 3,150 | 2,500                  | 454,000,000                 |

It appears that the United States produce one-fourth of the food of Christendom. The total weight of food (for human beings) consumed yearly is 370 million tons, containing nutriment equal to 454 million tons of grain.

The grain crops of the world have increased 18 per cent. in 20 years, viz. :—

|                | Annual Average, Tons |             |             |
|----------------|----------------------|-------------|-------------|
|                | 1871-80              | 1883-88     | 1890-96     |
| Wheat . . . .  | 48,600,000           | 54,500,000  | 56,400,000  |
| Maize . . . .  | 38,400,000           | 50,200,000  | 52,500,000  |
| Rye . . . . .  | 31,400,000           | 34,500,000  | 32,900,000  |
| Oats . . . . . | 46,400,000           | 52,000,000  | 56,900,000  |
| Barley . . . . | 19,400,000           | 20,500,000  | 19,500,000  |
| Total . . . .  | 184,400,000          | 211,700,000 | 218,200,000 |

Beerbohm's return of the world's wheat crop in the last four years was as follows :—

| Year           | Tons Produced |               |            |
|----------------|---------------|---------------|------------|
|                | In Europe     | Out of Europe | Total      |
| 1894 . . . . . | 38,200,000    | 25,800,000    | 64,000,000 |
| 1895 . . . . . | 37,300,000    | 25,300,000    | 62,600,000 |
| 1896 . . . . . | 37,800,000    | 22,200,000    | 60,000,000 |
| 1897 . . . . . | 30,000,000    | 26,000,000    | 56,000,000 |

The wheat crop of 1898 was the largest on record, reaching 62,800,000 tons. Exports of wheat from various countries in twenty years, ending 1895, were :—

| From                | Annual Export, Millions of Bushels |         |         |         |
|---------------------|------------------------------------|---------|---------|---------|
|                     | 1876-80                            | 1881-90 | 1891-95 | Average |
| United States . . . | 116                                | 124     | 179     | 136     |
| Russia . . . . .    | 72                                 | 90      | 80      | 83      |
| India . . . . .     | 7                                  | 34      | 32      | 27      |
| Roumania . . . . .  | 17                                 | 21      | 29      | 22      |
| Austria . . . . .   | 15                                 | 15      | 6       | 13      |
| Argentina . . . . . | 1                                  | 5       | 38      | 12      |
| Canada . . . . .    | 4                                  | 5       | 9       | 6       |
| Uruguay . . . . .   | ...                                | 1       | 4       | 1       |
| Total . . . . .     | 232                                | 295     | 377     | 300     |

It appears from the foregoing that in the last period of five years, 1891-95, the annual weight of wheat carried from one to another country was 9½ million tons, to which adding maize, oats, &c., the total international grain trade will be found to exceed 12 million tons, or about 5 per cent. of the grain crops of the world. Thus, however enormous the grain trade between nations may seem, it is evident that 95 per cent. of grain is consumed in the country of its production. The wheat crop of Europe in the last two years showed as follows :—

|                      | Millions Bushels |       |         |
|----------------------|------------------|-------|---------|
|                      | 1896             | 1897  | Average |
| United Kingdom . .   | 58               | 56    | 57      |
| France . . . . .     | 344              | 288   | 316     |
| Germany . . . . .    | 104              | 100   | 102     |
| Russia . . . . .     | 348              | 298   | 323     |
| Austria . . . . .    | 178              | 144   | 161     |
| Italy . . . . .      | 132              | 100   | 116     |
| Spain and Portugal . | 92               | 100   | 96      |
| Scandinavia . . . .  | 8                | 8     | 8       |
| Belgium . . . . .    | 20               | 20    | 20      |
| Danubian States . .  | 132              | 90    | 111     |
| Holland, Greece, &c. | 56               | 44    | 50      |
| Europe . . . . .     | 1,472            | 1,248 | 1,360   |

The following table shows the world's "visible supply" of

wheat on 1st December of each year, and the average price in England during the year :—

| Year            | Supply, Tons | Shillings per Ton |
|-----------------|--------------|-------------------|
| 1894 . . . . .  | 5,000,000    | 103               |
| 1895 . . . . .  | 4,500,000    | 126               |
| 1896 . . . . .  | 3,800,000    | 167               |
| 1897 . . . . .  | 3,050,000    | 168               |
| Average . . . . | 4,100,000    | 141               |

The production of meat is shown as follows :—

|                     | Product, Tons (000 omitted) |        |       |        |
|---------------------|-----------------------------|--------|-------|--------|
|                     | Beef                        | Mutton | Pork  | Total  |
| Great Britain . . . | 350                         | 280    | 130   | 760    |
| Ireland . . . . .   | 240                         | 40     | 60    | 340    |
| France . . . . .    | 700                         | 210    | 230   | 1,200  |
| Germany . . . . .   | 880                         | 150    | 490   | 1,520  |
| Russia . . . . .    | 1,380                       | 480    | 430   | 2,290  |
| Austria . . . . .   | 710                         | 140    | 360   | 1,210  |
| Italy . . . . .     | 250                         | 70     | 70    | 390    |
| Spain . . . . .     | 100                         | 260    | 70    | 430    |
| Portugal . . . . .  | 30                          | 30     | 40    | 100    |
| Sweden & Norway .   | 170                         | 28     | 32    | 230    |
| Denmark . . . . .   | 85                          | 10     | 35    | 130    |
| Holland . . . . .   | 80                          | 10     | 40    | 130    |
| Belgium . . . . .   | 75                          | 5      | 30    | 110    |
| Switzerland . . . . | 60                          | 5      | 15    | 80     |
| Danubian States . . | 175                         | 150    | 75    | 400    |
| Greece . . . . .    | 20                          | 40     | ...   | 60     |
| Europe . . . . .    | 5,305                       | 1,908  | 2,167 | 9,380  |
| United States . . . | 2,410                       | 380    | 1,710 | 4,500  |
| Canada . . . . .    | 200                         | 35     | 65    | 300    |
| Australia . . . . . | 300                         | 280    | 20    | 600    |
| Argentina . . . . . | 205                         | 207    | 8     | 420    |
| Total . . . . .     | 8,420                       | 2,810  | 3,970 | 15,200 |

The value of food consumed for human support is approximately as follows :—

|                      | Millions £ Sterling |      |        |       |          |       |                 |
|----------------------|---------------------|------|--------|-------|----------|-------|-----------------|
|                      | Grain               | Meat | Liquor | Dairy | Sundries | Total | Native Imported |
| Great Britain . . .  | 53                  | 86   | 74     | 54    | 98       | 365   | 209 156         |
| Ireland . . . . .    | 5                   | 4    | 7      | 3     | 6        | 25    | 20 5            |
| U. Kingdom . . . .   | 58                  | 90   | 81     | 57    | 104      | 390   | 229 161         |
| France . . . . .     | 77                  | 62   | 46     | 45    | 95       | 325   | 309 16          |
| Germany . . . . .    | 80                  | 68   | 55     | 62    | 122      | 387   | 340 47          |
| Russia . . . . .     | 151                 | 86   | 23     | 43    | 91       | 394   | 387 7           |
| Austria . . . . .    | 58                  | 45   | 35     | 36    | 66       | 240   | 234 6           |
| Italy . . . . .      | 45                  | 18   | 35     | 20    | 35       | 153   | 145 8           |
| Spain . . . . .      | 27                  | 20   | 25     | 12    | 23       | 107   | 101 6           |
| Portugal . . . . .   | 6                   | 4    | 5      | 2     | 6        | 23    | 21 2            |
| Swed. & Nor. . . . . | 13                  | 11   | 5      | 7     | 5        | 41    | 35 6            |
| Denmark . . . . .    | 6                   | 3    | 2      | 3     | 2        | 16    | 14 2            |
| Holland . . . . .    | 12                  | 5    | 4      | 6     | 11       | 38    | 23 15           |
| Belgium . . . . .    | 14                  | 7    | 9      | 8     | 14       | 52    | 38 14           |
| Switzerland . . . .  | 5                   | 5    | 2      | 4     | 4        | 20    | 18 8            |
| Danub. States . . .  | 18                  | 16   | 6      | 6     | 7        | 53    | 52 1            |
| Greece . . . . .     | 3                   | 3    | 1      | 1     | 3        | 11    | 9 2             |
| Europe . . . . .     | 573                 | 443  | 334    | 312   | 588      | 2,250 | 1,949 301       |
| United States . . .  | 90                  | 132  | 72     | 85    | 141      | 520   | 466 54          |
| Canada . . . . .     | 8                   | 8    | 3      | 4     | 4        | 27    | 24 3            |
| Australia . . . . .  | 5                   | 5    | 3      | 4     | 4        | 21    | 17 4            |
| Argentina . . . . .  | 6                   | 5    | 3      | 4     | 4        | 22    | 18 4            |
| Total . . . . .      | 682                 | 593  | 415    | 409   | 741      | 2,840 | 2,474 366       |



The above countries contain a population of 455 millions, and the value of food consumed by them averages a little over £6 per head yearly, or fourpence a day. The ratio yearly per inhabitant is as follows:—

*Shillings per Inhabitant*

|                         |                   |                         |
|-------------------------|-------------------|-------------------------|
| Great Britain . . . 206 | Spain . . . 120   | Switzerland . . . 132   |
| Ireland . . . 110       | Portugal . . . 96 | Danub. States . . . 90  |
| France . . . 166        | Sweden . . . 120  | Greece . . . 100        |
| Germany . . . 148       | Norway . . . 110  | United States . . . 150 |
| Russia . . . 74         | Denmark . . . 144 | Canada . . . 105        |
| Austria . . . 114       | Holland . . . 160 | Australia . . . 96      |
| Italy . . . 99          | Belgium . . . 160 | Argentina . . . 110     |

Frankland says that a man requires any one of the following items to support life, daily:—

|                 |              |                 |
|-----------------|--------------|-----------------|
| 12 lbs. cabbage | 3½ lbs. beef | 1½ lbs. rice    |
| 10 lbs. carrots | 2 lbs. bread | 1 lb. cheese    |
| 6 lbs. fish     | 2 lbs. eggs  | 7 bottles stout |

This subject is set forth at great length under *Diet*, p. 191.

The consumption of food is approximately as follows:—

|                           | Tons (ooo omitted) |        |          |       |                |       | Wine,<br>Million<br>Gallons | Equivalent in<br>Tons of Grain |
|---------------------------|--------------------|--------|----------|-------|----------------|-------|-----------------------------|--------------------------------|
|                           | Grain              | Meat   | Potatoes | Sugar | Butter,<br>&c. | Fish  |                             |                                |
| United Kingdom . . . . .  | 16,100             | 1,880  | 6,200    | 1,500 | 510            | 700   | 16                          | 42,900,000                     |
| France . . . . .          | 19,300             | 1,250  | 12,800   | 500   | 270            | 150   | 970                         | 47,300,000                     |
| Germany . . . . .         | 20,600             | 1,720  | 31,700   | 650   | 440            | 200   | 100                         | 52,000,000                     |
| Russia . . . . .          | 47,000             | 2,270  | 20,100   | 700   | 220            | 350   | 80                          | 77,000,000                     |
| Austria . . . . .         | 19,000             | 1,160  | 10,000   | 350   | 240            | 30    | 100                         | 35,700,000                     |
| Italy . . . . .           | 7,200              | 370    | 800      | 100   | 90             | 150   | 560                         | 17,400,000                     |
| Spain . . . . .           | 6,100              | 430    | 1,500    | 60    | 40             | 100   | 450                         | 15,300,000                     |
| Portugal . . . . .        | 900                | 100    | 300      | 25    | 10             | 40    | 60                          | 2,600,000                      |
| Sweden . . . . .          | 2,800              | 160    | 1,500    | 40    | 50             | 100   | 2                           | 5,400,000                      |
| Norway . . . . .          | 700                | 70     | 600      | 20    | 20             | 120   | 1                           | 1,950,000                      |
| Denmark . . . . .         | 2,500              | 80     | 400      | 50    | 20             | 30    | 1                           | 3,600,000                      |
| Holland . . . . .         | 1,800              | 100    | 2,200    | 100   | 40             | 50    | 2                           | 4,050,000                      |
| Belgium . . . . .         | 3,500              | 160    | 3,600    | 130   | 70             | 50    | 6                           | 7,100,000                      |
| Switzerland . . . . .     | 800                | 120    | 1,200    | 50    | 20             | 10    | 40                          | 2,900,000                      |
| Danubian States . . . . . | 4,500              | 380    | 100      | 40    | 50             | 10    | 190                         | 10,100,000                     |
| Greece . . . . .          | 500                | 70     | 200      | 15    | 10             | 10    | 32                          | 1,600,000                      |
| Europe . . . . .          | 153,300            | 10,320 | 93,200   | 4,330 | 2,100          | 2,100 | 2,610                       | 326,500,000                    |
| United States . . . . .   | 71,200             | 3,950  | 7,000    | 2,140 | 580            | 840   | 33                          | 117,200,000                    |
| Canada . . . . .          | 4,500              | 250    | 1,200    | 190   | 50             | 120   | 1                           | 8,050,000                      |
| Australia . . . . .       | 1,200              | 400    | 600      | 140   | 50             | 20    | 5                           | 5,450,000                      |
| Argentina . . . . .       | 1,800              | 280    | ...      | 100   | 20             | 20    | 31                          | 4,800,000                      |
| Total . . . . .           | 232,000            | 15,200 | 102,000  | 6,900 | 2,800          | 3,100 | 2,680                       | 462,400,000                    |

**UNITED KINGDOM**

Production and consumption of wheat and of all grain, in terms of two years averaged as follows, in millions of bushels:—

|                   | Wheat   |         | All Grain |         |
|-------------------|---------|---------|-----------|---------|
|                   | Produc. | Consum. | Produc.   | Consum. |
| 1887-88 . . . . . | 75      | 235     | 302       | 591     |
| 1889-90 . . . . . | 76      | 238     | 322       | 628     |
| 1891-92 . . . . . | 68      | 253     | 314       | 627     |
| 1893-94 . . . . . | 56      | 247     | 308       | 653     |
| 1895-96 . . . . . | 48      | 255     | 293       | 668     |

The production of grain has not declined much in the last ten years, viz.:—

| Year           | Millions Bushels |        |      |       |
|----------------|------------------|--------|------|-------|
|                | Wheat            | Barley | Oats | Total |
| 1887 . . . . . | 76               | 70     | 151  | 297   |
| 1888 . . . . . | 74               | 75     | 158  | 307   |
| 1889 . . . . . | 76               | 75     | 164  | 315   |
| 1890 . . . . . | 76               | 81     | 171  | 328   |
| 1891 . . . . . | 75               | 80     | 166  | 321   |
| 1892 . . . . . | 61               | 77     | 168  | 306   |
| 1893 . . . . . | 51               | 66     | 169  | 286   |
| 1894 . . . . . | 61               | 79     | 191  | 331   |
| 1895 . . . . . | 38               | 75     | 174  | 287   |
| 1896 . . . . . | 58               | 78     | 163  | 299   |
| 1897 . . . . . | 56               | 73     | 164  | 293   |

The quantities imported in the same period were:—

| Year           | Millions Bushels |        |           |       |
|----------------|------------------|--------|-----------|-------|
|                | Wheat            | Barley | Oats, &c. | Total |
| 1887 . . . . . | 160              | 29     | 93        | 282   |
| 1888 . . . . . | 161              | 43     | 91        | 295   |
| 1889 . . . . . | 158              | 35     | 106       | 299   |
| 1890 . . . . . | 165              | 34     | 114       | 313   |
| 1891 . . . . . | 179              | 35     | 88        | 302   |
| 1892 . . . . . | 191              | 29     | 103       | 323   |
| 1893 . . . . . | 188              | 46     | 96        | 330   |
| 1894 . . . . . | 194              | 63     | 103       | 360   |
| 1895 . . . . . | 215              | 47     | 103       | 365   |
| 1896 . . . . . | 199              | 45     | 141       | 385   |
| 1897 . . . . . | 177              | 38     | 142       | 357   |

The importation of wheat from different parts of the world has been as follows:—

| Year           | Millions of Bushels from |        |       |         |       |
|----------------|--------------------------|--------|-------|---------|-------|
|                | U. States                | Russia | India | Various | Total |
| 1887 . . . . . | 101                      | 11     | 17    | 31      | 160   |
| 1888 . . . . . | 64                       | 44     | 16    | 37      | 161   |
| 1889 . . . . . | 62                       | 43     | 18    | 35      | 158   |
| 1890 . . . . . | 68                       | 40     | 18    | 39      | 165   |
| 1891 . . . . . | 86                       | 30     | 26    | 37      | 179   |
| 1892 . . . . . | 122                      | 9      | 25    | 35      | 191   |
| 1893 . . . . . | 114                      | 20     | 12    | 42      | 188   |
| 1894 . . . . . | 94                       | 34     | 11    | 55      | 194   |
| 1895 . . . . . | 90                       | 40     | 17    | 62      | 215   |
| 1896 . . . . . | 106                      | 34     | 4     | 55      | 199   |
| 1897 . . . . . | 108                      | 30     | 1     | 38      | 177   |

The importation of all grain was as follows, in millions of bushels, from the following countries :—

| Year           | U.States | Russia | Roumania | Various | Total |
|----------------|----------|--------|----------|---------|-------|
| 1887 . . . . . | 124      | 56     | 28       | 74      | 282   |
| 1888 . . . . . | 84       | 108    | 24       | 79      | 295   |
| 1889 . . . . . | 108      | 93     | 22       | 76      | 299   |
| 1890 . . . . . | 120      | 78     | 30       | 85      | 313   |
| 1891 . . . . . | 104      | 74     | 30       | 94      | 302   |
| 1892 . . . . . | 164      | 37     | 20       | 102     | 323   |
| 1893 . . . . . | 138      | 70     | 34       | 88      | 330   |
| 1894 . . . . . | 116      | 116    | 35       | 93      | 360   |
| 1895 . . . . . | 123      | 107    | 17       | 118     | 365   |
| 1896 . . . . . | 177      | 76     | 24       | 108     | 385   |
| 1897 . . . . . | 211      | 59     | 19       | 68      | 357   |

If wheat had remained at the same price as in 1887, the cost to the nation would have been 479 millions sterling in the decade, viz. :—

|                    | Tons       | Cost, £ sterling |
|--------------------|------------|------------------|
| British . . . . .  | 16,300,000 | 133,000,000      |
| Imported . . . . . | 45,200,000 | 346,000,000      |
| Total . . . . .    | 61,500,000 | 479,000,000      |

The actual cost has been only 438 millions, which shows a saving of 41 millions in the said period of ten years.

The total weight of grain consumed and value were as follows :—

| Year              | Tons (ooo omitted) |          |        | Value, Millions £ |          |       |
|-------------------|--------------------|----------|--------|-------------------|----------|-------|
|                   | British            | Imported | Total  | British           | Imported | Total |
| 1887 . . . . .    | 7,400              | 7,050    | 14,450 | 41.8              | 48.3     | 90.1  |
| 1888 . . . . .    | 7,700              | 7,400    | 15,100 | 44.4              | 51.3     | 95.7  |
| 1889 . . . . .    | 7,900              | 7,500    | 15,400 | 44.5              | 51.2     | 95.7  |
| 1890 . . . . .    | 8,200              | 7,800    | 16,000 | 49.6              | 53.5     | 103.1 |
| 1891 . . . . .    | 8,050              | 7,550    | 15,600 | 52.3              | 62.0     | 114.3 |
| 1892 . . . . .    | 7,650              | 8,100    | 15,750 | 44.9              | 58.7     | 103.6 |
| 1893 . . . . .    | 7,150              | 8,250    | 15,400 | 38.9              | 51.2     | 90.1  |
| 1894 . . . . .    | 8,300              | 9,000    | 17,300 | 41.1              | 48.2     | 89.3  |
| 1895 . . . . .    | 7,200              | 9,100    | 16,300 | 31.7              | 49.7     | 81.4  |
| 1896 . . . . .    | 7,500              | 9,600    | 17,100 | 35.9              | 52.8     | 88.7  |
| Average . . . . . | 7,700              | 8,150    | 15,850 | 42.5              | 52.7     | 95.2  |

The following table shows the weight and value of wheat consumed in the United Kingdom in ten years :—

| Year              | Tons (ooo omitted) |          |       | Value, Millions £ |          |       | Price, Shillings per Ton |          |         |
|-------------------|--------------------|----------|-------|-------------------|----------|-------|--------------------------|----------|---------|
|                   | British            | Imported | Total | British           | Imported | Total | British                  | Imported | General |
| 1887 . . . . .    | 1,900              | 4,000    | 5,000 | 15.5              | 30.6     | 46.1  | 163                      | 153      | 156     |
| 1888 . . . . .    | 1,850              | 4,030    | 5,880 | 14.7              | 31.1     | 45.8  | 159                      | 154      | 156     |
| 1889 . . . . .    | 1,900              | 3,950    | 5,850 | 14.2              | 30.5     | 44.7  | 149                      | 154      | 153     |
| 1890 . . . . .    | 1,900              | 4,130    | 6,030 | 15.2              | 32.2     | 47.4  | 160                      | 156      | 157     |
| 1891 . . . . .    | 1,870              | 4,470    | 6,340 | 17.3              | 39.8     | 57.1  | 185                      | 178      | 180     |
| 1892 . . . . .    | 1,530              | 4,780    | 6,310 | 11.6              | 36.5     | 48.1  | 151                      | 153      | 152     |
| 1893 . . . . .    | 1,270              | 4,700    | 5,970 | 8.4               | 30.3     | 38.7  | 132                      | 129      | 130     |
| 1894 . . . . .    | 1,530              | 4,850    | 6,380 | 8.7               | 26.0     | 34.7  | 114                      | 107      | 109     |
| 1895 . . . . .    | 950                | 5,380    | 6,330 | 5.5               | 29.6     | 35.1  | 115                      | 110      | 111     |
| 1896 . . . . .    | 1,450              | 4,970    | 6,420 | 9.5               | 30.8     | 40.3  | 131                      | 124      | 126     |
| Average . . . . . | 1,630              | 4,520    | 6,150 | 12.1              | 31.7     | 43.8  | 148                      | 140      | 142     |

The weight and value of other grain than wheat consumed were :—

| Year              | Tons (ooo omitted) |          |       |           |          |       | Collective Value, Millions £ |          |       |
|-------------------|--------------------|----------|-------|-----------|----------|-------|------------------------------|----------|-------|
|                   | Barley             |          |       | Oats, &c. |          |       | British                      | Imported | Total |
|                   | British            | Imported | Total | British   | Imported | Total |                              |          |       |
| 1887 . . . . .    | 1,750              | 710      | 2,460 | 3,750     | 2,340    | 6,090 | 26.3                         | 17.7     | 44.0  |
| 1888 . . . . .    | 1,850              | 1,060    | 2,910 | 4,000     | 2,310    | 6,310 | 29.7                         | 20.2     | 49.9  |
| 1889 . . . . .    | 1,850              | 870      | 2,720 | 4,150     | 2,680    | 6,830 | 30.3                         | 20.7     | 51.0  |
| 1890 . . . . .    | 2,050              | 830      | 2,880 | 4,250     | 2,840    | 7,090 | 34.4                         | 21.3     | 55.7  |
| 1891 . . . . .    | 2,000              | 870      | 2,870 | 4,180     | 2,210    | 6,390 | 35.0                         | 22.2     | 57.2  |
| 1892 . . . . .    | 1,900              | 710      | 2,610 | 4,220     | 2,610    | 6,830 | 33.3                         | 22.2     | 55.5  |
| 1893 . . . . .    | 1,650              | 1,140    | 2,790 | 4,230     | 2,410    | 6,640 | 30.5                         | 20.9     | 51.4  |
| 1894 . . . . .    | 1,950              | 1,560    | 3,510 | 4,820     | 2,590    | 7,410 | 32.4                         | 22.2     | 54.6  |
| 1895 . . . . .    | 1,900              | 1,180    | 3,080 | 4,350     | 2,540    | 6,890 | 26.2                         | 20.1     | 46.3  |
| 1896 . . . . .    | 1,950              | 1,120    | 3,070 | 4,100     | 3,510    | 7,610 | 26.4                         | 22.0     | 48.4  |
| Average . . . . . | 1,890              | 1,010    | 2,900 | 4,210     | 2,600    | 6,810 | 30.5                         | 20.9     | 51.4  |

The total weight of grain consumed in the United Kingdom in ten years was 158½ million tons, which cost 952 millions sterling.

Not quite 60 per cent. of the above grain was used for human food, the rest being given to animals, the account standing approximately thus :—

|                    | Tons (ooo omitted) |             |         | Cost, Millions £ |             |       |
|--------------------|--------------------|-------------|---------|------------------|-------------|-------|
|                    | Wheat              | Barley, &c. | Total   | Wheat            | Barley, &c. | Total |
| British . . . . .  | 16,300             | 61,000      | 77,300  | 121              | 305         | 426   |
| Imported . . . . . | 45,200             | 36,100      | 81,300  | 317              | 209         | 526   |
| Total . . . . .    | 61,500             | 97,100      | 158,600 | 438              | 514         | 952   |

| Used for          | Tons (ooo omitted) |          |         | Value, Millions £ |          |       |
|-------------------|--------------------|----------|---------|-------------------|----------|-------|
|                   | British            | Imported | Total   | British           | Imported | Total |
| Mankind . . . . . | 35,200             | 55,300   | 90,500  | 242               | 373      | 615   |
| Animals . . . . . | 42,100             | 26,000   | 68,100  | 184               | 153      | 337   |
| Total . . . . .   | 77,300             | 81,300   | 158,600 | 426               | 526      | 952   |

The total grain imports of thirty-six years were :—

|              | Tons (ooo omitted) |        |        |            |         |
|--------------|--------------------|--------|--------|------------|---------|
|              | Wheat              | Barley | Oats   | Maize, &c. | Total   |
| 1861-70 . .  | 18,000             | 3,500  | 3,800  | 7,500      | 32,800  |
| 1871-80 . .  | 28,500             | 5,700  | 6,200  | 16,500     | 56,900  |
| 1881-90 . .  | 38,500             | 7,800  | 7,000  | 18,200     | 71,500  |
| 1891-96 . .  | 29,000             | 6,600  | 4,700  | 12,700     | 53,000  |
| 36 years . . | 114,000            | 23,600 | 21,700 | 54,900     | 214,200 |

The production and consumption of grain and meat since 1861 was as follows :—

|             | Tons Yearly (ooo omitted) |          |          |          |
|-------------|---------------------------|----------|----------|----------|
|             | Grain                     |          | Meat     |          |
|             | Produced                  | Consumed | Produced | Consumed |
| 1861-70 . . | 9,700                     | 13,000   | 1,040    | 1,170    |
| 1871-80 . . | 8,500                     | 14,200   | 1,050    | 1,340    |
| 1881-90 . . | 7,820                     | 14,970   | 1,080    | 1,650    |
| 1891-96 . . | 7,650                     | 16,500   | 1,100    | 1,800    |

The consumption of meat in the United Kingdom, native and imported, showed as follows :—

|              | 1875      |          |           | 1885      |          |           | 1895      |          |           |
|--------------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|
|              | Native    | Imported | Total     | Native    | Imported | Total     | Native    | Imported | Total     |
| Beef . . . . | 490,000   | 100,000  | 590,000   | 570,000   | 180,000  | 750,000   | 590,000   | 260,000  | 850,000   |
| Mutton . . . | 370,000   | 55,000   | 425,000   | 320,000   | 90,000   | 410,000   | 320,000   | 230,000  | 550,000   |
| Pork . . . . | 190,000   | 145,000  | 335,000   | 190,000   | 220,000  | 410,000   | 190,000   | 290,000  | 480,000   |
| Total . . .  | 1,050,000 | 300,000  | 1,350,000 | 1,080,000 | 490,000  | 1,570,000 | 1,100,000 | 780,000  | 1,880,000 |

The average consumption of meat was 108 pounds per inhabitant in 1895, as compared with 93 pounds in 1875. Meantime the average is much higher in Great Britain, considering apart from Ireland, the consumption in 1895 showed approximately as follows :—

|              | Tons (ooo omitted) |        |      |       |
|--------------|--------------------|--------|------|-------|
|              | Beef               | Mutton | Pork | Total |
| Native . . . | 350                | 280    | 130  | 760   |
| Irish . . .  | 220                | 30     | 30   | 280   |
| Imported . . | 260                | 210    | 290  | 760   |
| Total . . .  | 830                | 520    | 450  | 1,800 |

This gives an average of 115 pounds per inhabitant, the above figures showing that Great Britain is fed during five months on native meat, two months on Irish, and five months on what is imported from foreign countries. As regards Ireland, the consumption is approximately 80,000 tons (one-fourth imported), being equal to no more than 40 pounds per inhabitant, the lowest ratio of all countries in Europe except Italy.

Importations of Irish and foreign live stock into Great Britain in 1896 were as follows :—

|              | Irish   | Foreign | Total     |
|--------------|---------|---------|-----------|
| Horses . . . | 40,000  | 40,000  | 80,000    |
| Cows . . .   | 690,000 | 560,000 | 1,250,000 |
| Sheep . . .  | 750,000 | 770,000 | 1,520,000 |
| Pigs . . .   | 610,000 | ...     | 610,000   |

The production of meat has risen 6 per cent., consumption 54 per cent., since 1861, the former showing as follows :—

|              | Tons Yearly |          |          |           |
|--------------|-------------|----------|----------|-----------|
|              | 1861-70     |          |          |           |
|              | England     | Scotland | Ireland  | Total     |
| Beef . . . . | 230,000     | 50,000   | 200,000  | 480,000   |
| Mutton . . . | 265,000     | 65,000   | 40,000   | 370,000   |
| Pork . . . . | 120,000     | 10,000   | 60,000   | 190,000   |
| Total . . .  | 615,000     | 125,000  | 300,000  | 1,040,000 |
|              | 1891-96     |          |          |           |
|              | England     | Scotland | Ireland  | Total     |
|              | Produced    | Consumed | Produced | Consumed  |
| Beef . . . . | 285,000     | 65,000   | 240,000  | 590,000   |
| Mutton . . . | 200,000     | 80,000   | 40,000   | 320,000   |
| Pork . . . . | 125,000     | 5,000    | 60,000   | 190,000   |
| Total . . .  | 610,000     | 150,000  | 340,000  | 1,100,000 |

Production has increased 60,000 tons in 30 years, while imports of foreign meat rose from 100,000 tons in 1865 to 780,000 tons in 1895.

The imports of food for human use, retained for consumption, were as follows, per annum :—

|                | 1861-70    | 1871-80    | 1881-90    | 1891-96    |
|----------------|------------|------------|------------|------------|
| Wheat, tons    | 1,800,000  | 2,850,000  | 3,850,000  | 4,830,000  |
| Meat, ..       | 130,000    | 290,000    | 570,000    | 700,000    |
| Potatoes, ..   | 60,000     | 330,000    | 150,000    | 150,000    |
| Rice, ..       | 90,000     | 170,000    | 180,000    | 140,000    |
| Sugar, ..      | 520,000    | 860,000    | 1,150,000  | 1,420,000  |
| Butter, ..     | 60,000     | 80,000     | 130,000    | 190,000    |
| Cheese, ..     | 45,000     | 75,000     | 90,000     | 105,000    |
| Tea, ..        | 45,000     | 65,000     | 80,000     | 95,000     |
| Coffee, ..     | 15,000     | 15,000     | 14,000     | 12,000     |
| Cocoa, ..      | 2,000      | 4,000      | 7,000      | 10,000     |
| Eggs, mill..   | 560        | 690        | 910        | 1,420      |
| Wine, gals.    | 12,500,000 | 16,500,000 | 14,200,000 | 14,600,000 |
| Spirits, gals. | 6,500,000  | 10,200,000 | 8,300,000  | 8,000,000  |

Compared with population, the imports were as follows, per inhabitant :—

|                 | 1861-70 | 1871-80 | 1881-90 | 1891-96 |
|-----------------|---------|---------|---------|---------|
| Wheat, lbs. . . | 135     | 192     | 240     | 282     |
| Meat, .. . .    | 10      | 19      | 36      | 40      |
| Potatoes, .. .  | 4       | 22      | 9       | 9       |
| Rice, .. . .    | 6       | 11      | 11      | 8       |
| Sugar, .. . .   | 39      | 58      | 72      | 82      |
| Butter, .. . .  | 4       | 5       | 8       | 11      |
| Cheese, .. . .  | 3       | 5       | 6       | 6       |
| Tea, ozs. . . . | 53      | 70      | 78      | 88      |
| Coffee, .. . .  | 18      | 16      | 14      | 11      |
| Cocoa, .. . .   | 3       | 5       | 7       | 10      |
| Eggs, No. . . . | 12      | 21      | 28      | 37      |
| Wine, gals. . . | 0.42    | 0.51    | 0.39    | 0.38    |
| Spirits, .. . . | 0.23    | 0.31    | 0.23    | 0.21    |

Among the items of food consumed in 1896 were the following:—

|                    | Native    | Imported  | Total     |
|--------------------|-----------|-----------|-----------|
| Butter, tons . . . | 90,000    | 200,000   | 290,000   |
| Cheese, " . . .    | 110,000   | 110,000   | 220,000   |
| Rice, " . . .      | ...       | 120,000   | 120,000   |
| Potatoes, " . . .  | 6,260,000 | 110,000   | 6,370,000 |
| Sugar, " . . .     | ...       | 1,510,000 | 1,510,000 |
| Tea, " . . .       | ...       | 100,000   | 100,000   |
| Coffee, " . . .    | ...       | 12,000    | 12,000    |
| Cocoa, " . . .     | ...       | 11,000    | 11,000    |
| Eggs, millions . . | 2,100     | 1,600     | 3,700     |

Food imports into the United Kingdom for the last three years (exclusive of wines, tea, &c.) were of the following value:—

|                     | £ (000 omitted) |         |         |         |
|---------------------|-----------------|---------|---------|---------|
|                     | 1895            | 1896    | 1897    | Average |
| Wheat . . . . .     | 30,200          | 30,900  | 32,900  | 31,300  |
| Maize . . . . .     | 7,800           | 9,400   | 9,200   | 8,800   |
| Barley . . . . .    | 5,500           | 5,700   | 4,700   | 5,300   |
| Oats, &c. . . . .   | 5,500           | 5,900   | 5,600   | 5,700   |
| All grain . . . . . | 49,000          | 51,900  | 52,400  | 51,100  |
| Butter . . . . .    | 16,800          | 17,800  | 18,400  | 17,700  |
| Cheese . . . . .    | 4,700           | 4,900   | 5,900   | 5,200   |
| Lard . . . . .      | 2,900           | 2,300   | 2,000   | 2,400   |
| Milk . . . . .      | 1,100           | 1,200   | 1,400   | 1,200   |
| Meat, dead . . . .  | 24,400          | 25,400  | 28,100  | 26,000  |
| Cattle . . . . .    | 9,000           | 10,400  | 11,400  | 10,300  |
| Vegetables . . . .  | 4,100           | 4,500   | 4,600   | 4,400   |
| Total . . . . .     | 112,000         | 118,400 | 124,200 | 118,300 |

Distinguishing what food was received from the British Colonies and from foreign countries (including sugar, tea, wines, &c.) the values in 1896 were:—

|                     | £ Sterling |                   |             |
|---------------------|------------|-------------------|-------------|
|                     | Colonies   | Foreign Countries | Total       |
| Grain . . . . .     | 3,600,000  | 48,300,000        | 51,900,000  |
| Meat . . . . .      | 7,500,000  | 28,300,000        | 35,800,000  |
| Butter, &c. . . . . | 4,000,000  | 21,700,000        | 25,700,000  |
| Sugar, . . . . .    | 1,700,000  | 17,500,000        | 19,200,000  |
| Vegetables, &c. . . | 2,200,000  | 41,600,000        | 43,800,000  |
| Total . . . . .     | 19,000,000 | 157,400,000       | 176,400,000 |

Imports of butter, margarine, and cheese in the last five years were:—

| Year              | Tons    |        |         |         |
|-------------------|---------|--------|---------|---------|
|                   | Butter  | Marg.  | Cheese  | Total   |
| 1893 . . . . .    | 117,000 | 64,000 | 104,000 | 285,000 |
| 1894 . . . . .    | 129,000 | 55,000 | 114,000 | 298,000 |
| 1895 . . . . .    | 141,000 | 47,000 | 107,000 | 295,000 |
| 1896 . . . . .    | 152,000 | 46,000 | 112,000 | 310,000 |
| 1897 . . . . .    | 161,090 | 47,000 | 130,000 | 338,000 |
| Average . . . . . | 140,000 | 52,000 | 113,000 | 305,000 |

Excluding margarine the importation of butter and cheese was together as follows:—

| Tons from           | 1894    | 1895    | 1896    | 1897    |
|---------------------|---------|---------|---------|---------|
| Canada . . . . .    | 58,000  | 60,000  | 66,000  | 81,000  |
| Denmark . . . . .   | 55,000  | 58,000  | 61,000  | 67,000  |
| United States . . . | 35,000  | 29,000  | 36,000  | 40,000  |
| Holland . . . . .   | 23,000  | 25,000  | 27,000  | 29,000  |
| France . . . . .    | 24,000  | 26,000  | 25,000  | 24,000  |
| Australia . . . . . | 18,000  | 21,000  | 14,000  | 17,000  |
| Various . . . . .   | 30,000  | 29,000  | 35,000  | 33,000  |
| Total . . . . .     | 243,000 | 248,000 | 264,000 | 291,000 |

The importation of cattle from Ireland into Great Britain has been as follows:—

| Year              | Number  |           |         |
|-------------------|---------|-----------|---------|
|                   | Cattle  | Sheep     | Pigs    |
| 1893 . . . . .    | 689,000 | 1,108,000 | 457,000 |
| 1894 . . . . .    | 827,000 | 957,000   | 585,000 |
| 1895 . . . . .    | 781,000 | 650,000   | 550,000 |
| 1896 . . . . .    | 689,000 | 750,000   | 613,000 |
| 1897 . . . . .    | 745,000 | 811,000   | 684,000 |
| Average . . . . . | 746,000 | 855,000   | 580,000 |

The importation of poultry and eggs in 1896 was as follows:—

|                     | Poultry, Tons | Eggs, Millions | Total Value, £ |
|---------------------|---------------|----------------|----------------|
| France . . . . .    | 6,000         | 394            | 1,600,000      |
| Denmark . . . . .   | ...           | 188            | 500,000        |
| Canada . . . . .    | 3,000         | 63             | 300,000        |
| Other countries . . | 14,000        | 945            | 2,900,000      |
| Total . . . . .     | 23,000        | 1,590          | 5,300,000      |

Importations of meat in 1896 were as follows (the equivalent being taken for live stock):—

| From                 | Tons    |         |         | Value, £   |
|----------------------|---------|---------|---------|------------|
|                      | Dead    | Live    | Total   |            |
| United States . . .  | 340,000 | 130,000 | 470,000 | 19,500,000 |
| British Colonies . . | 170,000 | 40,000  | 210,000 | 7,300,000  |
| Denmark . . . . .    | 70,000  | ...     | 70,000  | 3,000,000  |
| Argentina . . . . .  | 50,000  | 20,000  | 70,000  | 2,700,000  |
| Various . . . . .    | 50,000  | ...     | 50,000  | 2,300,000  |
| Total . . . . .      | 680,000 | 190,000 | 870,000 | 34,800,000 |

The above is exclusive of 120,000 tons of lard and poultry, worth £3,400,000.

Imports of sugar in 1896 were as follows:—

| From                | Tons      | Value, £   | £ per Ton |
|---------------------|-----------|------------|-----------|
|                     |           |            |           |
| Germany . . . . .   | 760,000   | 9,300,000  | 12.2      |
| W. Indies . . . . . | 160,000   | 1,700,000  | 10.6      |
| France . . . . .    | 140,000   | 1,800,000  | 12.8      |
| Holland . . . . .   | 110,000   | 1,500,000  | 13.6      |
| Various . . . . .   | 480,000   | 4,900,000  | 10.2      |
| Total . . . . .     | 1,650,000 | 19,200,000 | 11.6      |

Imports of dairy products, &c., including butter,

margarine, cheese, condensed milk, eggs, and poultry, in the same year were :—

| From                    | Tons           | Value, £          | £ per Ton |
|-------------------------|----------------|-------------------|-----------|
| France . . . . .        | 80,000         | 4,900,000         | 61        |
| Holland . . . . .       | 83,000         | 4,700,000         | 57        |
| Denmark . . . . .       | 76,000         | 6,800,000         | 90        |
| Canada . . . . .        | 86,000         | 3,700,000         | 42        |
| United States . . . . . | 36,000         | 1,800,000         | 50        |
| Germany . . . . .       | 35,000         | 1,400,000         | 40        |
| Various . . . . .       | 116,000        | 6,000,000         | 52        |
| <b>Total . . . . .</b>  | <b>505,000</b> | <b>29,300,000</b> | <b>59</b> |

Food imports of all kinds from the principal countries in 1896 were :—

| From                    | £                  | Ratio        |
|-------------------------|--------------------|--------------|
| United States . . . . . | 35,600,000         | 20.2         |
| Russia . . . . .        | 25,000,000         | 14.4         |
| France . . . . .        | 15,400,000         | 8.7          |
| Germany . . . . .       | 12,300,000         | 7.0          |
| Canada . . . . .        | 10,600,000         | 6.0          |
| Denmark . . . . .       | 10,300,000         | 5.8          |
| Holland . . . . .       | 8,600,000          | 4.8          |
| Various . . . . .       | 58,600,000         | 33.1         |
| <b>Total . . . . .</b>  | <b>176,400,000</b> | <b>100.0</b> |

This includes grain used for cattle.

The annual consumption of food per inhabitant has been approximately as follows :—

|                         | 1861-70 | 1871-80 | 1881-90 | 1891-96 |
|-------------------------|---------|---------|---------|---------|
| Grain, lbs. . . . .     | 358     | 380     | 385     | 390     |
| Meat, „ . . . .         | 88      | 91      | 103     | 105     |
| Potatoes, „ . . . .     | 530     | 460     | 385     | 360     |
| Butter, „ . . . .       | 10      | 11      | 14      | 16      |
| Cheese, „ . . . .       | 10      | 12      | 13      | 12      |
| Eggs, No. . . . .       | 80      | 85      | 83      | 91      |
| Beer, gallons . . . . . | 31      | 32      | 29      | 30      |
| Spirits, „ . . . .      | 0.9     | 1.2     | 1.0     | 1.0     |
| Wine, „ . . . .         | 0.4     | 0.5     | 0.4     | 0.4     |

The above table shows that the people are now much better fed than they were 30 years ago, consumption per inhabitant having risen 20 per cent. for meat, 60 per cent. for butter, 20 per cent. for cheese, 14 per cent. for eggs. But this is not true of Ireland, and hence the increase of consumption, per head, in Great Britain is even higher than stated.

The quantity of each article consumed was approximately as follows, yearly :—

|                         | 1861-70    | 1871-80    | 1881-90    | 1891-96    |
|-------------------------|------------|------------|------------|------------|
| Grain, tons . . . . .   | 4,800,000  | 5,600,000  | 6,200,000  | 6,700,000  |
| Meat, „ . . . .         | 1,170,000  | 1,340,000  | 1,650,000  | 1,800,000  |
| Potatoes, „ . . . .     | 7,100,000  | 6,800,000  | 6,200,000  | 6,200,000  |
| Butter, „ . . . .       | 140,000    | 160,000    | 220,000    | 280,000    |
| Cheese, „ . . . .       | 140,000    | 180,000    | 200,000    | 215,000    |
| Eggs, mill. . . . .     | 2,400      | 2,800      | 3,010      | 3,520      |
| Beer, barrels . . . . . | 25,500,000 | 29,500,000 | 28,600,000 | 32,000,000 |
| Wine, gall. . . . .     | 28,000,000 | 39,600,000 | 36,000,000 | 38,800,000 |
| Spirits, „ . . . .      | 12,600,000 | 16,800,000 | 14,100,000 | 14,600,000 |

As regards tea, coffee, sugar, rice, cocoa, and wine, see page 717.

In the above table the item of grain does not include what is used in breweries and distilleries, nor of course what is consumed by animals.

The value of food consumed (including the grain for breweries and distilleries, but excluding what was used by animals) during 1896 was approximately as follows :—

|                            | Native, £          | Imported, £        | Total, £           |
|----------------------------|--------------------|--------------------|--------------------|
| Grain . . . . .            | 21,700,000         | 36,400,000         | 58,100,000         |
| Meat . . . . .             | 55,000,000         | 35,400,000         | 90,400,000         |
| Dairy . . . . .            | 33,000,000         | 23,800,000         | 56,800,000         |
| Potatoes . . . . .         | 25,100,000         | 900,000            | 26,000,000         |
| Poultry and eggs . . . . . | 9,700,000          | 5,300,000          | 15,000,000         |
| Veget. and fruit . . . . . | 8,000,000          | 10,300,000         | 18,300,000         |
| Sugar . . . . .            | ...                | 19,000,000         | 19,200,000         |
| Tea, coffee, &c. . . . .   | ...                | 11,400,000         | 11,400,000         |
| Fish . . . . .             | 7,500,000          | 3,200,000          | 10,700,000         |
| Sundries . . . . .         | 7,000,000          | 6,800,000          | 13,800,000         |
| <b>Total . . . . .</b>     | <b>167,000,000</b> | <b>153,000,000</b> | <b>320,000,000</b> |

The above is exclusive of liquor, which stands approximately as follows :—

|                        | Native, £         | Imported, £      | Total, £          |
|------------------------|-------------------|------------------|-------------------|
| Beer . . . . .         | 72,000,000        | ...              | 72,000,000        |
| Spirits . . . . .      | 7,300,000         | 2,100,000        | 9,400,000         |
| Wine . . . . .         | ...               | 6,000,000        | 6,000,000         |
| Cider . . . . .        | 600,000           | ...              | 600,000           |
| <b>Total . . . . .</b> | <b>79,900,000</b> | <b>8,100,000</b> | <b>88,000,000</b> |

Adding together food and liquor would give a total of 408 millions sterling, but the grain used for liquor having been counted in the first table there is a repetition, and if allowance be made accordingly, the total cost of food and liquor will be found to reach 390 millions sterling, viz. :—

|                         | £                  | Population        | Shillings per Head |
|-------------------------|--------------------|-------------------|--------------------|
| Great Britain . . . . . | 365,000,000        | 34,900,000        | 210                |
| Ireland . . . . .       | 25,000,000         | 4,550,000         | 110                |
| <b>United Kingdom</b>   | <b>390,000,000</b> | <b>39,450,000</b> | <b>198</b>         |

There is no country in the world where the sum spent on food, per head of the population, is so high as in Great Britain, but on the other hand Ireland is among the lowest in the scale of nations in this respect.

Besides food imported for human use Great Britain receives large quantities of grain to feed cattle and horses, which causes the item of food to figure for a much larger sum in our imports than is shown above. The following table shows the total amount paid to foreign nations for food in recent years, exclusive of wines :—

|                        | Millions £   |              |              |              |
|------------------------|--------------|--------------|--------------|--------------|
|                        | 1892         | 1894         | 1896         | 1897         |
| Grain . . . . .        | 58.7         | 48.2         | 52.8         | 53.6         |
| Meat . . . . .         | 32.1         | 32.3         | 35.9         | 39.5         |
| Dairy . . . . .        | 22.0         | 23.1         | 23.9         | 25.7         |
| Sundries . . . . .     | 55.8         | 53.2         | 54.8         | 55.3         |
| <b>Total . . . . .</b> | <b>168.6</b> | <b>156.8</b> | <b>167.4</b> | <b>174.1</b> |

The value of imported food, compared with population, has been as follows :—

| Year       | Millions £ |           |       | Shillings per Head |
|------------|------------|-----------|-------|--------------------|
|            | Grain      | Meat, &c. | Total |                    |
| 1854 . . . | 23         | 25        | 48    | 35                 |
| 1860 . . . | 33         | 34        | 67    | 46                 |
| 1870 . . . | 37         | 53        | 90    | 58                 |
| 1880 . . . | 70         | 90        | 160   | 92                 |
| 1889 . . . | 54         | 91        | 145   | 78                 |
| 1892 . . . | 59         | 110       | 169   | 89                 |
| 1894 . . . | 48         | 109       | 157   | 81                 |
| 1896 . . . | 53         | 114       | 167   | 84                 |
| 1897 . . . | 54         | 120       | 174   | 87                 |

If wines were included the total for 1897 would be 182 millions, that is, 91 shillings per inhabitant, equal to threepence a day per head, and as the earnings of the

nation (*vide* "Wealth and Industries of Nations," p. 95) averaged £36 per head, it appears that one-eighth of the earnings of the people is expended on imported food which cannot be produced at so low a cost in Great Britain.

In case it were ever deemed expedient to produce within the British Isles all the grain required for consumption, it would be necessary to double the area under corn of all kinds. The following table shows the actual and the required areas :—

|             | Acres      |           |           | Required   |
|-------------|------------|-----------|-----------|------------|
|             | G. Britain | Ireland   | Total     |            |
| Wheat . .   | 1,690,000  | 40,000    | 1,730,000 | 8,200,000  |
| Barley . .  | 2,160,000  | 180,000   | 2,340,000 | 8,800,000  |
| Oats, &c. . | 3,590,000  | 1,200,000 | 4,790,000 | 7,500,000  |
| Total . .   | 7,440,000  | 1,420,000 | 8,860,000 | 19,100,000 |

The actual yearly deficit of grain is 9,000,000 tons in Great Britain, 500,000 tons in Ireland, in all 9½ million tons, to produce which would need 10,200,000 acres, an area equal to the aggregate of Lincolnshire, Norfolk, Suffolk, Essex, and Devonshire.

The production and consumption of the principal items of food in Great Britain and Ireland, reduced to a grain denominator, show as follows :—

#### Production

|                       | Quantity, Tons |           |            | Grain Equivalent |           |            |
|-----------------------|----------------|-----------|------------|------------------|-----------|------------|
|                       | Great Britain  | Ireland   | U. Kingdom | Great Britain    | Ireland   | U. Kingdom |
| Grain . . .           | 6,200,000      | 1,400,000 | 7,600,000  | 6,200,000        | 1,400,000 | 7,600,000  |
| Meat . . .            | 760,000        | 340,000   | 1,100,000  | 6,100,000        | 2,700,000 | 8,800,000  |
| Potatoes . .          | 3,500,000      | 2,700,000 | 6,200,000  | 1,200,000        | 500,000   | 2,100,000  |
| Butter and cheese . . | 140,000        | 60,000    | 200,000    | 1,400,000        | 600,000   | 2,000,000  |
| Fish . . .            | 670,000        | 30,000    | 700,000    | 2,000,000        | 100,000   | 2,100,000  |
| Total . . .           | 11,070,000     | 4,530,000 | 15,600,000 | 16,900,000       | 5,700,000 | 22,600,000 |

#### Consumption

|                       |            |           |            |            |           |            |
|-----------------------|------------|-----------|------------|------------|-----------|------------|
| Grain . . .           | 15,200,000 | 1,900,000 | 17,100,000 | 15,200,000 | 1,900,000 | 17,100,000 |
| Meat . . .            | 1,800,000  | 80,000    | 1,880,000  | 14,400,000 | 600,000   | 15,000,000 |
| Potatoes . .          | 3,600,000  | 2,700,000 | 6,300,000  | 1,200,000  | 900,000   | 2,100,000  |
| Butter and cheese . . | 480,000    | 30,000    | 510,000    | 4,800,000  | 300,000   | 5,100,000  |
| Fish . . .            | 670,000    | 40,000    | 710,000    | 2,000,000  | 100,000   | 2,100,000  |
| Total . . .           | 21,750,000 | 4,750,000 | 26,500,000 | 37,600,000 | 3,800,000 | 41,400,000 |

Reducing all to a grain denominator, we find that Great Britain raises food for 45 per cent. of her population, while Ireland consumes only two-thirds of her production. Taking the whole United Kingdom collectively, the home production is equal to 55 per cent., imported food 45 per cent., of the total consumption.

#### FRANCE

The production and consumption of grain in four years ending 1895 were :—

| Year       | Tons       |             |           |
|------------|------------|-------------|-----------|
|            | Production | Consumption | Deficit   |
| 1892 . . . | 17,700,000 | 19,300,000  | 1,600,000 |
| 1893 . . . | 14,900,000 | 16,800,000  | 1,900,000 |
| 1894 . . . | 19,400,000 | 20,600,000  | 1,200,000 |
| 1895 . . . | 19,300,000 | 19,700,000  | 400,000   |
| 1896 . . . | 19,000,000 | 19,100,000  | 100,000   |

Although the production averages almost half a ton per inhabitant, France has to import about 100,000 tons monthly. The crops of 1896 compared with those of four preceding years thus :—

|                | 1892-93    | 1894-95    | 1896       |
|----------------|------------|------------|------------|
| Wheat, tons .  | 7,100,000  | 8,300,000  | 8,200,000  |
| Oats, " .      | 5,000,000  | 6,400,000  | 6,300,000  |
| Rye, " .       | 1,600,000  | 1,800,000  | 1,700,000  |
| Barley, " .    | 1,000,000  | 1,200,000  | 1,100,000  |
| Maize, &c. " . | 1,600,000  | 1,650,000  | 1,700,000  |
| Total . .      | 16,300,000 | 19,350,000 | 19,000,000 |

The production and consumption of wheat in the last thirty-six years has been as follows :—

| Period        | Tons Yearly |             | Bushels per Inhab. |
|---------------|-------------|-------------|--------------------|
|               | Production  | Consumption |                    |
| 1861-64 . . . | 6,900,000   | 7,200,000   | 7.7                |
| 1865-68 . . . | 6,600,000   | 6,700,000   | 7.1                |
| 1869-72 . . . | 6,400,000   | 6,700,000   | 7.3                |
| 1873-76 . . . | 7,250,000   | 7,500,000   | 8.0                |
| 1877-80 . . . | 6,500,000   | 7,900,000   | 8.5                |
| 1881-84 . . . | 7,600,000   | 9,100,000   | 9.6                |
| 1885-88 . . . | 7,350,000   | 8,100,000   | 8.5                |
| 1889-92 . . . | 7,100,000   | 8,500,000   | 8.9                |
| 1893-96 . . . | 7,900,000   | 8,700,000   | 9.0                |
| Average . . . | 7,100,000   | 7,800,000   | 8.3                |

In the last eight years the net imports of wheat averaged 1,100,000 tons yearly, from which it appears that (after deducting what is necessary for seed) the consumption in the form of food is 7,900,000 tons, equal to 8½ bushels per inhabitant, and that France subsists on imported wheat almost two months in the year.

Although France is still the greatest wine-producing country in the world, she has had in this respect a constant deficit since 1880, the heaviest losses from Phylloxera having been felt in the preceding year. Production and consumption are shown as follows :—

| Year          | Millions of Gallons Yearly |         |         |             |
|---------------|----------------------------|---------|---------|-------------|
|               | Vintage                    | Imports | Exports | Consumption |
| 1861-64 . . . | 930                        | 3       | 45      | 888         |
| 1865-68 . . . | 1,230                      | 4       | 64      | 1,170       |
| 1869-72 . . . | 1,320                      | 7       | 70      | 1,257       |
| 1873-76 . . . | 1,250                      | 13      | 78      | 1,185       |
| 1877-80 . . . | 910                        | 68      | 63      | 915         |
| 1881-84 . . . | 880                        | 178     | 56      | 1,002       |
| 1885-88 . . . | 650                        | 240     | 54      | 836         |
| 1889-92 . . . | 610                        | 235     | 45      | 800         |
| 1893-96 . . . | 890                        | 120     | 40      | 970         |
| Average . . . | 963                        | 97      | 57      | 1,003       |

The consumption of meat is less than in the United Kingdom, amounting to no more than 1,300,000 tons, viz. :—

|                         | Tons      | Pounds per Head |
|-------------------------|-----------|-----------------|
| Beef . . . . .          | 700,000   | 40              |
| Mutton . . . . .        | 210,000   | 12              |
| Pork . . . . .          | 290,000   | 17              |
| Imported meat . . . . . | 100,000   | 6               |
| Total . . . . .         | 1,300,000 | 75              |

France imports cheese, and exports butter. Net exports of dairy products compare with those of ten years ago thus :—

|                  | Tons   |        | Value, £  |           |
|------------------|--------|--------|-----------|-----------|
|                  | 1885   | 1896   | 1885      | 1896      |
| Butter . . . . . | 32,000 | 25,000 | 3,400,000 | 1,800,000 |
| Eggs . . . . .   | 22,000 | 17,500 | 1,200,000 | 900,000   |
| Total . . . . .  | 54,000 | 42,500 | 4,600,000 | 2,700,000 |

The value of food imports in last three years was :—

|                  | £ Sterling |            |            |
|------------------|------------|------------|------------|
|                  | 1895       | 1896       | 1897       |
| Grain . . . . .  | 3,100,000  | 1,500,000  | 9,900,000  |
| Meat . . . . .   | 5,800,000  | 3,200,000  | 4,000,000  |
| Cheese . . . . . | 600,000    | 600,000    | 600,000    |
| Fruit . . . . .  | 1,000,000  | 1,000,000  | 1,400,000  |
| Coffee . . . . . | 7,100,000  | 7,000,000  | 4,200,000  |
| Total . . . . .  | 17,600,000 | 13,300,000 | 20,100,000 |

The value of food consumed may be summed up approximately as follows :—

| Millions £ Sterling  |       |
|----------------------|-------|
| Grain . . . . .      | 77.0  |
| Potatoes . . . . .   | 36.0  |
| Meat . . . . .       | 62.0  |
| Dairy . . . . .      | 44.5  |
| Poultry . . . . .    | 14.0  |
| Vegetables . . . . . | 12.0  |
| Coffee . . . . .     | 7.1   |
| Sugar . . . . .      | 6.5   |
| Fish . . . . .       | 4.8   |
| Wine, &c. . . . .    | 46.1  |
| Sundries . . . . .   | 15.0  |
| Total . . . . .      | 325.0 |

The value of imported food is only 5 per cent. of the total, whereas in the United Kingdom it is 45 per cent.

The production and consumption of sugar have been as follows :—

| Year           | Production, Tons | Consumption, Tons | Lbs. per Inhabitant |
|----------------|------------------|-------------------|---------------------|
| 1885 . . . . . | 460,000          | 390,000           | 23                  |
| 1895 . . . . . | 700,000          | 480,000           | 28                  |

The annual expenditure on food averages 166 shillings per inhabitant.

The production of food, reduced to a grain denominator, shows as follows :—

|                         | Quantity   | Equivalent in Tons Grain |
|-------------------------|------------|--------------------------|
| Grain, tons . . . . .   | 17,800,000 | 17,800,000               |
| Potatoes, " . . . . .   | 12,600,000 | 4,200,000                |
| Meat, " . . . . .       | 1,200,000  | 9,600,000                |
| Sugar, " . . . . .      | 700,000    | 1,400,000                |
| Butter, &c. " . . . .   | 200,000    | 2,000,000                |
| Fish, " . . . . .       | 150,000    | 300,000                  |
| Wine, gallons . . . . . | 890,000    | 8,900,000                |
| Total . . . . .         |            | 44,200,000               |

This is equal to 23 cwt. per inhabitant, or 6 tons to each hand engaged in agriculture.

#### GERMANY

The weight of grain produced is far short of the requirements for the empire: the average crops for four years ending 1896 showed :—

| Tons            |           | Tons             |           |
|-----------------|-----------|------------------|-----------|
| Wheat . . . . . | 3,090,000 | Barley . . . . . | 2,550,000 |
| Rye . . . . .   | 6,870,000 | Oats . . . . .   | 4,620,000 |

making a total of 17,130,000 tons. Two-thirds of the population live on rye. If we deduct the grain used for seed or given to cattle, the balance left for human food is about 11 million tons, to which we must add 4 million tons imported, making a total of 15 millions. This includes about 3 million tons converted into liquor, leaving 12 million tons used in the form of bread. From this it would appear that Germany subsists during eight

months of the year on native, during four months on imported, grain. The consumption of grain for bread has been approximately as follows :—

| Year        | Tons per Annum |           |            | Bushels Per Head |
|-------------|----------------|-----------|------------|------------------|
|             | Native         | Imported  | Total      |                  |
| 1885-87 . . | 8,400,000      | 1,800,000 | 10,200,000 | 8.5              |
| 1890-92 . . | 8,000,000      | 3,400,000 | 11,400,000 | 9.1              |
| 1894-96 . . | 8,200,000      | 4,300,000 | 12,500,000 | 9.5              |

The deficit of grain increases rapidly with the growth of population, the weight imported having more than doubled in ten years. Germany has 250 inhabitants to the square mile, France only 188, and we find that one-third of the German population (as compared with one-sixth of the French) subsists on imported grain. There would be a greater deficit of grain in Germany but for the production of potatoes on a great scale, the crop rarely falling below 30 million tons, equivalent in sustenance to 10 million tons of grain. Germany grows one-third of all the potatoes produced in the world, the crop averaging 24 bushels per inhabitant, not all being used as food, but a large portion made into cheap brandy.

Meat production has increased, but not so fast as population :—

|                | 1883      | 1895      |
|----------------|-----------|-----------|
| Beef, tons . . | 790,000   | 880,000   |
| Mutton, „ . .  | 200,000   | 150,000   |
| Pork, „ . .    | 370,000   | 490,000   |
| Total . .      | 1,360,000 | 1,520,000 |

Down to the year 1888 no meat was imported, but the imports have grown so rapidly of late that they now exceed 200,000 tons yearly (mostly in the form of live cattle), the consumption reaching 74 lbs. per inhabitant, against 66 lbs. in 1883.

There is likewise a deficit as regards poultry and eggs : the imports of the latter show thus :—

| Year            | Eggs Yearly   | Per Inhabitant |
|-----------------|---------------|----------------|
| 1885-86 . . . . | 510,000,000   | 11             |
| 1890-91 . . . . | 1,110,000,000 | 22             |
| 1894-96 . . . . | 1,630,000,000 | 32             |

Reducing grain, potatoes, and meat to a common denominator as grain, we find an increase of 6,900,000 tons, say 21 per cent., since 1882, viz :—

|              | Tons       |            | Grain Equivalent, Tons |            |
|--------------|------------|------------|------------------------|------------|
|              | 1880-82    | 1893-96    | 1880-82                | 1893-96    |
| Grain . .    | 14,800,000 | 17,100,000 | 14,800,000             | 17,100,000 |
| Potatoes . . | 21,100,000 | 31,000,000 | 7,000,000              | 10,300,000 |
| Meat . .     | 1,360,000  | 1,520,000  | 10,900,000             | 12,200,000 |
| Total . .    | 37,260,000 | 49,620,000 | 32,700,000             | 39,600,000 |

The grain equivalent is now 15 cwt. per inhabitant, against 14 cwt. in 1880-82.

The number of milch cows is 500,000 less than that requisite (one to five inhabitants) in view of population. Nevertheless, about 8000 tons of butter are exported yearly, but there is, on the other hand, a considerable importation of margarine.

The production at present is as follows, in tons :—

|                  | Grain      | Potatoes   | Meat      |
|------------------|------------|------------|-----------|
| Prussia . . . .  | 9,700,000  | 20,000,000 | 920,000   |
| Bavaria . . . .  | 2,100,000  | 4,300,000  | 220,000   |
| Other States . . | 5,300,000  | 6,700,000  | 380,000   |
| Total . .        | 17,100,000 | 31,000,000 | 1,520,000 |

More than half of the fish consumed is imported ; the annual take by German fishermen is about 100,000 tons : imports show as follows :—

| Year            | Barrels Yearly | Value, £  |
|-----------------|----------------|-----------|
| 1885-86 . . . . | 1,070,000      | 1,500,000 |
| 1894-96 . . . . | 1,330,000      | 1,500,000 |

The consumption of coffee per inhabitant has declined, which is explained by the rise in price, viz :—

| Year            | Tons Yearly | Value, £   | Lbs. per Inhab. |
|-----------------|-------------|------------|-----------------|
| 1885-86 . . . . | 121,000     | 6,200,000  | 6.0             |
| 1894-95 . . . . | 122,000     | 10,100,000 | 5.1             |

Sugar is the only article of food of which there is a surplus, about 60 per cent. of the annual output being exported, viz :—

|                 | Tons    |           | Lbs. per Inhab. |      |
|-----------------|---------|-----------|-----------------|------|
|                 | 1886    | 1896      | 1886            | 1896 |
| Production . .  | 810,000 | 1,620,000 | 39              | 70   |
| Consumption . . | 240,000 | 720,000   | 12              | 31   |
| Export . . . .  | 570,000 | 900,000   | 27              | 39   |

Germany does not grow enough wine for her requirements, the annual consumption showing thus :—

|                 | Gallons    |            |            |
|-----------------|------------|------------|------------|
|                 | Native     | Imported   | Total      |
| 1885-86 . . . . | 60,000,000 | 12,000,000 | 72,000,000 |
| 1894-96 . . . . | 65,000,000 | 15,000,000 | 80,000,000 |

Consumption averages 1½ gallon per inhabitant, wine being little in use, and beer the principal beverage of the people.

If we reduce food of all kinds to a grain denominator, the production will be found as follows :—

|                          | Quantity   | Equivalent in Grain Tons |
|--------------------------|------------|--------------------------|
| Grain, tons . .          | 17,100,000 | 17,100,000               |
| Potatoes, „ . .          | 31,800,000 | 10,600,000               |
| Meat, „ . .              | 1,520,000  | 12,160,000               |
| Sugar, „ . .             | 1,800,000  | 3,600,000                |
| Butter and cheese, „ . . | 300,000    | 3,000,000                |
| Fish, „ . .              | 60,000     | 120,000                  |
| Wine, gallons . . . .    | 70,000,000 | 700,000                  |
| Total . . . . .          |            | 47,280,000               |

This gives an average of 18 cwt. per inhabitant, or 5 tons to each hand engaged in agriculture.



The value of imported food shows as follows:—

|                | £ Sterling |            |            |
|----------------|------------|------------|------------|
|                | 1885       | 1890       | 1897       |
| Grain . . . .  | 12,800,000 | 19,800,000 | 26,400,000 |
| Coffee . . . . | 5,600,000  | 11,000,000 | 8,100,000  |
| Meat . . . .   | ...        | 6,100,000  | 7,600,000  |
| Eggs . . . .   | 1,100,000  | 2,800,000  | 3,400,000  |
| Wine . . . .   | 1,900,000  | 2,200,000  | 2,100,000  |
| Fish . . . .   | 1,500,000  | 1,700,000  | 2,900,000  |
| Sundries . . . | 1,900,000  | 4,100,000  | 5,500,000  |
| Total . . . .  | 24,800,000 | 47,700,000 | 56,000,000 |

The value of food consumed for human use is approximately as follows:—

|                    | Millions £ Sterling |          |       |
|--------------------|---------------------|----------|-------|
|                    | Native              | Imported | Total |
| Grain . . . .      | 61                  | 19       | 80    |
| Meat . . . .       | 63                  | 5        | 68    |
| Potatoes, &c. .    | 73                  | ...      | 73    |
| Dairy and eggs .   | 74                  | 4        | 78    |
| Wine and beer .    | 53                  | 2        | 55    |
| Sugar, coffee, &c. | 10                  | 11       | 21    |
| Sundries . . . .   | 6                   | 6        | 12    |
| Total . . . .      | 340                 | 47       | 387   |

The value of imported food is 12 per cent. of the total, against 5 per cent. in France. The average food expenditure is 148 shillings per inhabitant, against 166 in France.

#### RUSSIA

Although Russia has to feed a population of 103 millions, she has usually a large excess of grain for exportation, besides eggs and a varying quantity of butter, fish, and meat. Deducting the amount of grain required for seed, the home consumption and exportation during three years averaged:—

|                 | Tons        |           |            |
|-----------------|-------------|-----------|------------|
|                 | Consumption | Export    | Total      |
| Wheat . . . .   | 3,400,000   | 3,400,000 | 6,800,000  |
| Rye . . . .     | 15,100,000  | 1,100,000 | 16,200,000 |
| Oats . . . .    | 12,300,000  | 1,200,000 | 13,500,000 |
| Various . . . . | 6,400,000   | 3,100,000 | 9,500,000  |
| Total . . . .   | 37,200,000  | 8,800,000 | 46,000,000 |

There is great fluctuation in the crops; the wheat surplus for exportation in 1897 hardly reached 2,600,000 tons. The bulk of the population subsists on rye, and about 20 per cent. on wheat, the total weight of grain used as bread being about 20 million tons, equal to 8 bushels per head, exclusive of what is made into brandy. Potatoes were long viewed with such aversion that they are still little used, the crop averaging 20 million tons, or 8 bushels per inhabitant, against 24 bushels in Germany. The production of meat is approximately as follows:—

|                | Russia    | Poland  | Total, Tons |
|----------------|-----------|---------|-------------|
| Beef . . . .   | 1,230,000 | 150,000 | 1,380,000   |
| Mutton . . . . | 440,000   | 40,000  | 480,000     |
| Pork . . . .   | 370,000   | 60,000  | 430,000     |
| Total . . . .  | 2,040,000 | 250,000 | 2,290,000   |

The above gives an average of 50 lbs. of meat per inhabitant in Russia Proper and 62 lbs. in Poland, and the consumption is about the same, the export of cattle being equivalent to no more than 10,000 tons of dead meat. The production of butter and cheese is not known, but cannot exceed 350,000 tons, of which 5000 tons are exported, leaving for home consumption nearly 8 lbs. per inhabitant, as compared with 14 lbs. in Germany. The export of eggs has increased prodigiously in 11 years, viz. :—

| Year         | Millions | Value, £  |
|--------------|----------|-----------|
| 1885 . . . . | 235      | 340,000   |
| 1891 . . . . | 850      | 1,290,000 |
| 1896 . . . . | 1,480    | 2,200,000 |

Russia is now one of the largest exporters of eggs in the world, sending out 4 millions daily, for the most part to Germany. She also exports 10 million poultry per annum, and 3000 tons of caviare. Down to 1884 the production of sugar was hardly sufficient for the requirements of home consumption, but now there is a large surplus exported, viz. :—

|                     | Tons    |         |
|---------------------|---------|---------|
|                     | 1886    | 1896    |
| Production . . . .  | 350,000 | 780,000 |
| Consumption . . . . | 290,000 | 680,000 |
| Exported . . . .    | 60,000  | 100,000 |

The consumption of sugar has risen in the above interval from 6 lbs. to 15 lbs. per inhabitant, but is still very low (as compared with 28 lbs. per head in Germany), owing to the extreme poverty of the rural population of Russia. Vodka brandy is the chief drink, of which 160 million gallons are consumed, according to official returns, but it is believed that the real consumption is double, illicit distilling being very common. The vintage varies from 40 to 70 million gallons, besides which 3 million gallons of wine are imported, the total consumption being less than three-quarters of a gallon per inhabitant. Fisheries yield 220,000 tons, besides which 150,000 tons of dried fish are imported, making a total of 370,000 tons, equal to 8 lbs. per inhabitant. About 70,000 tons of fruit are imported yearly, and 40,000 tons of rice. The consumption of coffee is declining, that of tea increasing, viz. :—

| Year         | Tons   |        |        | Value, £  |
|--------------|--------|--------|--------|-----------|
|              | Coffee | Tea    | Total  |           |
| 1885 . . . . | 8,000  | 29,000 | 37,000 | 6,300,000 |
| 1890 . . . . | 6,500  | 32,000 | 38,500 | 3,800,000 |
| 1896 . . . . | 6,400  | 41,000 | 47,400 | 4,500,000 |

Taking tea and coffee in the aggregate the consumption is now 17 oz. per inhabitant, against 14 oz. in 1885, the increase being the result of fall in price, the expenditure on these items being now 11 pence per inhabitant, as compared with 16 pence in 1885. The total imports and exports of food in the following years stood thus:—

| Year         | Imports, £ | Exports, £ | Surplus, £ |
|--------------|------------|------------|------------|
| 1893 . . . . | 6,100,000  | 32,200,000 | 26,100,000 |
| 1894 . . . . | 6,900,000  | 44,100,000 | 37,200,000 |
| 1895 . . . . | 6,900,000  | 40,100,000 | 33,200,000 |
| 1896 . . . . | 6,600,000  | 38,800,000 | 32,200,000 |

The value of food consumed yearly for human use is approximately 394 millions sterling, or about ten times

as much as that of food exported. Reducing all food to a grain denominator, we find the production as follows :—

|                        | Quantity   | Equivalent in Tons Grain |
|------------------------|------------|--------------------------|
| Grain, tons . . . .    | 55,100,000 | 55,100,000               |
| Potatoes, " . . . .    | 20,700,000 | 6,900,000                |
| Meat, " . . . .        | 2,200,000  | 18,320,000               |
| Sugar, " . . . .       | 800,000    | 1,600,000                |
| Butter, &c., " . . . . | 350,000    | 3,500,000                |
| Fish, " . . . .        | 220,000    | 440,000                  |
| Wine, gallons . . . .  | 60,000,000 | 600,000                  |
| Total . . . . .        |            | 86,460,000               |

This is an average of only 16 cwt. per inhabitant, a very poor return, when we consider that two-thirds of the population are engaged in agriculture.

#### AUSTRIA-HUNGARY

The dual monarchy, like Russia, has always a surplus of food, which is not surprising, since 63 per cent. of the population is agricultural. The production is as follows :—

|                       | Austria    | Hungary    | Total       |
|-----------------------|------------|------------|-------------|
| Grain, tons . . . .   | 7,900,000  | 11,600,000 | 19,500,000  |
| Potatoes, " . . . .   | 9,500,000  | 3,500,000  | 13,000,000  |
| Meat, " . . . .       | 600,000    | 610,000    | 1,210,000   |
| Wine, gallons . . . . | 90,000,000 | 40,000,000 | 130,000,000 |

Hungary has usually a surplus of three million tons of grain, Austria a deficit of nearly 2½ million tons, whereby it comes to pass that the whole monarchy has a normal surplus of 550,000 tons for exportation. Hungary has, moreover, a surplus of 150,000 tons of meat, one-third of which goes to cover the deficit in Austria, leaving 100,000 tons for exportation in the form of live cattle. The ordinary grain crops are as follows :—

|                    | Tons      |            |            |
|--------------------|-----------|------------|------------|
|                    | Austria   | Hungary    | Total      |
| Wheat . . . . .    | 1,200,000 | 3,800,000  | 5,000,000  |
| Rye . . . . .      | 1,850,000 | 1,450,000  | 3,300,000  |
| Oats . . . . .     | 2,700,000 | 1,800,000  | 4,500,000  |
| Barley . . . . .   | 1,450,000 | 1,450,000  | 2,900,000  |
| Maize, &c. . . . . | 700,000   | 3,100,000  | 3,800,000  |
| Total . . . . .    | 7,900,000 | 11,600,000 | 19,500,000 |

The production of grain compared with population is equal to 13 bushels per inhabitant in Austria, 26 bushels in Hungary. The quantity used for bread in the whole monarchy is about 9 million tons, equal to 8 bushels per head, one half of the population subsisting on wheat, the other half on rye, maize, &c. The consumption of potatoes is equal to 16 bushels per head in Austria, 8 bushels in Hungary. The production of meat is as follows :—

|                  | Tons    |         |           |
|------------------|---------|---------|-----------|
|                  | Austria | Hungary | Total     |
| Beef . . . . .   | 430,000 | 280,000 | 710,000   |
| Mutton . . . . . | 30,000  | 110,000 | 140,000   |
| Pork . . . . .   | 140,000 | 220,000 | 360,000   |
| Total . . . . .  | 600,000 | 610,000 | 1,210,000 |

More than half of the sugar produced is exported, viz. :—

|                          | 1886    | 1886    |
|--------------------------|---------|---------|
| Production, tons . . . . | 430,000 | 830,000 |
| Consumption, " . . . .   | 190,000 | 320,000 |
| Exported, " . . . .      | 240,000 | 510,000 |

Consumption averages 17 lbs. sugar per inhabitant, against 11 lbs. in 1886. On the other hand coffee is declining, due to the rise in price, viz. :—

| Year           | Tons   | Value, £  | Oz. per Inhab. |
|----------------|--------|-----------|----------------|
| 1885 . . . . . | 37,000 | 2,200,000 | 32             |
| 1895 . . . . . | 38,000 | 3,100,000 | 30             |

The value of food imported is 6 millions sterling, of exported 20 millions, leaving a surplus of food exports worth 14 millions. Among the chief exports are eggs.

| Year           | Millions | Value, £  |
|----------------|----------|-----------|
| 1885 . . . . . | 760      | 730,000   |
| 1890 . . . . . | 1,220    | 1,350,000 |
| 1896 . . . . . | 1,780    | 3,300,000 |

About 140,000 tons of malt, valued at £1,500,000, are exported yearly.

Reducing all to a grain denominator, we find the production as follows :—

|                        | Quantity    | Equivalent in Grain Tons |
|------------------------|-------------|--------------------------|
| Grain, tons . . . .    | 19,500,000  | 19,500,000               |
| Potatoes, " . . . .    | 13,000,000  | 4,300,000                |
| Meat, " . . . .        | 1,210,000   | 9,700,000                |
| Sugar, " . . . .       | 900,000     | 1,800,000                |
| Butter, &c., " . . . . | 170,000     | 1,700,000                |
| Wine, gallons . . . .  | 130,000,000 | 1,300,000                |
| Total . . . . .        |             | 38,300,000               |

This is equivalent to 18 cwt. per inhabitant, or 3 tons for each hand engaged in agriculture, the ratio of the latter being 6 tons in France.

The value of food consumed in Austria-Hungary for human use is approximately as follows :—

|                     |            |                |             |
|---------------------|------------|----------------|-------------|
| Grain . . . . .     | 58,000,000 | Liquor . . . . | 35,000,000  |
| Meat . . . . .      | 45,000,000 | Sugar . . . .  | 4,000,000   |
| Potatoes, &c. . . . | 36,000,000 | Sundries . . . | 15,000,000  |
| Dairy, &c. . . . .  | 47,000,000 | Total . . . .  | 240,000,000 |

This gives an average of 114 shillings yearly per inhabitant, against 166 in France and 148 in Germany.

#### ITALY

Although 60 per cent. of the population are engaged in agriculture, the production of food falls very much short. Reducing all to a grain denominator, we find :—

|                        | Quantity    | Equivalent in Tons Grain |
|------------------------|-------------|--------------------------|
| Grain, tons . . . .    | 5,800,000   | 5,800,000                |
| Rice, " . . . .        | 480,000     | 650,000                  |
| Potatoes, " . . . .    | 700,000     | 230,000                  |
| Meat, " . . . .        | 390,000     | 3,120,000                |
| Butter, &c., " . . . . | 145,000     | 1,450,000                |
| Chestnuts, " . . . .   | 200,000     | 200,000                  |
| Fish, " . . . .        | 100,000     | 200,000                  |
| Oil, gallons . . . .   | 50,000,000  | 500,000                  |
| Wine, " . . . .        | 605,000,000 | 6,050,000                |
| Total . . . . .        |             | 18,800,000               |

This gives an average of 12 cwt. per inhabitant, or 2 tons to each hand engaged in farming, the ratio of the latter in France being 6 tons. The ordinary grain crops are as follows :—

| Provinces  | Tons      |           |           |           |
|------------|-----------|-----------|-----------|-----------|
|            | Wheat     | Maize     | Oats, &c. | Total     |
| Northern . | 600,000   | 850,000   | 300,000   | 1,750,000 |
| Middle .   | 1,000,000 | 550,000   | 200,000   | 1,750,000 |
| Southern . | 1,400,000 | 350,000   | 550,000   | 2,300,000 |
| Total .    | 3,000,000 | 1,750,000 | 1,050,000 | 5,800,000 |

Northern Italy comprises Venice, Lombardy, and Piedmont; Southern includes Naples and Sicily; all the rest is grouped under the Middle provinces. Deducting grain used for seed and cattle, the annual consumption averages 4,500,000 tons home-grown and 700,000 imported, to which adding rice the total will reach 5,700,000 tons, equal to 7 bushels per inhabitant.

Italy is so very poor as regards live stock that the supply of meat is the lowest in Europe, and yet the poverty of the people compels them to export some, viz. :—

|                | Tons    |        |             |
|----------------|---------|--------|-------------|
|                | Supply  | Export | Consumption |
| Beef . . . .   | 250,000 | 20,000 | 230,000     |
| Mutton . . . . | 70,000  | 2,000  | 68,000      |
| Pork . . . .   | 70,000  | 3,000  | 67,000      |
| Total . .      | 390,000 | 25,000 | 365,000     |

A portion of what is exported is in the form of live animals. The consumption of meat is only 27 lbs. per inhabitant. In compensation for meat exported Italy imports 50,000 tons of dried fish. The consumption of wine is about 570 million gallons, which gives an average of 18 gallons per inhabitant, the same as in Spain.

Here, as in some other countries, the rise in the price of coffee has been attended with diminished consumption, viz. :—

| Year            | Tons, Coffee | Price, £ per Ton |
|-----------------|--------------|------------------|
| 1885-87 . . . . | 16,000       | 68               |
| 1893-95 . . . . | 12,000       | 100              |

Ten years ago the consumption of coffee averaged 20 ounces per inhabitant, whereas at present it does not exceed 14 ounces. The imports of sugar have likewise declined very notably, viz. :—

| Year            | Tons    | Lbs. per Inhabitant |
|-----------------|---------|---------------------|
| 1885-87 . . . . | 116,000 | 9                   |
| 1893-95 . . . . | 76,000  | 6                   |

Dairy farming has progressed so favourably that whereas down to 1888 the imports of butter and cheese exceeded the exports, Italy now sends out yearly about 6000 tons more than she imports. In 1895 the output of the dairies was 29,000 tons of butter and 116,000 of cheese, together 145,000 tons, an average of 140 pounds per cow. The

value of food imported and exported may be summed up thus :—

| Imports        | £         | Exports        | £          |
|----------------|-----------|----------------|------------|
| Grain . . . .  | 4,000,000 | Wine . . . .   | 2,100,000  |
| Fish . . . .   | 1,300,000 | Oil . . . .    | 2,000,000  |
| Coffee . . . . | 1,200,000 | Meat . . . .   | 1,400,000  |
| Sugar . . . .  | 900,000   | Eggs . . . .   | 1,400,000  |
| Sundries . . . | 600,000   | Fruit . . . .  | 1,900,000  |
|                |           | Sundries . . . | 1,800,000  |
| Total . .      | 8,000,000 | Total . .      | 10,600,000 |

The above shows that although Italy does not produce enough food for her population she is still an exporter rather than an importer.

Exports of fruit have increased 50 per cent. in ten years, viz. :—

| Year            | Tons    | Value, £  | £ per Ton |
|-----------------|---------|-----------|-----------|
| 1885-86 . . . . | 141,000 | 1,600,000 | 11.3      |
| 1894-95 . . . . | 228,000 | 1,900,000 | 8.3       |

The fall in price has indirectly stimulated production, by extending the markets and increasing the demand in foreign countries for Italian fruit. Eggs are nearly stationary, exports showing as follows :—

| Year            | Millions | Value, £  | Pence per Doz |
|-----------------|----------|-----------|---------------|
| 1885-87 . . . . | 480      | 1,200,000 | 6.2           |
| 1893-95 . . . . | 520      | 1,360,000 | 6.5           |

The value of food consumed yearly is approximately as follows :—

|                 | £          |                | £           |
|-----------------|------------|----------------|-------------|
| Grain . . . .   | 45,000,000 | Fruit, &c. . . | 13,000,000  |
| Meat . . . .    | 18,000,000 | Dairy, &c. . . | 28,000,000  |
| Wine . . . .    | 35,000,000 | Sundries . . . | 8,000,000   |
| Fish, &c. . . . | 6,000,000  | Total . . . .  | 153,000,000 |

This is an average of only 99 shillings per inhabitant, which is even lower than in Ireland.

#### SPAIN

Putting aside the unreliable official statements, the production and consumption of grain, meat, wine, &c., appear to be approximately as follows :—

|                   | Production | Consumption |
|-------------------|------------|-------------|
| Grain, tons . . . | 5,800,000  | 6,100,000   |
| Meat, " . . . .   | 430,000    | 430,000     |
| Potatoes, " . . . | 1,500,000  | 1,500,000   |
| Fish, " . . . .   | 50,000     | 100,000     |
| Wine, gallons . . | 420,000    | 310,000,000 |

Deducting what is used for seed and cattle, the consumption of grain by the inhabitants is about 3,600,000 tons, one-tenth imported, the average consumption being 8 bushels per head. Before the year 1880 there was always a surplus of grain for exportation,\* and it is worthy of note that Neumann Spallart's estimate in 1876 of the grain crops was 60 per cent. higher than Jurasscheck's in 1893. The following table compares what

\* Note.—In fifteen years, down to 1878, Spain exported 1,350,000 tons of wheat, being an average of 90,000 tons per annum.

may be considered the actual production with Spallart's estimate in 1876 :—

|                     | 1876      | 1897      |
|---------------------|-----------|-----------|
| Wheat, tons . . .   | 4,000,000 | 2,200,000 |
| Barley, " . . .     | 1,900,000 | 1,500,000 |
| Maize, &c., " . . . | 2,000,000 | 2,100,000 |
| Total . . .         | 8,100,000 | 5,800,000 |

Jurascheck's estimate (1893) is no higher than 5 million tons, but is perhaps too low.

Reducing all food to a grain denominator, the production is approximately as follows :—

|                         | Quantity    | Equivalent in Grain Tons |
|-------------------------|-------------|--------------------------|
| Grain, tons . . .       | 5,800,000   | 5,800,000                |
| Potatoes, " . . .       | 1,500,000   | 500,000                  |
| Meat, " . . .           | 430,000     | 3,400,000                |
| Fish, " . . .           | 50,000      | 100,000                  |
| Butter and ch., " . . . | 40,000      | 400,000                  |
| Wine, gallons . . .     | 420,000,000 | 4,200,000                |
| Total . . .             |             | 14,400,000               |

The importation of wheat has almost doubled in ten years, viz. :—

|               | Tons Yearly | Lbs. per Inhab. |
|---------------|-------------|-----------------|
| 1885-86 . . . | 130,000     | 16              |
| 1890-91 . . . | 160,000     | 19              |
| 1893-96 . . . | 300,000     | 36              |

Two-thirds of the population subsist on wheat, the remainder on maize, rye, &c. The decline in the production of grain has been perhaps partly due to civil wars, but still more to the fact that Spanish peasants find it more profitable to devote their attention to fruit than to cereals.

Exports of fruit show thus :—

|               | Tons Yearly | Value, £  | £ per Ton |
|---------------|-------------|-----------|-----------|
| 1885-86 . . . | 136,000     | 1,950,000 | 14.4      |
| 1890-91 . . . | 160,000     | 2,350,000 | 14.7      |
| 1894-96 . . . | 280,000     | 3,200,000 | 11.7      |

Fall of price has greatly stimulated production, by increased demand, the same as observed in Italy in the above period. At the same time there has been a decline in exports of wine, viz. :—

|               | Gallons Yearly | Value, £   | Pence per Gallon |
|---------------|----------------|------------|------------------|
| 1885-86 . . . | 160,000,000    | 13,000,000 | 20               |
| 1890-91 . . . | 230,000,000    | 12,800,000 | 13               |
| 1894-96 . . . | 120,000,000    | 4,700,000  | 9                |

In this case the fall of price (55 per cent.) has been tremendous, without any extension of markets or increase of demand. Hence vineyards are neglected, and the vintage, which had risen a few years ago to more than 600 million gallons, has now fallen to 420 millions. Home consumption is 310 millions, being an average of 18 gallons per inhabitant.

Imports and exports of food may be summed up thus :—

| Imports        | £         | Exports        | £         |
|----------------|-----------|----------------|-----------|
| Wheat . . .    | 2,400,000 | Wine . . .     | 4,100,000 |
| Fish . . .     | 1,100,000 | Fruit . . .    | 3,100,000 |
| Sugar . . .    | 800,000   | Oil . . .      | 600,000   |
| Sundries . . . | 1,200,000 | Sundries . . . | 400,000   |
| Total . . .    | 5,500,000 | Total . . .    | 8,200,000 |

The value of food consumed for human use is approximately as follows :—

|               | £          |                | £           |
|---------------|------------|----------------|-------------|
| Grain . . .   | 27,000,000 | Fruit, &c. . . | 8,000,000   |
| Meat . . .    | 20,000,000 | Dairy, &c. . . | 17,000,000  |
| Wine . . .    | 25,000,000 | Sundries . . . | 5,000,000   |
| Fish, &c. . . | 5,000,000  | Total . . .    | 107,000,000 |

This gives an average of 120 shillings per inhabitant, as compared with 99 in Italy and 166 in France.

As regards colonial articles of food imports have not much varied, except sugar, viz. :—

|               | Tons Yearly |       |        |        |
|---------------|-------------|-------|--------|--------|
|               | Coffee      | Cocoa | Sugar  | Fish   |
| 1885-86 . . . | 5,100       | 7,000 | 55,000 | 46,000 |
| 1890-91 . . . | 5,600       | 6,300 | 63,000 | 45,000 |
| 1894-95 . . . | 5,500       | 6,600 | 45,000 | 45,000 |

The value of all imports and exports of food at various dates is shown thus :—

|               | Yearly Average |            |                    |
|---------------|----------------|------------|--------------------|
|               | Imports, £     | Exports, £ | Surplus Exports, £ |
| 1885-86 . . . | 4,200,000      | 16,500,000 | 12,300,000         |
| 1890-91 . . . | 5,200,000      | 16,200,000 | 11,000,000         |
| 1894-95 . . . | 5,500,000      | 8,200,000  | 2,700,000          |
| Average . . . | 5,000,000      | 13,600,000 | 8,600,000          |

#### PORTUGAL

This kingdom, which is a little larger than Ireland, is for the most part fertile, and yet unable to produce enough food for its scanty population, having only 142 souls to the square mile. This miserable state of things is due to the nobles, who possess vast estates uncultivated, compelling the peasants to emigrate to Brazil. The production of food is declining, viz. :—

|                     | 1876        | 1896       |
|---------------------|-------------|------------|
| Grain, tons . . .   | 930,000     | 750,000    |
| Wine, gallons . . . | 110,000,000 | 70,000,000 |

The grain crop comprises 350,000 tons of maize, 200,000 of wheat, and 200,000 of rye, barley, &c. Deducting what is used for seed and cattle, the consumption of grain is about 700,000 tons, or 7 bushels per inhabitant. Only 40 per cent. of the population subsist on wheat, the rest on maize and other grain. Small as is the consumption of wheat, no less than one-third of it is imported, the native crop being hardly equal to the requirements of eight months in the year. The items of imported food are :—

|               | Tons Yearly |        |        |        |
|---------------|-------------|--------|--------|--------|
|               | Grain       | Coffee | Sugar  | Fish   |
| 1885-88 . . . | 140,000     | 2,500  | 24,000 | 22,000 |
| 1892-95 . . . | 140,000     | 2,000  | 25,000 | 22,000 |

Exports of food show as follows :—

|                 | Annual Averages |            |           |           |
|-----------------|-----------------|------------|-----------|-----------|
|                 | Quantity        |            | Value, £  |           |
|                 | 1885-87         | 1893-96    | 1885-87   | 1893-96   |
| Wine, galls.    | 37,000,000      | 15,000,000 | 3,100,000 | 2,400,000 |
| Fruit, tons     | 27,000          | 30,000     | 200,000   | 230,000   |
| Sardines, ..    | 14,000          | 19,000     | 200,000   | 270,000   |
| Sundries. .     | ...             | ...        | 100,000   | 100,000   |
| Total . . . . . |                 |            | 3,500,000 | 3,000,000 |

Home consumption of wine averages 55 million gallons, or 12 gallons per inhabitant, as compared with 18 gallons in Italy and in Spain. The total production of food, reduced to a grain denominator, is as follows :—

|                         | Quantity   | Equivalent in Grain Tons |
|-------------------------|------------|--------------------------|
| Grain, tons .           | 750,000    | 750,000                  |
| Potatoes, ..            | 300,000    | 100,000                  |
| Meat, ..                | 100,000    | 800,000                  |
| Fish, ..                | 40,000     | 100,000                  |
| Butter and cheese, tons | 10,000     | 100,000                  |
| Wine, gallons .         | 70,000,000 | 700,000                  |
| Total . . . . .         |            | 2,550,000                |

This is only 11 cwt. per inhabitant, a very low average for a nation essentially agricultural: the average in Spain is 16 cwt.

#### SWEDEN AND NORWAY

These kingdoms do not raise sufficient grain for their requirements. It is true that Sweden had a large surplus down to 1882, exporting usually 300,000 tons, but at present she has a yearly deficit of 200,000 tons, covered by importation. Norway has always been short of grain. The position stands thus :—

|                       | Sweden    | Norway  | Total     |
|-----------------------|-----------|---------|-----------|
| Production, tons. . . | 2,750,000 | 450,000 | 3,200,000 |
| Imports, .. .         | 200,000   | 370,000 | 570,000   |

Deducting what is used for seed and cattle, the consumption in the two kingdoms is about 2 million tons, or 11 bushels per inhabitant, including what is used for making liquor. The grain used for bread is approximately as follows :—

|                     | Tons      | Lbs. per Inhabitant |
|---------------------|-----------|---------------------|
| Wheat . . . . .     | 300,000   | 96                  |
| Rye, &c., . . . . . | 1,200,000 | 384                 |
| Total . . . . .     | 1,500,000 | 480                 |

It appears that only one-fifth of the population subsist on wheat, the rest mostly on rye: two-thirds of the wheat is imported, and one-third of the rye. Net imports of grain have averaged as follows, yearly :—

| Years       | Tons    |         |         | Value, £ Sterling |
|-------------|---------|---------|---------|-------------------|
|             | Sweden  | Norway  | Total   |                   |
| 1885-87 . . | 10,000  | 250,000 | 260,000 | 1,600,000         |
| 1890-92 . . | 100,000 | 280,000 | 380,000 | 3,100,000         |
| 1894-96 . . | 200,000 | 370,000 | 570,000 | 2,900,000         |

The production of meat is as follows :—

|                 | Sweden  | Norway | Total   |
|-----------------|---------|--------|---------|
| Beef, tons . .  | 120,000 | 50,000 | 170,000 |
| Mutton, .. .    | 15,000  | 15,000 | 30,000  |
| Pork, .. .      | 25,000  | 5,000  | 30,000  |
| Total . . . . . | 160,000 | 70,000 | 230,000 |

Sweden exports live cattle equivalent to 6000 tons of meat yearly, but imports a corresponding quantity of pork: the consumption of meat therefore averages 74 lbs. per inhabitant, and the same in Norway. There is a slight deficit of butter in the latter country, which imports yearly about 18 oz. per inhabitant, but Sweden has a surplus, exporting 25,000 tons, which is equal to 11 lbs. per inhabitant. Taking the two kingdoms collectively, the net imports and exports of food show as follows :—

| Imports      | £         | Exports    | £         |
|--------------|-----------|------------|-----------|
| Grain . . .  | 2,900,000 | Fish . . . | 3,300,000 |
| Coffee . . . | 2,300,000 | Butter . . | 2,300,000 |
| Wine, &c. .  | 800,000   | Sundries . | 400,000   |
| Total . . .  | 6,000,000 | Total . .  | 6,000,000 |

Exports of fish have increased prodigiously. Ten years ago Sweden imported more than she exported, whereas now her net exports of fish average from 80,000 to 90,000 tons yearly. Net exports of both countries show :—

|            | Tons Fish Yearly |         | Value, £  |           |
|------------|------------------|---------|-----------|-----------|
|            | 1885-87          | 1894-96 | 1885-87   | 1894-96   |
| Sweden . . | ...              | 80,000  | ...       | 1,100,000 |
| Norway . . | 140,000          | 160,000 | 1,800,000 | 2,100,000 |
| Total . .  | 140,000          | 240,000 | 1,800,000 | 3,200,000 |

Exports of Swedish butter have exactly doubled since 1886.

Reducing all kinds of food to grain equivalent, the production is approximately :—

| Tons          | Quantity  |           |           | Equiv. in Grain Tons |
|---------------|-----------|-----------|-----------|----------------------|
|               | Sweden    | Norway    | Total     |                      |
| Grain . . .   | 2,750,000 | 450,000   | 3,200,000 | 3,200,000            |
| Potatoes . .  | 1,500,000 | 600,000   | 2,100,000 | 700,000              |
| Meat . . .    | 160,000   | 70,000    | 230,000   | 1,840,000            |
| Butter, &c. . | 60,000    | 20,000    | 80,000    | 800,000              |
| Fish . . .    | 200,000   | 260,000   | 460,000   | 920,000              |
| Total . .     | 4,670,000 | 1,400,000 | 6,070,000 | 7,460,000            |

This gives an average of more than one ton (22 cwt.) per inhabitant, being one of the highest ratios of food production in Europe, notwithstanding the disadvantages of climate and soil under which these northern kingdoms labour. The value of food consumed is approximately :—

|                  | Sweden, £  | Norway, £  | Total      |
|------------------|------------|------------|------------|
| Grain . . . . .  | 10,000,000 | 3,000,000  | 13,000,000 |
| Meat . . . . .   | 8,000,000  | 3,000,000  | 11,000,000 |
| Dairy . . . . .  | 5,000,000  | 2,000,000  | 7,000,000  |
| Sundries . . . . | 7,000,000  | 3,000,000  | 10,000,000 |
| Total . . . . .  | 30,000,000 | 11,000,000 | 41,000,000 |

This gives an average of £6 per inhabitant in Sweden, 110 shillings in Norway, and 116 shillings for the two kingdoms collectively.

## DENMARK

There is no country in Europe that produces so much food as Denmark in reference to population or to area. Reducing all to a grain denominator, we find :—

|                                | Quantity  | Equivalent in Grain Tons |
|--------------------------------|-----------|--------------------------|
| Grain, tons . . . . .          | 2,300,000 | 2,300,000                |
| Potatoes, " . . . . .          | 450,000   | 150,000                  |
| Meat, " . . . . .              | 130,000   | 1,040,000                |
| Butter and cheese, " . . . . . | 60,000    | 600,000                  |
| Fish " . . . . .               | 50,000    | 100,000                  |
| Total . . . . .                |           | 4,190,000                |

This is equal to 2 tons per inhabitant, or 10 per cent. more than the ratio in the United States, and more than double the general European ratio. Down to 1884 Denmark used to export about 200,000 tons of grain, but so large is now the consumption in the fattening of cattle that there is a constant importation of grain, net imports showing :—

|                  | Tons    |         |         |         |
|------------------|---------|---------|---------|---------|
|                  | 1893    | 1894    | 1895    | 1896    |
| Wheat . . . . .  | 32,000  | 56,000  | 64,000  | 48,000  |
| Rye . . . . .    | 49,000  | 115,000 | 140,000 | 96,000  |
| Barley . . . . . | 8,000   | 15,000  | 160,000 | 6,000   |
| Maize . . . . .  | 84,000  | 60,000  | 50,000  | 220,000 |
| Oats . . . . .   | 17,000  | 19,000  | 26,000  | 25,000  |
| Total . . . . .  | 190,000 | 405,000 | 440,000 | 395,000 |

Deducting what is used for seed, the consumption of grain is as follows :—

|                        | Home-grown | Imported | Total     |
|------------------------|------------|----------|-----------|
| Wheat, tons . . . . .  | 100,000    | 50,000   | 150,000   |
| Rye, " . . . . .       | 400,000    | 100,000  | 500,000   |
| Barley, " . . . . .    | 500,000    | 50,000   | 550,000   |
| Oats, &c., " . . . . . | 1,050,000  | 150,000  | 1,200,000 |
| Total . . . . .        | 2,050,000  | 350,000  | 2,400,000 |

About one-fourth of the population subsists on wheat, the rest on rye. The value of imported grain is two millions sterling.

Exports of a pastoral character are shown thus :—

| Years             | Tons Yearly |        | Millions of Eggs | Total Value, £ |
|-------------------|-------------|--------|------------------|----------------|
|                   | Meat        | Butter |                  |                |
| 1886-88 . . . . . | 50,000      | 20,000 | 102              | 4,500,000      |
| 1890-92 . . . . . | 70,000      | 35,000 | 145              | 7,100,000      |
| 1894-96 . . . . . | 80,000      | 40,000 | 166              | 7,900,000      |

Home consumption averages 65 lbs. of meat and 20 lbs. of butter and cheese per inhabitant.

Imports of colonial merchandise are as follows :—

| Years             | Sugar, Tons | Coffee, Tons |
|-------------------|-------------|--------------|
| 1886-88 . . . . . | 15,000      | 5,000        |
| 1894-96 . . . . . | 20,000      | 9,000        |

This gives an average yearly consumption of 20 lbs. of sugar and 9 lbs. of coffee per inhabitant.

The value of food consumed for human use is approximately :—

|                    |             |                     |             |
|--------------------|-------------|---------------------|-------------|
| Grain . . . . .    | £ 5,500,000 | Coffee, &c. . . . . | £ 1,500,000 |
| Meat . . . . .     | 3,000,000   | Liquor, &c. . . . . | 3,500,000   |
| Dairy, &c. . . . . | 2,500,000   | Total . . . . .     | 16,000,000  |

This gives an average of 144 shillings per inhabitant, against 120 in Sweden.

## HOLLAND

Although Holland surpasses Denmark in productive area and has twice the population, the production of food, reduced to a grain denominator, is equal in the two countries. The ordinary production in Holland is :—

|                             | Tons      | Equivalent in Grain Tons |
|-----------------------------|-----------|--------------------------|
| Grain . . . . .             | 1,000,000 | 1,000,000                |
| Potatoes . . . . .          | 2,100,000 | 700,000                  |
| Meat . . . . .              | 130,000   | 1,040,000                |
| Butter and cheese . . . . . | 120,000   | 1,200,000                |
| Sugar . . . . .             | 200,000   | 400,000                  |
| Fish . . . . .              | 120,000   | 240,000                  |
| Total . . . . .             |           | 4,580,000                |

This gives an average of 1 ton per inhabitant, against 2 tons in Denmark.

The consumption of grain, after deducting for seed and exportation, averages as follows :—

|                        | Home-grown | Imported  | Total     |
|------------------------|------------|-----------|-----------|
| Wheat, tons . . . . .  | 120,000    | 430,000   | 550,000   |
| Rye, " . . . . .       | 230,000    | 220,000   | 450,000   |
| Barley, " . . . . .    | 100,000    | 350,000   | 450,000   |
| Oats, &c., " . . . . . | 250,000    | ...       | 250,000   |
| Total . . . . .        | 700,000    | 1,000,000 | 1,700,000 |

There is an ordinary exportation of 200,000 tons of oats, and if this be taken into account it may be said that Holland consumes 900,000 tons of native, and 800,000 of imported, grain. Rather more than half the population subsists on wheat, the rest on rye. The net value of grain imports was as follows :—

| Year           | Wheat, £  | Rye, &c., £ | Total, £   |
|----------------|-----------|-------------|------------|
| 1893 . . . . . | 5,400,000 | 4,600,000   | 10,000,000 |
| 1894 . . . . . | 6,700,000 | 5,800,000   | 12,500,000 |
| 1895 . . . . . | 6,500,000 | 5,200,000   | 11,700,000 |
| 1896 . . . . . | 7,000,000 | 6,200,000   | 13,200,000 |

As regards colonial products, the net annual imports show as follows :—

| Years             | Tons   |           |        |       |
|-------------------|--------|-----------|--------|-------|
|                   | Rice   | Margarine | Coffee | Tea   |
| 1885-87 . . . . . | 75,000 | ...       | 27,000 | 2,300 |
| 1893-96 . . . . . | 90,000 | 30,000    | 36,000 | 2,900 |

At present, consumption averages 40 lbs. rice, 15 lbs. coffee, and 21 oz. tea per inhabitant.

Exports of food show as follows :—

| Years             | Tons Yearly |         |        |            |
|-------------------|-------------|---------|--------|------------|
|                   | Meat        | Butter  | Fish   | Vegetables |
| 1885-87 . . . . . | 25,000      | 103,000 | 70,000 | 68,000     |
| 1893-96 . . . . . | 20,000      | 98,000  | 90,000 | 83,000     |

In the above table, Butter includes also cheese and margarine. The rapid increase of population in Holland checks the exportation of meat and of dairy products. Home consumption averages 55 lbs. meat, 15 lbs. butter and cheese, 25 lbs. fish. The value of food imports and exports is as follows:—

| Imports      | £          | Exports       | £          |
|--------------|------------|---------------|------------|
| Grain . . .  | 12,000,000 | Butter, &c. . | 5,300,000  |
| Rice . . .   | 2,200,000  | Vegetables .  | 2,200,000  |
| Coffee . . . | 2,200,000  | Fish . . .    | 1,500,000  |
| Tea, &c. .   | 1,600,000  | Meat, &c. .   | 1,000,000  |
| Total . . .  | 18,000,000 | Total . . .   | 10,000,000 |

Holland is debtor to foreign countries for food to the amount of 8 millions sterling, say 36 shillings per inhabitant, against 73 shillings in the United Kingdom and 18 in Germany. The value of food consumed for human use is approximately:—

|              |              |                |             |
|--------------|--------------|----------------|-------------|
| Grain . . .  | £ 11,500,000 | Sundries . . . | £ 2,500,000 |
| Meat . . .   | 5,500,000    | Rice, &c. .    | 6,000,000   |
| Dairy . . .  | 6,000,000    | Potatoes . .   | 2,500,000   |
| Liquor . . . | 4,000,000    | Total . . .    | 38,000,000  |

This gives an average of 160 shillings per inhabitant, as compared with 148 in Germany.

#### BELGIUM

The production and consumption of the principal articles of food are:—

|                        | Production | Consumption |
|------------------------|------------|-------------|
| Grain, tons .          | 1,800,000  | 3,200,000   |
| Meat, " .              | 110,000    | 140,000     |
| Butter and cheese, " . | 60,000     | 70,000      |

The population is so dense that there is a deficit in the above items. Deducting what is used for seed, the consumption is approximately as follows:—

|               | Home-grown | Imported  | Total     |
|---------------|------------|-----------|-----------|
| Wheat, tons . | 400,000    | 400,000   | 800,000   |
| Rye, &c., " . | 1,200,000  | 1,000,000 | 2,200,000 |
| Total . . .   | 1,600,000  | 1,400,000 | 3,000,000 |

About one-half of the grain is used in breweries and by cattle, the remainder giving an average of 9 bushels per inhabitant. Belgium may be said to depend on imported grain for six months in the year, and on foreign meat and butter for two months. The net value of imported food is shown thus:—

|              | £ Sterling |            |            |
|--------------|------------|------------|------------|
|              | 1894       | 1895       | 1896       |
| Grain . . .  | 7,600,000  | 8,100,000  | 9,000,000  |
| Meat . . .   | 1,000,000  | 800,000    | 1,000,000  |
| Butter . . . | 600,000    | 400,000    | 300,000    |
| Fish . . .   | 900,000    | 900,000    | 900,000    |
| Coffee . . . | 2,200,000  | 2,200,000  | 2,100,000  |
| Wine . . .   | 1,100,000  | 1,300,000  | 1,200,000  |
| Total . . .  | 13,400,000 | 13,700,000 | 14,500,000 |

The people of Belgium pay 42 shillings per head for imported food, against which there is a set-off of 2 millions sterling yearly for exports of sugar, which brings down the net cost of imported food to 12½ millions sterling,

or 40 shillings per inhabitant. The production of beet-sugar has doubled in ten years, and now reaches 240,000 tons, of which 180,000 are exported, the balance sufficing to give each inhabitant 25 lbs. per annum. Reducing all food to a grain denominator, the production is as follows:—

|              | Tons      | Equivalent in Tons Grain |
|--------------|-----------|--------------------------|
| Grain . . .  | 1,800,000 | 1,800,000                |
| Potatoes . . | 3,600,000 | 1,200,000                |
| Meat . . .   | 110,000   | 900,000                  |
| Butter . . . | 60,000    | 600,000                  |
| Sugar . . .  | 240,000   | 500,000                  |
| Total . . .  |           | 5,000,000                |

This is no more than 16 cwt. per inhabitant, which is not surprising, as the agricultural population is only one-fourth of the total. The value of food consumed for human use is approximately as follows:—

|              |              |               |             |
|--------------|--------------|---------------|-------------|
| Grain . . .  | £ 14,000,000 | Coffee, &c. . | £ 5,000,000 |
| Meat . . .   | 7,000,000    | Potatoes . .  | 7,000,000   |
| Liquor . . . | 9,000,000    | Sundries . .  | 2,000,000   |
| Dairy, &c. . | 8,000,000    | Total . . .   | 52,000,000  |

This gives an average of 160 shillings per inhabitant, the same as in France and Holland.

#### SWITZERLAND

The productive area is so small that Switzerland subsists on imported grain during eight months, imported meat four months, of the year. Deducting what is used for seed, the consumption of grain is as follows:—

|               | Home-grown | Imported | Total   |
|---------------|------------|----------|---------|
| Wheat, tons . | 50,000     | 390,000  | 440,000 |
| Oats, " .     | 60,000     | 70,000   | 130,000 |
| Barley, " .   | 50,000     | 20,000   | 70,000  |
| Rye, &c., " . | 60,000     | 30,000   | 90,000  |
| Total . . .   | 220,000    | 510,000  | 730,000 |

The amount used for human food is about 600,000 tons, equal to 8 bushels per inhabitant. Reducing all kinds of food to a grain equivalent, the production is as follows:—

|                        | Quantity   | Equivalent in Grain Tons |
|------------------------|------------|--------------------------|
| Grain, tons .          | 250,000    | 250,000                  |
| Potatoes, " .          | 1,200,000  | 400,000                  |
| Meat, " .              | 80,000     | 640,000                  |
| Butter and cheese, " . | 70,000     | 700,000                  |
| Wine, gallons .        | 30,000,000 | 300,000                  |
| Total . . .            |            | 2,290,000                |

This is only 14 cwt. per inhabitant. The principal articles of imported food show as follows:—

|              | Quantity Yearly |            | Value, £  |           |
|--------------|-----------------|------------|-----------|-----------|
|              | 1886-88         | 1892-96    | 1886-88   | 1892-96   |
| Grain, tons  | 370,000         | 540,000    | 3,400,000 | 3,700,000 |
| Meat, " .    | 25,000          | 30,000     | 1,000,000 | 1,400,000 |
| Sugar, " .   | 35,000          | 50,000     | 600,000   | 700,000   |
| Coffee, " .  | 8,000           | 9,000      | 600,000   | 700,000   |
| Wine, galls. | 15,000,000      | 20,000,000 | 1,000,000 | 1,100,000 |
| Sundries .   | ...             | ...        | 800,000   | 1,100,000 |
| Total . . .  |                 |            | 7,400,000 | 8,700,000 |

The average consumption per inhabitant is: meat, 75 lbs.; sugar, 35 lbs.; butter and cheese, 20 lbs.; coffee, 6 lbs.; wine, 13 gallons. There is a deficit of poultry, the importation of eggs averaging 120 millions yearly, or 40 per inhabitant. Exports of food are limited to cheese and condensed milk, viz. :—

|              | Tons Yearly |         | Value, £  |           |
|--------------|-------------|---------|-----------|-----------|
|              | 1886-88     | 1893-96 | 1886-88   | 1893-96   |
| Cheese . . . | 27,000      | 22,000  | 1,500,000 | 1,500,000 |
| Milk . . .   | 13,000      | 18,000  | 500,000   | 700,000   |
| Total . . .  | 40,000      | 40,000  | 2,000,000 | 2,200,000 |

The net sum paid yearly for imported food, therefore, is £6,500,000, equal to 42 shillings per inhabitant, against 18 shillings in Germany and 40 in Belgium. The value of food consumed yearly is approximately as follows :—

|                     | £ Sterling |           |            |
|---------------------|------------|-----------|------------|
|                     | Home-grown | Imported  | Total      |
| Grain . . .         | 1,200,000  | 3,700,000 | 4,900,000  |
| Meat . . .          | 4,000,000  | 1,400,000 | 5,400,000  |
| Wine . . .          | 1,000,000  | 1,100,000 | 2,100,000  |
| Dairy produce . . . | 4,000,000  | ...       | 4,000,000  |
| Sundries . . .      | 2,400,000  | 2,500,000 | 4,900,000  |
| Total . . .         | 12,600,000 | 8,700,000 | 21,300,000 |

This gives an average of 140 shillings per inhabitant, against 160 in France.

#### THE DANUBIAN STATES

These countries produce food much in excess of their requirements, and have always a considerable surplus for exportation. The production of grain, meat, and wine is approximately as follows :—

|                | Grain, Tons | Meat, Tons | Wine, Gallons |
|----------------|-------------|------------|---------------|
| Roumania . . . | 4,200,000   | 200,000    | 100,000,000   |
| Servia . . .   | 900,000     | 100,000    | 35,000,000    |
| Bulgaria . . . | 1,800,000   | 100,000    | 35,000,000    |
| Total . . .    | 6,900,000   | 400,000    | 170,000,000   |

Wheat constitutes 40 per cent. of the total grain crop, maize 40 per cent., the remainder being made up of barley, rye, &c. The ordinary consumption and export are shown thus :—

|                | Tons      |             |           |
|----------------|-----------|-------------|-----------|
|                | Crop      | Consumption | Export    |
| Wheat . . .    | 2,500,000 | 1,300,000   | 1,200,000 |
| Maize . . .    | 2,500,000 | 1,700,000   | 800,000   |
| Barley . . .   | 1,200,000 | 800,000     | 400,000   |
| Rye, &c. . .   | 700,000   | 500,000     | 200,000   |
| Total . . .    | 6,900,000 | 4,300,000   | 2,600,000 |
| Roumania . . . | 4,200,000 | 2,200,000   | 2,000,000 |
| Bulgaria . . . | 1,800,000 | 1,200,000   | 600,000   |
| Servia . . .   | 900,000   | 900,000     | ...       |
| Total . . .    | 6,900,000 | 4,300,000   | 2,600,000 |

Deducting what is used for seed and cattle, the consumption of grain is about 3 million tons, or 10 bushels per inhabitant. The average consumption of wine is 12

gallons per inhabitant, the surplus for exportation seldom reaching 25 million gallons. The production of meat may be stated thus: beef, 170,000; mutton, 150,000; pork, 80,000; total, 400,000 tons. Consumption averages 75 lbs. per inhabitant, leaving a small surplus for exportation, in the form of live cattle. Items of food imported average yearly as follows :—

|                          |           | Value, £  |
|--------------------------|-----------|-----------|
| Coffee, tons . . .       | 3,200     | 280,000   |
| Sugar, „ . . .           | 32,000    | 480,000   |
| Olive oil, gallons . . . | 1,400,000 | 300,000   |
| Total . . .              |           | 1,000,000 |

On the other hand the value of exported food is very great, viz. :—

|             | 1893       | 1894       | 1896       |
|-------------|------------|------------|------------|
|             | £          | £          | £          |
| Grain . . . | 15,400,000 | 12,200,000 | 10,000,000 |
| Meat . . .  | 200,000    | 200,000    | 200,000    |
| Total . . . | 15,600,000 | 12,400,000 | 10,200,000 |

The value of food consumed for human use is approximately as follows :—

|                | £ Sterling |            |            |            |
|----------------|------------|------------|------------|------------|
|                | Roumania   | Servia     | Bulgaria   | Total      |
| Grain . . .    | 9,000,000  | 3,500,000  | 5,500,000  | 18,000,000 |
| Meat . . .     | 8,000,000  | 4,000,000  | 4,000,000  | 16,000,000 |
| Wine, &c. . .  | 3,500,000  | 1,000,000  | 1,500,000  | 6,000,000  |
| Dairy . . .    | 3,000,000  | 1,000,000  | 1,500,000  | 5,500,000  |
| Sundries . . . | 4,000,000  | 1,500,000  | 2,000,000  | 7,500,000  |
| Total . . .    | 27,500,000 | 11,000,000 | 14,500,000 | 53,000,000 |

This gives an average of 90 shillings per head, against 114 in Austria.

#### GREECE

Even before the recent war the production of grain hardly sufficed for two-thirds of the population. Deducting what was used for seed, the normal consumption was as follows :—

|                     | Home-grown | Imported | Total   |
|---------------------|------------|----------|---------|
| Wheat, tons . . .   | 150,000    | 100,000  | 250,000 |
| Maize, &c., „ . . . | 250,000    | 100,000  | 350,000 |
| Total . . .         | 400,000    | 200,000  | 600,000 |

The production of meat is close on 60,000 tons, and about 3000 tons are imported yearly, the consumption averaging 64 lbs. per inhabitant.

The ordinary vintage is 36 million gallons, of which quantity one-tenth is exported, home consumption averaging 15 gallons per inhabitant. Reducing all food to a grain denominator, the production is approximately :—

|                     | Quantity   | Equiv. in Grain Tons |
|---------------------|------------|----------------------|
| Grain, tons . . .   | 450,000    | 450,000              |
| Meat, „ . . .       | 60,000     | 480,000              |
| Butter, „ . . .     | 10,000     | 100,000              |
| Fish, „ . . .       | 10,000     | 20,000               |
| Wine, gallons . . . | 36,000,000 | 360,000              |
| Total . . .         |            | 1,410,000            |



This gives an average of only 12 cwt. per inhabitant, being even less than in Switzerland. Imports and exports of food show as follows:—

| Imports        | £         | Exports        | £         |
|----------------|-----------|----------------|-----------|
| Grain . . . .  | 1,100,000 | Currants . . . | 900,000   |
| Fish . . . .   | 200,000   | Wine . . . .   | 200,000   |
| Sundries . . . | 400,000   | Sundries . . . | 400,000   |
| Total . . . .  | 1,700,000 | Total . . . .  | 1,500,000 |

The net sum which Greece has to pay in ordinary years for imported food is, therefore, no more than £200,000, equal to two shillings per inhabitant. The value of food consumed for human use is approximately £11,000,000, equal to £5 per inhabitant.

#### UNITED STATES

This country produces food for more than 100 millions of people, or about 50 per cent. over its population. The normal production of the principal items, reduced to grain equivalent, is as follows:—

|                   | Quantity   | Equiv. in Grain |
|-------------------|------------|-----------------|
| Grain, tons . . . | 74,000,000 | 74,000,000      |
| Potatoes, „ . . . | 6,300,000  | 2,100,000       |
| Meat, „ . . . .   | 4,500,000  | 36,000,000      |
| Sugar, „ . . . .  | 400,000    | 800,000         |
| Butter, &c. „ . . | 610,000    | 6,100,000       |
| Fish, „ . . . .   | 900,000    | 1,800,000       |
| Wine, gallons . . | 25,000,000 | 250,000         |
| Total . . . . .   |            | 121,050,000     |

This is equal to 35 cwt. per inhabitant. The average crops of the last six years, 1892-97, were as follows:—

|                  | Tons       | Value, £    | Shillings per Ton |
|------------------|------------|-------------|-------------------|
| Maize . . . . .  | 41,200,000 | 117,000,000 | 57                |
| Wheat . . . . .  | 12,500,000 | 54,000,000  | 86                |
| Oats . . . . .   | 17,600,000 | 38,000,000  | 43                |
| Rye, &c. . . . . | 2,700,000  | 10,000,000  | 74                |
| Total . . . . .  | 74,000,000 | 219,000,000 | 59                |

About 8 per cent. of the total grain crop is exported, the average of consumption and exports in five years ending December 1896 showing as follows:—

|                   | Tons       |            |           | Value Export. Millions £ |
|-------------------|------------|------------|-----------|--------------------------|
|                   | Produc.    | Consump.   | Export    |                          |
| Wheat . . . . .   | 12,300,000 | 7,800,000  | 4,500,000 | 30.2                     |
| Maize . . . . .   | 43,400,000 | 41,800,000 | 1,600,000 | 6.2                      |
| Oats, &c. . . . . | 20,300,000 | 19,900,000 | 400,000   | 1.6                      |
| Total . . . . .   | 76,000,000 | 69,500,000 | 6,500,000 | 38.0                     |

Production and consumption in the various sections of the Union show thus:—

| States            | Tons       |             | Surplus + Deficit — |
|-------------------|------------|-------------|---------------------|
|                   | Production | Consumption |                     |
| New England . .   | 500,000    | 2,400,000   | — 1,900,000         |
| Middle . . . . .  | 5,500,000  | 8,200,000   | — 2,700,000         |
| South . . . . .   | 15,000,000 | 19,700,000  | — 4,700,000         |
| Prairie . . . . . | 52,000,000 | 31,400,000  | + 20,600,000        |
| Pacific . . . . . | 3,000,000  | 7,800,000   | — 4,800,000         |
| Total . . . . .   | 76,000,000 | 69,500,000  | + 6,500,000         |

Consumption is accounted for approximately as follows:—

| States            | Tons       |               |            |
|-------------------|------------|---------------|------------|
|                   | For People | Cattle & Seed | Total      |
| New England . .   | 1,300,000  | 1,100,000     | 2,400,000  |
| Middle . . . . .  | 4,000,000  | 4,200,000     | 8,200,000  |
| South . . . . .   | 5,000,000  | 14,700,000    | 19,700,000 |
| Prairie . . . . . | 6,500,000  | 24,800,000    | 31,400,000 |
| Pacific . . . . . | 1,100,000  | 6,700,000     | 7,800,000  |
| Total . . . . .   | 18,000,000 | 51,500,000    | 69,500,000 |

The Prairie States have a surplus of about 20 million tons, of which two-thirds go to meet the deficits in the rest of the Union, and one-third is exported.

Potatoes do not enter largely into American diet, the average consumption in the United States being only 3½ bushels per inhabitant, against 7 in the United Kingdom, 13 in France, and 24 in Germany. The crop compares with population as follows:—

| States             | Tons      | Busbels per Inhab. |
|--------------------|-----------|--------------------|
| Eastern . . . . .  | 2,400,000 | 4.5                |
| Southern . . . . . | 400,000   | 1.0                |
| Western . . . . .  | 3,500,000 | 4.7                |
| Union . . . . .    | 6,300,000 | 3.5                |

The annual production of meat at various dates was approximately as follows:—

| Year           | Tons (000 omitted) |        |       |       |
|----------------|--------------------|--------|-------|-------|
|                | Beef               | Mutton | Pork  | Total |
| 1876 . . . . . | 1,340              | 360    | 1,030 | 2,730 |
| 1886 . . . . . | 2,310              | 480    | 1,840 | 4,630 |
| 1890 . . . . . | 2,690              | 440    | 2,060 | 5,190 |
| 1896 . . . . . | 2,410              | 380    | 1,710 | 4,500 |

This gives an average at present of 142 pounds per inhabitant, against 180 pounds in 1886. The production is short in the Eastern States, but the South and West have a large surplus, viz:—

| States           | Tons (000 omitted) |        |       |       |
|------------------|--------------------|--------|-------|-------|
|                  | Beef               | Mutton | Pork  | Total |
| New England . .  | 60                 | 10     | 10    | 80    |
| Middle . . . . . | 170                | 30     | 80    | 280   |
| South . . . . .  | 760                | 80     | 650   | 1,490 |
| West . . . . .   | 1,420              | 260    | 970   | 2,650 |
| Union . . . . .  | 2,410              | 380    | 1,710 | 4,500 |

Consumption and production in the above divisions are approximately thus:—

| States           | Tons       |             |
|------------------|------------|-------------|
|                  | Production | Consumption |
| New England . .  | 80,000     | 280,000     |
| Middle . . . . . | 280,000    | 1,010,000   |
| South . . . . .  | 1,490,000  | 880,000     |
| West . . . . .   | 2,650,000  | 1,780,000 * |
| Total . . . . .  | 4,500,000  | 3,950,000   |

\* Note.—Foremost in the production of food is the State of Iowa, which raises 500 pounds of meat and 5 tons of grain per inhabitant, being nearly five times as much grain and three times as much meat as the average for the whole Union.

There is usually a surplus of 550,000 tons for exportation, of which Great Britain takes 450,000 tons.

The available pasture lands are of sufficient extent (as already shown under *Cattle*, page 634) to carry almost three times the present number of live stock, and the production of meat may hereafter, without difficulty, be raised to the following quantity :—

| States     | Tons      |         |           |            |
|------------|-----------|---------|-----------|------------|
|            | Beef      | Mutton  | Pork      | Total      |
| N. England | 100,000   | 20,000  | 20,000    | 140,000    |
| Middle . . | 230,000   | 40,000  | 100,000   | 370,000    |
| South . .  | 1,250,000 | 140,000 | 1,050,000 | 2,440,000  |
| West . .   | 4,320,000 | 700,000 | 3,030,000 | 8,050,000  |
| Total . .  | 5,900,000 | 900,000 | 4,200,000 | 11,000,000 |

If this should come to pass the Eastern States (New England and Middle States) would have still only one-third of the meat necessary for their own population, while the South and West would have a surplus of 8 million tons over their present consumption.

Dairy-farming is so unevenly distributed that most parts of the Union have a deficit of butter and cheese. The following table shows the actual number of milch cows, and also the proper number required for the population :—

| States          | Milch Cows | Required Number | Surplus + Deficit — |
|-----------------|------------|-----------------|---------------------|
| New England . . | 820,000    | 1,040,000       | — 220,000           |
| Middle . . . .  | 2,880,000  | 3,200,000       | — 320,000           |
| Southern . . .  | 4,000,000  | 4,100,000       | — 100,000           |
| Western . . . . | 8,500,000  | 6,060,000       | + 2,440,000         |
| Total . . . .   | 16,200,000 | 14,400,000      | + 1,800,000         |

According to latest estimates the total output of butter and cheese reaches 610,000 tons yearly, of which 40,000 are exported. Home consumption therefore averages 18 lbs. per inhabitant, as compared with 22 lbs. in the United Kingdom.

The production of butter, honey, and eggs, according to census reports, was :—

| Year         | Butter, Tons | Honey, Tons | Eggs, Millions |
|--------------|--------------|-------------|----------------|
| 1870 . . . . | 230,000      | 7,000       | ...            |
| 1880 . . . . | 345,000      | 12,000      | 5,484          |
| 1890 . . . . | 455,000      | 28,000      | 9,804          |

Poultry increased 130 per cent. in 10 years, viz. : from 126 millions in 1880 to 285 millions in 1890, the average production of eggs being 44 to each bird in the former and 35 in the latter year.

There is a deficit of poultry in some parts of the Union, the following table showing the yearly production of eggs in 1890 compared with population :—

| States           | Millions of Eggs | Eggs per Inhabitant |
|------------------|------------------|---------------------|
| Eastern . . . .  | 2,804            | 148                 |
| Southern . . . . | 2,090            | 114                 |
| Western . . . .  | 4,910            | 195                 |
| Union . . . . .  | 9,804            | 157                 |

In the year of the above census, and for many years preceding, the United States imported annually 180

million eggs; this would bring up the consumption to 160 per inhabitant. On this basis the Eastern States would appear to show a deficit of 220 millions, the South 840 millions, while the Western States had a surplus of 880 millions. In other words, the South and West balanced one another, and all the imported eggs were used in the Eastern States. But in 1891 a duty was imposed on foreign eggs, and since then the importation has rapidly declined, not exceeding 11 million eggs in 1896.

The consumption of sugar is five times greater than the production, as the following table shows :—

| Year         | Tons Consumed |           |           | Lbs. per Inhabitant |
|--------------|---------------|-----------|-----------|---------------------|
|              | Native        | Imported  | Total     |                     |
| 1875 . . . . | 60,000        | 820,000   | 880,000   | 44                  |
| 1885 . . . . | 130,000       | 1,170,000 | 1,300,000 | 52                  |
| 1890 . . . . | 170,000       | 1,310,000 | 1,480,000 | 53                  |
| 1897 . . . . | 330,000       | 1,760,000 | 2,090,000 | 65                  |

The increase of duties on foreign sugar in 1894 was followed by greater production in Louisiana and other States; nevertheless, the quantity imported is double what it was in 1875. Americans consume more sugar per head than any other nation except Great Britain.

United States fisheries stand for almost one-third of all the fish caught in the world, the latest returns showing 880,000 tons yearly. Imports and exports balance, being each about 50,000 tons. Consumption, therefore, averages 28 lbs. per inhabitant, whereas the average in Europe is only 11 lbs., but in the United Kingdom it is 40 lbs.

The consumption of wines and liquors of all descriptions may be set down as follows :—

|                 | Gallons, Millions |          |       | Gals. per Inhab. |
|-----------------|-------------------|----------|-------|------------------|
|                 | Native            | Imported | Total |                  |
| Beer . . . .    | 865               | 5        | 870   | 12.0             |
| Spirits . . . . | 72                | 1        | 73    | 1.0              |
| Wine . . . .    | 25                | 3        | 28    | 0.4              |
| Total . . . .   | 962               | 9        | 971   | 13.4             |

Reducing the above to alcohol, the amount stands thus :—

|                 | Gallons, Millions |            | Gallons per Head |
|-----------------|-------------------|------------|------------------|
|                 | Quantity          | In Alcohol |                  |
| Beer . . . .    | 870               | 44         | 0.6              |
| Spirits . . . . | 73                | 36         | 0.5              |
| Wine . . . .    | 28                | 6          | 0.1              |
| Total . . . .   | 971               | 86         | 1.2              |

The following table shows the consumption per head of various articles :—

|                    | 1870 | 1880 | 1890 | 1896 |
|--------------------|------|------|------|------|
| Wheat, bushels . . | 5.4  | 5.4  | 6.1  | 4.8  |
| Sugar, lbs. . . .  | 33.0 | 43.0 | 53.0 | 63.0 |
| Coffee, „ . . .    | 6.0  | 8.8  | 7.8  | 8.0  |
| Tea, „ . . . .     | 1.1  | 1.4  | 1.3  | 1.3  |
| Beer, gallons . .  | 5.3  | 8.3  | 13.7 | 15.2 |
| Spirits, „ . . .   | 2.1  | 1.3  | 1.4  | 1.0  |
| Wine, „ . . . .    | 0.3  | 0.6  | 0.5  | 0.3  |

The value of exported food is shown as follows :—

|             | £ Sterling Yearly |            |            |            |
|-------------|-------------------|------------|------------|------------|
|             | 1887-90           | 1891-95    | 1896       | 1897       |
| Cattle . .  | 3,800,000         | 6,800,000  | 7,900,000  | 9,000,000  |
| Grain . .   | 29,800,000        | 37,400,000 | 29,400,000 | 41,200,000 |
| Meat . .    | 18,900,000        | 25,000,000 | 24,400,000 | 25,000,000 |
| Butter, &c. | 3,300,000         | 4,000,000  | 3,100,000  | 3,200,000  |
| Sundries .  | 3,800,000         | 4,000,000  | 3,700,000  | 3,600,000  |
| Total . .   | 59,600,000        | 77,200,000 | 68,500,000 | 82,000,000 |

The value of food imports in the same period was as follows :—

|            | £ Sterling Yearly |            |            |            |
|------------|-------------------|------------|------------|------------|
|            | 1887-90           | 1891-95    | 1896       | 1897       |
| Coffee . . | 14,000,000        | 20,400,000 | 17,700,000 | 17,000,000 |
| Sugar . .  | 18,600,000        | 22,500,000 | 18,700,000 | 20,700,000 |
| Fruit . .  | 4,200,000         | 4,500,000  | 4,000,000  | 3,500,000  |
| Tea . .    | 2,900,000         | 2,900,000  | 2,600,000  | 3,100,000  |
| Wines . .  | 2,300,000         | 2,500,000  | 2,300,000  | 2,300,000  |
| Sundries . | 7,300,000         | 6,200,000  | 5,300,000  | 5,400,000  |
| Total . .  | 49,300,000        | 59,000,000 | 50,600,000 | 52,000,000 |

The surplus value of exported food over imported during the last 10 years averaged 16 millions sterling, or less than 5 shillings per inhabitant.

The value of food consumed for human use is approximately as follows :—

|               | £           | £                          |
|---------------|-------------|----------------------------|
| Grain . . .   | 90,000,000  | Dairy and eggs 106,000,000 |
| Meat . . .    | 132,000,000 | Fruit, &c. . . 40,000,000  |
| Liquor . . .  | 72,000,000  | Sundries . . . 26,000,000  |
| Imports . . . | 54,000,000  | Total . . . 520,000,000    |

This gives an average of 150 shillings per inhabitant, as compared with 166 in France and 206 in Great Britain.

#### CANADA

There is always a large surplus of grain, meat, cheese, and eggs, which items are exported chiefly to Great Britain. The ordinary production and net shipments of grain are :—

|                | Production | Consumption | Export  |
|----------------|------------|-------------|---------|
| Wheat,* tons   | 1,200,000  | 1,000,000   | 200,000 |
| Oats, "        | 2,600,000  | 2,600,000   | ...     |
| Maize, "       | 600,000    | 500,000     | 100,000 |
| Barley, &c., " | 700,000    | 700,000     | ...     |
| Total .        | 5,100,000  | 4,800,000   | 300,000 |

The production and consumption of meat are approximately as follows :—

|                | Production | Consumption | Export |
|----------------|------------|-------------|--------|
| Beef, tons . . | 210,000    | 180,000     | 30,000 |
| Mutton, " . .  | 35,000     | 25,000      | 10,000 |
| Pork, " . .    | 65,000     | 45,000      | 20,000 |
| Total . .      | 310,000    | 250,000     | 60,000 |

\* The crops of 1896-97-98 averaged 1,320,000 tons: see *Wheat*, p. 820.

The net annual value of food exports, and their weight, have been as follows :—

|             | Tons Yearly |         | Value, £  |            |
|-------------|-------------|---------|-----------|------------|
|             | 1884-86     | 1897    | 1884-86   | 1897       |
| Grain . .   | 300,000     | 560,000 | 1,800,000 | 2,600,000  |
| Meat . .    | 50,000      | 90,000  | 1,500,000 | 3,100,000  |
| Fish . .    | 80,000      | 80,000  | 1,200,000 | 2,100,000  |
| Butter, &c. | 40,000      | 80,000  | 1,900,000 | 3,400,000  |
| Eggs, &c. . | ...         | ...     | 500,000   | 300,000    |
| Total . .   |             |         | 6,900,000 | 11,500,000 |

Shipments of eggs have declined 40 per cent., namely, from 150 millions in 1886 to 90 millions at present. Potatoes have also fallen, exports being now 20,000 tons per annum.

Items of imported food show as follows :—

|                 | Quantity Yearly |         | Value, £  |           |
|-----------------|-----------------|---------|-----------|-----------|
|                 | 1884-86         | 1894-97 | 1884-86   | 1894-97   |
| Sugar, tons . . | 110,000         | 190,000 | 1,200,000 | 1,900,000 |
| Tea, " . .      | 8,000           | 9,000   | 700,000   | 600,000   |
| Wine, gallons . | 650,000         | 700,000 | 200,000   | 150,000   |
| Total . . . . . |                 |         | 2,100,000 | 2,650,000 |

Consumption averages 80 lbs. sugar, 4 lbs. tea, per inhabitant.

Reducing all food to a grain equivalent, the production is as follows :—

|                       | Tons      | Equivalent in Grain |
|-----------------------|-----------|---------------------|
| Grain . . . . .       | 5,100,000 | 5,100,000           |
| Potatoes . . . . .    | 1,200,000 | 400,000             |
| Meat . . . . .        | 310,000   | 2,500,000           |
| Fish . . . . .        | 200,000   | 600,000             |
| Butter and cheese . . | 130,000   | 1,300,000           |
| Total . . . . .       |           | 9,900,000           |

This is equivalent to almost 2 tons per inhabitant, the ratio being 5 per cent. higher than in the United States. The value of food consumed for human use is approximately :—

|             | £         | £                      |
|-------------|-----------|------------------------|
| Grain . . . | 8,000,000 | Imports . . 2,700,000  |
| Meat . . .  | 8,000,000 | Sundries . . 4,300,000 |
| Dairy . . . | 4,000,000 | Total . . 27,000,000   |

This is about 105 shillings per inhabitant.

#### AUSTRALIA

The production and consumption of grain in ordinary years are as follows :—

|                | Production | Consumption | Export  |
|----------------|------------|-------------|---------|
| Wheat, tons .  | 700,000    | 400,000     | 300,000 |
| Oats, &c., " . | 740,000    | 740,000     | ...     |
| Total . .      | 1,440,000  | 1,140,000   | 300,000 |

South Australia, Victoria, and New Zealand have collectively a surplus of 450,000 tons of grain yearly, but New South Wales, Queensland, and Western Australia have an aggregate deficit of 150,000, so that the surplus

left for exportation to Europe is only 300,000 tons. As regards meat, the production is only one-third of what might be expected from the numbers of live stock, which is partly explained by the fact that sheep are bred not for the market but for growing wool: home consumption is estimated at 400,000 tons, equal to 208 lbs. per inhabitant, and the shipments of all kinds sum up 200,000 tons yearly. The time may come when Australian meat will be more in request. With the present numbers of stock the possible output of meat yearly would be:—

|                   | Tons    |           |        |           |
|-------------------|---------|-----------|--------|-----------|
|                   | Beef    | Mutton    | Pork   | Total     |
| N. S. Wales . .   | 90,000  | 470,000   | 10,000 | 570,000   |
| Queensland . .    | 270,000 | 200,000   | ...    | 470,000   |
| New Zealand . .   | 40,000  | 200,000   | 10,000 | 250,000   |
| Victoria . . .    | 70,000  | 135,000   | 15,000 | 220,000   |
| S. Australia, &c. | 40,000  | 105,000   | 5,000  | 150,000   |
| Seven Colonies .  | 510,000 | 1,110,000 | 40,000 | 1,660,000 |

Reducing all food to a grain denominator, the production at present is:—

|                          | Quantity  | Equivalent in Grain |
|--------------------------|-----------|---------------------|
| Grain, tons . .          | 1,500,000 | 1,500,000           |
| Potatoes, " . .          | 600,000   | 200,000             |
| Meat, " . . .            | 600,000   | 4,800,000           |
| Sugar, " . . .           | 80,000    | 160,000             |
| Butter and cheese, " . . | 55,000    | 550,000             |
| Wine, fish, &c. . .      | ...       | 70,000              |
| Total . . . . .          |           | 7,280,000           |

This gives an average of 35 cwt. per inhabitant, the same as in the United States. The value of food imported and exported is shown as follows:—

| Imports          | £         | Exports         | £         |
|------------------|-----------|-----------------|-----------|
| Liquors . . . .  | 1,600,000 | Meat . . . . .  | 3,800,000 |
| Tea . . . . .    | 1,200,000 | Grain . . . . . | 1,500,000 |
| Sundries . . . . | 1,200,000 | Butter, &c. . . | 1,700,000 |
| Total . . . . .  | 4,000,000 | Total . . . . . | 7,000,000 |

The value of food consumed for human use is approximately as follows:—

|                 | £         |                  | £          |
|-----------------|-----------|------------------|------------|
| Grain . . . . . | 5,000,000 | Imports . . . .  | 4,000,000  |
| Meat . . . . .  | 5,000,000 | Sundries . . . . | 3,000,000  |
| Dairy . . . . . | 4,000,000 | Total . . . . .  | 21,000,000 |

This is equal to 96 shillings per inhabitant, as compared with 105 in Canada.

#### ARGENTINA

This country ought to have a large surplus of grain, meat, and dairy products for the European markets, seeing the vastness of its fertile Pampas, the millions of its sheep and cattle, and the mildness and salubrity of its climate. Tillage is, nevertheless, at a considerable disadvantage owing to the constant danger of drought and locusts. The area under grain is about 9 million acres, yielding in good years  $4\frac{1}{2}$  million tons, but in bad years the crop hardly reaches one-third of that quantity.

Thus the surplus available for exportation varies as follows:—

|                 | Tons      |         | Average   |
|-----------------|-----------|---------|-----------|
|                 | 1895      | 1896    | 1893-96   |
| Wheat . . . . . | 990,000   | 550,000 | 1,050,000 |
| Maize . . . . . | 770,000   | 180,000 | 270,000   |
| Total . . . . . | 1,760,000 | 730,000 | 1,320,000 |

The production of meat (including cattle exported) is about 450,000 tons yearly, of which 200,000 are exported, the home consumption averaging 140 lbs. per inhabitant. The possible production would be as follows, if sheep-farmers were to grow less for wool than for meat:—

| Provinces         | Tons    |         |           |
|-------------------|---------|---------|-----------|
|                   | Beef    | Mutton  | Total     |
| Buenos Ayres . .  | 380,000 | 640,000 | 1,020,000 |
| Entre Rios . . .  | 160,000 | 50,000  | 210,000   |
| Santa Fé . . . .  | 90,000  | 30,000  | 120,000   |
| Cordoba . . . . . | 80,000  | 30,000  | 110,000   |
| Corrientes, &c. . | 210,000 | 50,000  | 260,000   |
| Total . . . . .   | 920,000 | 800,000 | 1,720,000 |

Reducing all kinds of food to a grain denominator, the production is as follows:—

|                     | Quantity   | Equivalent in Grain |
|---------------------|------------|---------------------|
| Grain, tons . . . . | 3,000,000  | 3,000,000           |
| Meat, " . . . . .   | 450,000    | 3,600,000           |
| Sugar, " . . . . .  | 130,000    | 400,000             |
| Butter, " . . . . . | 20,000     | 200,000             |
| Wine, gallons . . . | 35,000,000 | 350,000             |
| Total . . . . .     |            | 7,550,000           |

This is almost the same quantity of food as produced in Australia, and the average per inhabitant is 35 cwt., the same ratio as in the United States or Australia. The value of food produced, consumed, and exported, may be set down approximately thus:—

|                    | Production<br>£ | Consumption<br>£ | Export<br>£ |
|--------------------|-----------------|------------------|-------------|
| Grain . . . . .    | 15,000,000      | 9,000,000        | 6,000,000   |
| Meat . . . . .     | 8,400,000       | 5,000,000        | 3,400,000   |
| Wine . . . . .     | 2,500,000       | 2,500,000        | ...         |
| Dairy, &c. . . . . | 5,500,000       | 4,700,000        | 800,000     |
| Total . . . . .    | 31,400,000      | 21,200,000       | 10,200,000  |

The value of imported food is 4 millions sterling: hence the sum total of food consumed reaches £25,000,000, but we must deduct 3 millions for grain used for cattle and seed, leaving a balance of 22 millions, equal to 110 shillings per inhabitant.

#### URUGUAY

Production and consumption of grain and meat are shown as follows:—

|                 | Tons       |             |         |
|-----------------|------------|-------------|---------|
|                 | Production | Consumption | Export  |
| Grain . . . . . | 200,000    | 160,000     | 40,000  |
| Meat . . . . .  | 200,000    | 60,000      | 140,000 |

The actual amount of live stock is capable of producing from 300,000 to 350,000 tons of meat yearly. Climate and soil are, moreover, favourable to tillage, and as soon as a settled government be established, so as to admit a million of industrious European settlers, the Republic of Uruguay may easily produce five or six million tons of grain yearly.

## FOREST

The Foreign Office Report of 1893 was as follows:—

|             | Acres of Forest |             |               | P.c. of Area |
|-------------|-----------------|-------------|---------------|--------------|
|             | Public          | Private     | Total         |              |
| U. Kingdom  | ...             | 2,700,000   | 2,700,000     | 4.0          |
| France      | 7,400,000       | 16,000,000  | 23,400,000    | 17.9         |
| Germany     | 17,900,000      | 16,500,000  | 34,400,000    | 25.7         |
| Russia      | 299,000,000     | 199,200,000 | 498,200,000   | 37.2         |
| Austria Pr. | 5,900,000       | 18,300,000  | 24,200,000    | 32.6         |
| Hungary     | 9,400,000       | 9,400,000   | 18,800,000    | 23.5         |
| Italy       | 400,000         | 9,700,000   | 10,100,000    | 14.3         |
| Spain       | 16,400,000      | ...         | 16,400,000    | 13.0         |
| Portugal    | 100,000         | 1,100,000   | 1,200,000     | 5.2          |
| Sweden      | 14,300,000      | 30,200,000  | 44,500,000    | 40.7         |
| Norway      | 2,900,000       | 16,400,000  | 19,300,000    | 24.5         |
| Denmark     | ...             | 500,000     | 500,000       | 4.8          |
| Holland     | ...             | 600,000     | 600,000       | 6.9          |
| Belgium     | 500,000         | 700,000     | 1,200,000     | 17.1         |
| Switzerland | 1,500,000       | 600,000     | 2,100,000     | 20.1         |
| Roumania    | 2,300,000       | 2,600,000   | 4,900,000     | 15.2         |
| Servia      | 5,800,000       | ...         | 5,800,000     | 48.0         |
| Bulgaria    | 1,100,000       | ...         | 1,100,000     | 4.6          |
| Bosnia      | ...             | 6,700,000   | 6,700,000     | 45.0         |
| Greece      | 1,600,000       | 400,000     | 2,000,000     | 12.6         |
| Turkey      | ...             | 3,500,000   | 3,500,000     | 8.9          |
| Europe      | 386,500,000     | 335,100,000 | 721,600,000   | 30.3         |
| U. States   | ...             | 450,000,000 | 450,000,000   | 23.3         |
| India       | 70,000,000      | 70,000,000  | 140,000,000   | 25.0         |
| Algeria     | 5,100,000       | 700,000     | 5,800,000     | 5.5          |
| N.S. Wales  | 5,400,000       | 13,800,000  | 19,200,000    | 10.0         |
| Total       | 467,000,000     | 869,600,000 | 1,336,600,000 |              |

For Forests of Brazil, Canada, &c., see page 298.

The cutting of lumber is computed either by cubic foot or board measure, 8 feet of the latter being equal to 1 cubic foot, and 50 cubic feet to 1 ton.

## GERMANY

Nearly half of the public forests belong to local authorities. The State forests in 1894 gave the following result:—

|            | Acres     | Product<br>£ | Net do.<br>£ | Pence per<br>Acre |
|------------|-----------|--------------|--------------|-------------------|
| Prussia    | 6,000,000 | 2,900,000    | 1,250,000    | 50                |
| Bavaria    | 2,300,000 | 1,230,000    | 570,000      | 60                |
| Baden, &c. | 1,120,000 | 1,270,000    | 760,000      | 163               |
| Germany    | 9,420,000 | 5,400,000    | 2,580,000    | 66                |

In 14 years, from 1880, the felling of timber averaged 55 cubic feet per acre, including 15 cubic feet of lumber, the rest being firewood, &c. The cost of felling and conveying to the road is 17 pence per ton. In 1894 the Prussian Government paid £410,000 for the delivery of 6 million tons of lumber cut in Crown forests. There are 34½ million acres of forest in Germany, in which 380,000 wood-cutters earn a living, that is, one wood-cutter for 90 acres. The ordinary prices of timber per

ton and the stipend paid by the State to its wood-cutters are shown as follows:—

|          | Shills.<br>per Ton. | Woodman's<br>Fee.      |
|----------|---------------------|------------------------|
| Oak      | 25-29               | 1850 . . 80 pence, ton |
| Beech    | 15-17               | 1860 . . 90 " "        |
| Pine     | 12-13               | 1870-80 . 110 " "      |
| Firewood | 2                   | 1890-95 . 110 " "      |

In the Harz Mountains timber fetches 25 shillings, poles, &c., 6 to 8 shillings a ton.

## AUSTRIA

Export of timber exceeds 2 million tons yearly, value 5 millions sterling.

## UNITED STATES

In 1894 the forest area was defined thus:—

| State       | Acres       | Per Cent. of<br>Area | Forest Acres<br>per Inhab. |
|-------------|-------------|----------------------|----------------------------|
| New England | 20,700,000  | 52.0                 | 4.0                        |
| Middle      | 20,000,000  | 28.0                 | 1.4                        |
| South       | 212,300,000 | 42.0                 | 11.0                       |
| Prairie     | 89,500,000  | 18.0                 | 3.5                        |
| Pacific     | 116,000,000 | 16.0                 | 4.0                        |
| Union       | 458,500,000 | 25.0                 | 6.6                        |

Four States have nearly a quarter of all the forest area, viz:—

| State      | Acres Forest | Do. per Inhab. |
|------------|--------------|----------------|
| Texas      | 38,700,000   | 17.0           |
| Washington | 23,500,000   | 60.0           |
| Arkansas   | 20,400,000   | 18.0           |
| Florida    | 20,300,000   | 52.0           |

On the other hand the Prairie States have less than 4 acres of forest per inhabitant, and the cutting is so excessive that Congress must take measures in the matter. The Prairie States, as shown in a previous table, have only 89½ million acres of forest, that is, one-fifth of the forest area of the Union, and yet the census of 1890 showed that they stood for 51 per cent. of the sawn timber produced in the United States. The States in which the forest area is relatively largest are:—

| State          | Acres Area | Acres Forest | Percentage |
|----------------|------------|--------------|------------|
| Maine          | 19,100,000 | 12,300,000   | 64         |
| New Hampshire  | 5,800,000  | 3,600,000    | 62         |
| Arkansas       | 33,500,000 | 20,400,000   | 60         |
| Florida        | 34,700,000 | 20,300,000   | 58         |
| North Carolina | 31,100,000 | 16,800,000   | 54         |
| Tennessee      | 26,700,000 | 14,700,000   | 55         |
| Washington     | 42,800,000 | 23,500,000   | 55         |
| Alabama        | 32,700,000 | 17,400,000   | 53         |

The census report estimates the consumption yearly at 475 million tons, and the value of output at 215 millions sterling, which is about 9 shillings per acre of forest. This would be, however, more than a ton of timber per forest acre, which appears too high. The figures show:—

|               | Census      |             | Better Estimate |             |
|---------------|-------------|-------------|-----------------|-------------|
|               | Tons        | Value, £    | Tons            | Value, £    |
| Lumber        | 93,600,000  | 72,800,000  | 84,000,000      | 66,000,000  |
| Firewood, &c. | 360,000,000 | 93,600,000  | 240,000,000     | 62,400,000  |
| Sundries      | 21,400,000  | 48,600,000  | 16,000,000      | 11,600,000  |
| Total         | 475,000,000 | 215,000,000 | 340,000,000     | 140,000,000 |

## FREIGHT

The earnings of nations under this heading consist of: 1st, goods traffic by rail; 2nd, by canal or river; 3rd, by highroad; 4th, by shipping: the first three taken collectively may be estimated at 6 per cent. on all products in countries not exceeding 100,000 sq. miles, and 10 per cent. in those of greater area.

The following table also includes passenger traffic by rail, so as to give the total transport earnings. Shipping is supposed to earn £2 a year per ton of carrying power.

|                           | Millions £ Sterling    |       |       |       |                   |                   |         |
|---------------------------|------------------------|-------|-------|-------|-------------------|-------------------|---------|
|                           | Internal Goods Traffic |       |       |       | Passenger Traffic | Shipping Earnings | Total   |
|                           | Rail                   | River | Road  | Total |                   |                   |         |
| Great Britain . . . . .   | 44.6                   | 3.1   | 18.3  | 66.0  | 37.2              | 54.5              | 157.7   |
| Ireland . . . . .         | 1.6                    | 0.2   | 3.8   | 5.6   | 1.9               | 1.3               | 8.8     |
| United Kingdom . . . . .  | 46.2                   | 3.3   | 22.1  | 71.6  | 39.1              | 55.8              | 166.5   |
| France . . . . .          | 28.0                   | 3.9   | 71.7  | 103.6 | 22.5              | 4.8               | 130.9   |
| Germany . . . . .         | 54.9                   | 4.5   | 55.0  | 114.4 | 20.3              | 8.3               | 143.0   |
| Russia . . . . .          | 33.0                   | 14.4  | 49.1  | 96.5  | 8.4               | 3.0               | 107.9   |
| Austria . . . . .         | 22.2                   | 2.2   | 42.5  | 66.9  | 7.0               | 1.4               | 75.3    |
| Italy . . . . .           | 6.3                    | 0.3   | 33.6  | 40.2  | 4.0               | 2.9               | 47.1    |
| Spain . . . . .           | 4.5                    | 0.1   | 21.6  | 26.2  | 3.9               | 4.6               | 34.7    |
| Portugal . . . . .        | 0.7                    | ...   | 2.7   | 3.4   | 0.6               | 0.4               | 4.4     |
| Sweden . . . . .          | 2.2                    | ...   | 4.1   | 6.3   | 1.1               | 2.1               | 9.5     |
| Norway . . . . .          | 0.2                    | ...   | 1.9   | 2.1   | 0.3               | 5.0               | 7.4     |
| Denmark . . . . .         | 0.5                    | ...   | 2.8   | 3.3   | 0.6               | 1.5               | 5.4     |
| Holland . . . . .         | 1.5                    | 1.0   | 2.7   | 5.2   | 1.5               | 1.7               | 8.4     |
| Belgium . . . . .         | 5.2                    | 1.6   | 3.6   | 10.4  | 2.6               | 0.7               | 13.7    |
| Switzerland . . . . .     | 2.4                    | 0.1   | 1.2   | 3.7   | 2.0               | ...               | 5.7     |
| Danubian States . . . . . | 1.4                    | 0.3   | 7.2   | 8.9   | 1.2               | ...               | 10.1    |
| Greece . . . . .          | 0.3                    | ...   | 1.2   | 1.5   | 0.3               | 1.2               | 3.0     |
| Europe . . . . .          | 209.5                  | 31.7  | 323.0 | 564.2 | 115.4             | 93.4              | 773.0   |
| United States . . . . .   | 179.0                  | 16.6  | 103.4 | 299.0 | 55.0              | 3.2               | 357.2   |
| Canada . . . . .          | 7.0                    | 1.2   | 9.9   | 18.1  | 3.5               | 3.4               | 25.0    |
| Australia . . . . .       | 5.4                    | ...   | 12.1  | 17.5  | 5.5               | 1.8               | 24.8    |
| Total . . . . .           | 400.9                  | 49.5  | 448.4 | 898.8 | 179.4             | 101.8             | 1,180.0 |

## UNITED KINGDOM

The number of persons employed in transport in 1891 was:—

|                      | Rail    | Highroad | Water   | Total     |
|----------------------|---------|----------|---------|-----------|
| England . . . . .    | 187,000 | 367,000  | 430,000 | 984,000   |
| Scotland . . . . .   | 26,000  | 42,000   | 54,000  | 122,000   |
| Ireland . . . . .    | 10,000  | 27,000   | 29,000  | 66,000    |
| U. Kingdom . . . . . | 223,000 | 436,000  | 513,000 | 1,172,000 |

The product of their labour, according to the preceding table, was 166½ millions sterling, equal to £140 per man; of this sum wages would take about £80, while coal, fodder, and other raw material would stand for £20, leaving a balance of £40 per man or £47,000,000 for profit and dividends, on railways, shipping, express companies, and all other carrying enterprises. Secretary Morton, Minister of Agriculture in the United States, estimates charges in England for carts to or from shipping at 30 pence per ton, but this is too high: the estimate above given of £22,100,000 for the United Kingdom is only 10 pence a ton for cartage of 360 million tons carried by rail, and 150 millions to and from seaports.

## UNITED STATES

In 1896 the railways had 874,000 employees, and the census of 1890 showed 488,000 waggons, and 78,000 boatmen, in all 1,440,000. The product of their labour according to the preceding table would be equal to £247 per man. The railways average a net annual profit of 70 million pounds sterling, and the total transport service

yields probably 100 millions sterling net profit, that is £70 per man employed. The census of 1880 showed 419,000 railway employees, whose wages footed up £41,000,000, equal to £98 per man. See *Canals*, p. 649, and *Railways*, p. 795.

Rates of freight from Chicago for provisions per ton, to various European ports, by all rail to seaboard and thence by steamers, were as follows:—

| To                   | Shillings per ton |      |      |      |
|----------------------|-------------------|------|------|------|
|                      | 1888              | 1891 | 1894 | 1897 |
| Liverpool . . . . .  | 35                | 51   | 41   | 42   |
| Glasgow . . . . .    | 43                | 55   | 43   | 49   |
| London . . . . .     | 42                | 55   | 42   | 45   |
| Antwerp . . . . .    | 42                | 49   | 38   | 48   |
| Hamburg . . . . .    | 51                | 52   | 47   | 48   |
| Copenhagen . . . . . | 52                | 60   | 52   | 54   |
| Bordeaux . . . . .   | 55                | 70   | 59   | 60   |
| Average . . . . .    | 46                | 56   | 46   | 49   |

Rates on wheat per ton from St. Louis down the Mississippi to New Orleans, and to Liverpool via New Orleans; also from St. Louis by rail to New York and thence to Liverpool by steamer, were at various dates as follows:—

| St. Louis to                        | Shillings per ton |      |      |      |
|-------------------------------------|-------------------|------|------|------|
|                                     | 1882              | 1890 | 1894 | 1897 |
| New Orleans . . . . .               | 10.8              | 11.0 | 9.9  | 8.1  |
| Liverpool via New Orleans . . . . . | 37.4              | 24.0 | 19.5 | 21.4 |
| Liverpool via New York . . . . .    | 39.3              | 36.0 | 31.2 | 33.8 |

The distance from St. Louis to New Orleans is 1130 miles; freight therefore per ton of grain 100 miles is less than 9 pence (8.55), which is about the same as the charge for water-carriage of wheat from Chicago to New York (haulage nearly 1000 miles):—

| Shillings per ton |    |              |    |              |   |
|-------------------|----|--------------|----|--------------|---|
| 1860 . . . .      | 41 | 1880 . . . . | 20 | 1894 . . . . | 7 |
| 1870 . . . .      | 28 | 1890 . . . . | 10 | 1897 . . . . | 7 |

On 13 lines which stood for one-third of the goods traffic of the United States, the charge for carrying a ton 100 miles averaged as follows:—

| Year         | Pence | Year         | Pence | Year         | Pence |
|--------------|-------|--------------|-------|--------------|-------|
| 1870 . . . . | 154   | 1880 . . . . | 51    | 1890 . . . . | 39    |
| 1875 . . . . | 66    | 1885 . . . . | 42    | 1895 . . . . | 36    |

### FRICTION

Rennie's table is as follows:—

|                        |     |                        |     |
|------------------------|-----|------------------------|-----|
| Steel on ice . . . .   | 014 | Marble on marble . .   | 160 |
| Ice on ice . . . .     | 028 | Leather on iron . . .  | 250 |
| Brass on iron . . . .  | 135 | Granite on granite . . | 300 |
| Steel on steel . . . . | 146 | Iron on oak . . . .    | 620 |

### FRIENDLY SOCIETIES

There are three kinds of societies—co-operative, building, and friendly societies—and the aggregate membership and funds in the United Kingdom show thus:—

|             | 1886       | 1896        | Societies     | Funds, £   |
|-------------|------------|-------------|---------------|------------|
| No. of Soc. | 22,000     | 30,104      | Co-Operative  | 20,040,000 |
| Members     | 7,000,000  | 11,511,000  | Friendly      | 26,100,000 |
| Funds, £    | 79,000,000 | 107,470,000 | Building, &c. | 61,330,000 |

Excluding Co-operative and Building Societies, and considering only the Mutual Aid Societies of the working classes, their progress has been as follows:—

| Year | Members   | Funds, £   |
|------|-----------|------------|
| 1873 | 1,787,000 | 8,630,000  |
| 1880 | 4,802,000 | 13,003,000 |
| 1897 | 8,320,000 | 26,100,000 |

There are 1333 of these societies, averaging 6300 members each, but 9 of the principal societies average 250,000 each, having increased 32 per cent. in 10 years, viz.:—

| Societies           | ooo omitted |       |           |       |          |        |
|---------------------|-------------|-------|-----------|-------|----------|--------|
|                     | Members     |       | Income, £ |       | Funds, £ |        |
|                     | 1885        | 1895  | 1885      | 1895  | 1885     | 1895   |
| Oddfellows . . . .  | 676         | 906   | 1,060     | 1,320 | 5,780    | 8,500  |
| Foresters . . . .   | 582         | 655   | 860       | 1,090 | 3,390    | 4,820  |
| Hearts of Oak . . . | 109         | 205   | 250       | 460   | 770      | 1,610  |
| Shepherds . . . .   | 67          | 110   | 90        | 160   | 180      | 470    |
| 5 others . . . .    | 238         | 333   | 280       | 510   | 900      | 1,310  |
| 9 Societies . . . . | 1,672       | 2,210 | 2,540     | 3,540 | 11,020   | 16,710 |

See *Trade Unions*, page 570, and page 813. See also *Co-operation*, page 677, and *Societies*, page 542. For *Building Societies*, see *Co-operation*.

### CANADA

Friendly and Building Societies showed as follows:—

|                     | 1874<br>£ | 1884<br>£  | 1894<br>£  |
|---------------------|-----------|------------|------------|
| Capital, paid . . . | 1,600,000 | 6,150,000  | 7,830,000  |
| Reserve . . . .     | 270,000   | 1,360,000  | 2,290,000  |
| Deposits . . . .    | 920,000   | 2,780,000  | 4,160,000  |
| Debentures, &c. . . | 450,000   | 7,270,000  | 14,020,000 |
| Liabilities . . . . | 3,240,000 | 17,560,000 | 28,300,000 |
| Mortgages . . . .   | 3,100,000 | 14,800,000 | 23,400,000 |
| Cash, &c. . . .     | 140,000   | 2,720,000  | 5,100,000  |
| Assets . . . .      | 3,240,000 | 17,520,000 | 28,500,000 |

In 1894 the Provinces showed as follows:—

|                    | Capital, £ | Deposits, £ | Mortgages, £ |
|--------------------|------------|-------------|--------------|
| Ontario . . . .    | 6,050,000  | 4,050,000   | 21,300,000   |
| Quebec . . . .     | 470,000    | 80,000      | 1,840,000    |
| Nova Scotia, &c. . | 460,000    | 30,000      | 260,000      |
| Total . . . .      | 7,830,000  | 4,160,000   | 23,400,000   |

### AUSTRALIA

In January 1895 there were 149 Friendly Societies with 242,000 members, and funds approaching 3 millions sterling, viz.:—

|                      | Branches | Members | Funds, £  |
|----------------------|----------|---------|-----------|
| N. S. Wales . . . .  | 818      | 68,400  | 490,000   |
| Victoria . . . .     | 1,075    | 79,200  | 1,080,000 |
| New Zealand . . . .  | 367      | 30,000  | 550,000   |
| Queensland . . . .   | 243      | 17,100  | 150,000   |
| South Australia . .  | 422      | 35,900  | 420,000   |
| Tasmania . . . .     | 111      | 9,800   | 80,000    |
| West Australia . . . | 26       | 1,800   | 30,000    |
| Total . . . .        | 3,062    | 242,200 | 2,800,000 |

### FRUIT

The apple crop of the United States averages 5,500,000 tons, valued at 20 millions sterling. One ton of apples yields 150 gallons of cider. See *Cider*.

Imports of fruit into the United Kingdom in 1896 were:

|                    | Tons    | Value, £  |
|--------------------|---------|-----------|
| Almonds . . . .    | 7,400   | 430,000   |
| Apples . . . .     | 150,000 | 1,580,000 |
| Currants . . . .   | 49,000  | 750,000   |
| Raisins, &c. . . . | 80,000  | 2,340,000 |
| Oranges, &c. . . . | 260,000 | 4,200,000 |
| Total . . . .      | 546,400 | 9,300,000 |

Consumption averages 30 lbs., worth 65 pence, per inhabitant.

The countries which exported fruit were as follows:—

|                  | Tons    |         | Value, £  |           |
|------------------|---------|---------|-----------|-----------|
|                  | 1887    | 1895    | 1887      | 1895      |
| Italy . . . .    | 240,000 | 230,000 | 2,200,000 | 1,900,000 |
| Spain . . . .    | 160,000 | 300,000 | 2,200,000 | 3,300,000 |
| Portugal . . . . | 17,000  | 20,000  | 140,000   | 130,000   |
| Greece . . . .   | 107,000 | 140,000 | 1,900,000 | 1,100,000 |

The fruit crop of France in 1896 was valued at £7,500,000 sterling.

## G

## GAS

See *Light*, page 762, also page 304.

## GLASS

The annual output of glass in certain countries is represented approximately by the following values:—

|                |             |               |             |
|----------------|-------------|---------------|-------------|
| United Kingdom | £ 4,400,000 | Belgium       | £ 3,800,000 |
| France         | 7,200,000   | Russia        | 1,200,000   |
| Austria        | 4,500,000   | United States | 9,800,000   |

The United States census showed the growth of this industry thus:—

| Year       | Capital, £ | Operatives | Output, £ |
|------------|------------|------------|-----------|
| 1880 . . . | 4,400,000  | 26,000     | 4,900,000 |
| 1890 . . . | 9,100,000  | 49,500     | 9,800,000 |

See *Glass* in Part II., page 305.

## GOATS

See *Cattle*, page 635, also page 305.

## GOLD

The production of gold in forty-seven years has been as follows:—

| Year              | Value, £ Sterling (000 omitted) |           |        |         |        | Weight, Tons |           |        |         |       |
|-------------------|---------------------------------|-----------|--------|---------|--------|--------------|-----------|--------|---------|-------|
|                   | U. States                       | Australia | Russia | Various | Total  | U. States    | Australia | Russia | Various | Total |
| 1851 . . . . .    | 11,600                          | 1,400     | 3,600  | 2,200   | 18,800 | 83           | 10        | 26     | 15      | 134   |
| 1852 . . . . .    | 12,700                          | 12,200    | 3,600  | 2,200   | 30,700 | 91           | 87        | 26     | 15      | 219   |
| 1853 . . . . .    | 13,700                          | 13,000    | 3,400  | 2,200   | 32,300 | 98           | 93        | 25     | 15      | 231   |
| 1854 . . . . .    | 12,700                          | 9,600     | 3,400  | 2,200   | 27,900 | 91           | 69        | 25     | 15      | 200   |
| 1855 . . . . .    | 11,600                          | 12,000    | 3,500  | 2,200   | 29,300 | 83           | 86        | 25     | 15      | 209   |
| 1856 . . . . .    | 11,600                          | 13,200    | 3,500  | 2,300   | 30,600 | 83           | 94        | 25     | 16      | 218   |
| 1857 . . . . .    | 11,500                          | 11,600    | 3,900  | 2,300   | 29,300 | 82           | 83        | 28     | 16      | 209   |
| 1858 . . . . .    | 10,600                          | 12,100    | 3,900  | 2,300   | 28,900 | 76           | 86        | 28     | 16      | 206   |
| 1859 . . . . .    | 10,500                          | 12,200    | 3,600  | 2,300   | 28,600 | 75           | 87        | 26     | 16      | 204   |
| 1860 . . . . .    | 9,800                           | 11,200    | 3,600  | 2,300   | 26,900 | 70           | 80        | 26     | 16      | 192   |
| 1861 . . . . .    | 9,000                           | 11,000    | 3,500  | 2,400   | 25,900 | 64           | 79        | 25     | 17      | 185   |
| 1862 . . . . .    | 8,200                           | 11,300    | 3,500  | 2,400   | 25,400 | 59           | 81        | 25     | 17      | 182   |
| 1863 . . . . .    | 8,400                           | 11,400    | 3,300  | 2,400   | 25,500 | 60           | 82        | 23     | 17      | 182   |
| 1864 . . . . .    | 9,700                           | 10,000    | 3,400  | 2,400   | 25,500 | 69           | 71        | 25     | 17      | 182   |
| 1865 . . . . .    | 11,200                          | 10,300    | 3,400  | 2,400   | 27,300 | 80           | 73        | 25     | 17      | 195   |
| 1866 . . . . .    | 11,200                          | 10,400    | 4,100  | 2,300   | 28,000 | 80           | 74        | 30     | 16      | 200   |
| 1867 . . . . .    | 10,900                          | 9,900     | 4,100  | 2,300   | 27,200 | 78           | 70        | 30     | 16      | 194   |
| 1868 . . . . .    | 10,100                          | 10,400    | 4,200  | 2,300   | 27,000 | 72           | 74        | 30     | 16      | 192   |
| 1869 . . . . .    | 10,400                          | 9,700     | 4,300  | 2,300   | 26,700 | 74           | 69        | 31     | 16      | 190   |
| 1870 . . . . .    | 10,400                          | 8,500     | 4,300  | 2,300   | 25,500 | 74           | 61        | 31     | 16      | 182   |
| 1871 . . . . .    | 9,700                           | 9,900     | 4,400  | 2,500   | 26,500 | 69           | 70        | 31     | 18      | 188   |
| 1872 . . . . .    | 8,200                           | 9,000     | 4,700  | 2,600   | 24,500 | 59           | 64        | 33     | 19      | 175   |
| 1873 . . . . .    | 8,200                           | 8,400     | 4,800  | 2,700   | 24,100 | 59           | 60        | 34     | 19      | 172   |
| 1874 . . . . .    | 7,700                           | 7,200     | 4,800  | 2,800   | 22,500 | 55           | 52        | 34     | 20      | 161   |
| 1875 . . . . .    | 7,700                           | 6,900     | 4,800  | 3,000   | 22,400 | 55           | 49        | 34     | 22      | 160   |
| 1876 . . . . .    | 8,400                           | 6,900     | 4,700  | 3,200   | 23,200 | 60           | 49        | 33     | 23      | 165   |
| 1877 . . . . .    | 9,900                           | 6,300     | 5,700  | 3,200   | 25,100 | 70           | 45        | 41     | 23      | 179   |
| 1878 . . . . .    | 10,700                          | 6,100     | 5,900  | 3,300   | 26,000 | 77           | 43        | 42     | 24      | 186   |
| 1879 . . . . .    | 8,200                           | 6,100     | 5,900  | 3,200   | 23,400 | 59           | 43        | 42     | 23      | 167   |
| 1880 . . . . .    | 7,600                           | 6,300     | 5,700  | 3,300   | 22,900 | 54           | 45        | 41     | 24      | 164   |
| 1881 . . . . .    | 7,300                           | 6,400     | 4,700  | 4,000   | 22,400 | 52           | 46        | 33     | 29      | 160   |
| 1882 . . . . .    | 6,900                           | 6,200     | 4,600  | 3,800   | 21,500 | 49           | 44        | 32     | 28      | 153   |
| 1883 . . . . .    | 6,300                           | 5,600     | 4,600  | 4,300   | 20,800 | 45           | 40        | 32     | 31      | 148   |
| 1884 . . . . .    | 6,500                           | 6,000     | 4,600  | 4,700   | 21,800 | 47           | 43        | 32     | 33      | 155   |
| 1885 . . . . .    | 6,700                           | 5,800     | 4,200  | 5,100   | 21,800 | 48           | 41        | 30     | 36      | 155   |
| 1886 . . . . .    | 7,400                           | 5,600     | 4,200  | 5,200   | 22,400 | 53           | 40        | 30     | 37      | 160   |
| 1887 . . . . .    | 7,000                           | 5,800     | 4,200  | 5,100   | 22,100 | 50           | 41        | 30     | 36      | 157   |
| 1888 . . . . .    | 7,000                           | 6,000     | 4,500  | 5,500   | 23,000 | 50           | 43        | 32     | 39      | 164   |
| 1889 . . . . .    | 6,900                           | 7,000     | 4,900  | 5,800   | 24,600 | 49           | 50        | 35     | 41      | 175   |
| 1890 . . . . .    | 6,900                           | 6,400     | 4,700  | 6,800   | 24,800 | 49           | 46        | 34     | 48      | 177   |
| 1891 . . . . .    | 6,600                           | 6,600     | 4,700  | 7,500   | 25,400 | 47           | 47        | 34     | 54      | 182   |
| 1892 . . . . .    | 6,400                           | 7,200     | 4,800  | 9,200   | 27,600 | 46           | 52        | 34     | 65      | 197   |
| 1893 . . . . .    | 7,100                           | 7,500     | 4,800  | 11,900  | 31,300 | 51           | 54        | 34     | 85      | 224   |
| 1894 . . . . .    | 8,200                           | 8,700     | 5,700  | 15,100  | 37,700 | 59           | 62        | 41     | 108     | 270   |
| 1895 . . . . .    | 9,700                           | 8,800     | 5,400  | 16,600  | 40,500 | 69           | 63        | 39     | 119     | 290   |
| 1896 . . . . .    | 10,600                          | 8,800     | 6,200  | 16,800  | 42,400 | 76           | 63        | 44     | 120     | 303   |
| 1897 . . . . .    | 11,100                          | 10,200    | 6,500  | 20,500  | 48,300 | 79           | 73        | 46     | 147     | 345   |
| Average . . . . . | 9,200                           | 8,600     | 4,400  | 4,700   | 26,900 | 65           | 61        | 32     | 34      | 192   |



The value and weight of gold produced are summed up thus :—

| Years          | Millions £ |           |        |         |       | Tons      |           |        |         |       |
|----------------|------------|-----------|--------|---------|-------|-----------|-----------|--------|---------|-------|
|                | U. States  | Australia | Russia | Various | Total | U. States | Australia | Russia | Various | Total |
| 1851-60 . . .  | 116        | 109       | 36     | 22      | 283   | 834       | 775       | 260    | 155     | 2,024 |
| 1861-70 . . .  | 100        | 103       | 38     | 23      | 264   | 710       | 734       | 275    | 165     | 1,884 |
| 1871-80 . . .  | 86         | 73        | 52     | 30      | 241   | 617       | 520       | 365    | 215     | 1,717 |
| 1881-90 . . .  | 69         | 61        | 45     | 50      | 225   | 492       | 434       | 320    | 358     | 1,604 |
| 1891-97 . . .  | 60         | 58        | 38     | 97      | 253   | 427       | 414       | 272    | 698     | 1,811 |
| 47 years . . . | 431        | 404       | 209    | 222     | 1,266 | 3,080     | 2,877     | 1,492  | 1,591   | 9,040 |

The production of gold during the last two years was :—

|                     | £ Sterling (000 omitted) |        |         | Weight<br>Tons |
|---------------------|--------------------------|--------|---------|----------------|
|                     | 1896                     | 1897   | Average |                |
| United States . . . | 10,580                   | 11,100 | 10,840  | 77             |
| Transvaal . . .     | 8,370                    | 11,090 | 9,730   | 70             |
| Australia . . .     | 8,740                    | 10,180 | 9,460   | 68             |
| Russia . . .        | 6,200                    | 6,500  | 6,350   | 46             |
| India . . .         | 1,160                    | 1,430  | 1,300   | 9              |
| China . . .         | 1,330                    | 1,330  | 1,330   | 9              |
| Mexico . . .        | 1,220                    | 1,360  | 1,290   | 9              |
| Canada . . .        | 560                      | 1,200  | 880     | 6              |
| Colombia . . .      | 620                      | 780    | 700     | 5              |
| Guiana . . .        | 510                      | 520    | 520     | 4              |
| Brazil . . .        | 500                      | 500    | 500     | 4              |
| Various . . .       | 2,640                    | 2,290  | 2,470   | 18             |
| Total . . .         | 42,430                   | 48,280 | 45,370  | 325            |

In Australia the yield of gold averages as follows per ton of quartz: Victoria,  $\frac{1}{2}$  oz.; New South Wales, 1 oz.; New Zealand, 1.1 oz.; Queensland and Tasmania, 1.7 oz. The Transvaal goldfields began working in 1883, and their yield has been as follows :—

| Year       | £         | Year          | £          |
|------------|-----------|---------------|------------|
| 1889 . . . | 1,300,000 | 1894 . . .    | 8,500,000  |
| 1890 . . . | 1,750,000 | 1895 . . .    | 8,400,000  |
| 1891 . . . | 2,500,000 | 1896 . . .    | 8,400,000  |
| 1892 . . . | 4,200,000 | 1897 . . .    | 11,100,000 |
| 1893 . . . | 5,200,000 | 1898-97 . . . | 52,100,000 |

These mines have averaged less than half-an-oz (0.4) of gold per ton of quartz: yield, 32 shillings; expenses, 25; profit, 7 shillings per ton of quartz.

Klondyke, in Arctic America, produced £2,000,000 of gold in 1898, the world's production for this year reaching £58,100,000.

The stock of precious metals at various dates was :—

| Year       | Tons  |         | Tons of Silver<br>to 1 of Gold |
|------------|-------|---------|--------------------------------|
|            | Gold  | Silver  |                                |
| 1848 . . . | 3,575 | 113,000 | 31½                            |
| 1860 . . . | 5,299 | 118,250 | 22½                            |
| 1870 . . . | 6,583 | 126,360 | 19                             |
| 1880 . . . | 7,400 | 142,960 | 19½                            |
| 1890 . . . | 8,054 | 168,650 | 21                             |
| 1897 . . . | 9,165 | 194,000 | 21                             |

The world would require an increase of 97,000 tons in the present stock of silver, or exactly 50 per cent., in order to place it on the same footing as in 1848, with regard to the quantity of gold. If the relative stocks of the two metals determined the price of silver it would be now 90 pence per ounce; it has, on the contrary, fallen 55 per cent. from the normal price of 1851-60, which shows that it simply follows the cost of production. The following table shows the amount (see *Money*, page 777) of gold and silver used for coinage from 1851-1897, tons gross representing the actual weight of metal issued by the

mint of all nations, tons net the supposed weight of new metal after deducting what was reminted :—

| Period        | Tons Gold |       | Tons Silver |        |
|---------------|-----------|-------|-------------|--------|
|               | Gross     | Net   | Gross       | Net    |
| 1851-80 . . . | 7,500     | 3,900 | 65,000      | 33,000 |
| 1881-96 . . . | 3,500     | 1,500 | 39,000      | 19,000 |
| Total . . .   | 11,000    | 5,400 | 104,000     | 52,000 |

Coined and uncoined metals stood approximately :—

| Date       | Gold, Tons |          |       | Ratio<br>Coined |
|------------|------------|----------|-------|-----------------|
|            | Coined     | Uncoined | Total |                 |
| 1848 . . . | 1,125      | 2,450    | 3,575 | 31.5            |
| 1880 . . . | 5,025      | 2,375    | 7,400 | 68.0            |
| 1897 . . . | 6,525      | 2,640    | 9,165 | 71.3            |

|            | Silver, Tons |          |         |      |
|------------|--------------|----------|---------|------|
|            | Coined       | Uncoined | Total   |      |
| 1848 . . . | 45,200       | 67,800   | 113,000 | 40.0 |
| 1880 . . . | 78,200       | 64,760   | 142,960 | 54.7 |
| 1897 . . . | 97,200       | 96,800   | 194,000 | 50.1 |

In 1885 Newmann Spallart estimated the weight of coined money in the world thus :—

| Year       | Tons Gold | Tons Silver | Silver Ratio |
|------------|-----------|-------------|--------------|
| 1848 . . . | 1,125     | 45,200      | 40 to 1      |
| 1885 . . . | 5,925     | 88,100      | 15 .. 1      |

The total production of precious metals in 1894 was :—

|                 | Weight, Tons |        | Value, £   |            | Total, £   |
|-----------------|--------------|--------|------------|------------|------------|
|                 | Gold         | Silver | Gold       | Silver     |            |
| U. States . . . | 59           | 1,540  | 8,200,000  | 6,400,000  | 14,600,000 |
| Australia . . . | 63           | 560    | 8,700,000  | 2,300,000  | 11,000,000 |
| S. Africa . . . | 61           | ...    | 8,500,000  | ...        | 8,500,000  |
| Mexico . . .    | 7            | 1,460  | 1,000,000  | 6,100,000  | 7,100,000  |
| Russia . . .    | 42           | 10     | 5,800,000  | 50,000     | 5,850,000  |
| Bolivia . . .   | ...          | 680    | ...        | 2,800,000  | 2,800,000  |
| China . . .     | 9            | ...    | 1,200,000  | ...        | 1,200,000  |
| Germany . . .   | 3            | 190    | 400,000    | 800,000    | 1,200,000  |
| Guiana . . .    | 6            | ...    | 800,000    | ...        | 800,000    |
| India . . .     | 6            | ...    | 800,000    | ...        | 800,000    |
| Colombia . . .  | 4            | 50     | 600,000    | 200,000    | 800,000    |
| Austria . . .   | 2            | 60     | 300,000    | 250,000    | 550,000    |
| France . . .    | ...          | 100    | ...        | 400,000    | 400,000    |
| Brazil . . .    | 3            | ...    | 400,000    | ...        | 400,000    |
| Peru . . .      | ...          | 100    | ...        | 400,000    | 400,000    |
| Chile . . .     | ...          | 90     | ...        | 350,000    | 350,000    |
| Japan . . .     | 1            | 60     | 100,000    | 250,000    | 350,000    |
| Canada . . .    | 1½           | 7      | 200,000    | 30,000     | 230,000    |
| Spain . . .     | ...          | 60     | ...        | 250,000    | 250,000    |
| Argentina . . . | ...          | 40     | ...        | 150,000    | 150,000    |
| Various . . .   | 5½           | 153    | 700,000    | 670,000    | 1,370,000  |
| The World . . . | 273          | 5,160  | 37,700,000 | 21,400,000 | 59,100,000 |

The production of silver has been as follows :—

| Years        | Tons      |         |         | Value, Millions £ |
|--------------|-----------|---------|---------|-------------------|
|              | U. States | Various | Total   |                   |
| 1851-60 . .  | 70        | 8,880   | 8,950   | 81.4              |
| 1861-70 . .  | 2,370     | 9,840   | 12,210  | 110.4             |
| 1871-80 . .  | 7,790     | 14,380  | 22,100  | 182.7             |
| 1881-90 . .  | 13,330    | 18,360  | 31,690  | 223.3             |
| 1891-94 . .  | 6,790     | 12,030  | 18,820  | 104.8             |
| 1895 . . .   | 1,640     | 3,500   | 5,140   | 21.8              |
| 1896 . . .   | 1,730     | 3,360   | 5,090   | 21.6              |
| 46 years . . | 33,650    | 70,350  | 104,000 | 746.0             |

Spanish America has produced 47,000 tons of silver since 1850, that is, almost half the total supply of the world, Mexico taking the lead :—

| Years        | Tons   |           |                 | Value, Millions £ |
|--------------|--------|-----------|-----------------|-------------------|
|              | Mexico | Peru, &c. | Spanish America |                   |
| 1851-70 . .  | 9,530  | 4,140     | 13,670          | 123.8             |
| 1871-90 . .  | 14,780 | 7,540     | 22,320          | 169.4             |
| 1891-96 . .  | 8,290  | 2,520     | 10,810          | 58.8              |
| 46 years . . | 32,600 | 14,200    | 46,800          | 352.0             |

The price of silver per ounce, and its ratio to gold in thirty years, have been as follows :—

| Year     | Pence | Ratio | Year     | Pence | Ratio |
|----------|-------|-------|----------|-------|-------|
| 1868 . . | 60.5  | 15.6  | 1883 . . | 50.6  | 18.6  |
| 1869 . . | 60.5  | 15.6  | 1884 . . | 50.6  | 18.6  |
| 1870 . . | 60.5  | 15.6  | 1885 . . | 48.6  | 19.4  |
| 1871 . . | 60.5  | 15.6  | 1886 . . | 45.4  | 20.8  |
| 1872 . . | 60.5  | 15.6  | 1887 . . | 44.6  | 21.1  |
| 1873 . . | 59.2  | 15.9  | 1888 . . | 42.9  | 22.0  |
| 1874 . . | 58.3  | 16.2  | 1889 . . | 41.7  | 22.1  |
| 1875 . . | 56.9  | 16.6  | 1890 . . | 47.7  | 19.8  |
| 1876 . . | 52.7  | 17.9  | 1891 . . | 45.1  | 20.9  |
| 1877 . . | 54.8  | 17.2  | 1892 . . | 39.7  | 23.7  |
| 1878 . . | 52.6  | 17.9  | 1893 . . | 35.6  | 26.5  |
| 1879 . . | 51.2  | 18.4  | 1894 . . | 28.9  | 32.6  |
| 1880 . . | 52.2  | 18.1  | 1895 . . | 29.8  | 31.7  |
| 1881 . . | 52.0  | 18.2  | 1896 . . | 30.7  | 30.7  |
| 1882 . . | 52.0  | 18.2  | 1897 . . | 27.0  | 35.0  |

In 1897 the silver money in use was 15½ times the weight of gold money.

According to the best authorities, the consumption yearly of gold and silver for manufactures has trebled since 1850, when Spallart estimated it at 25 tons of gold and 250 of silver. In recent years the estimates have been :—

|                | Tons of Gold |         |          | Value, £   |
|----------------|--------------|---------|----------|------------|
|                | Soetbeer     | Kimball | Molinari |            |
|                | 1871-80      | 1887    | 1896     | 1896       |
| U. States . .  | 13.5         | 18      | 15.7     | 2,200,000  |
| G. Britain . . | 17.0         | 16      | 17.0     | 2,400,000  |
| France . . .   | 16.9         | 12      | 12.0     | 1,700,000  |
| Germany . .    | 11.8         | 11      | 15.0     | 2,100,000  |
| Switzerland .  | 11.3         | 9       | 6.0      | 850,000    |
| Italy, &c. . . | ...          | 14      | 9.8      | 1,350,000  |
| Total . . .    | 83.8         | 80      | 75.5     | 10,600,000 |

|                | Tons of Silver |         |          | Value, £  |
|----------------|----------------|---------|----------|-----------|
|                | Soetbeer       | Kimball | Molinari |           |
|                | 1871-80        | 1887    | 1896     | 1896      |
| U. States . .  | 102            | 115     | 185      | 770,000   |
| G. Britain . . | 72             | 72      | 80       | 330,000   |
| France . . .   | 75             | 75      | 120      | 500,000   |
| Germany . .    | 75             | 82      | 100      | 420,000   |
| Switzerland .  | 24             | 24      | 50       | 210,000   |
| Russia . . .   | 32             | 32      | 32       | 130,000   |
| Austria . . .  | 32             | 32      | 30       | 120,000   |
| Italy, &c. . . | 59             | 83      | 66       | 280,000   |
| Total . . .    | 471            | 515     | 663      | 2,760,000 |

Moreover, the loss of money from wear-and-tear and shipwreck is 2 tons of gold, 100 of silver yearly. The following table, allowing for these deductions, shows the net increase of the world's stock of precious metals :—

| Years        | Gold, Tons |             |              |
|--------------|------------|-------------|--------------|
|              | Production | Consumption | Net Increase |
| 1851-60 . .  | 2,024      | 300         | 1,724        |
| 1861-70 . .  | 1,884      | 600         | 1,284        |
| 1871-80 . .  | 1,717      | 900         | 817          |
| 1881-90 . .  | 1,604      | 950         | 654          |
| 1891-97 . .  | 1,811      | 700         | 1,111        |
| 47 years . . | 9,040      | 3,450       | 5,590        |

|              | Silver, Tons |             |              |
|--------------|--------------|-------------|--------------|
|              | Production   | Consumption | Net Increase |
| 1851-60 . .  | 8,950        | 3,700       | 5,250        |
| 1861-70 . .  | 12,210       | 4,100       | 8,110        |
| 1871-80 . .  | 22,100       | 5,500       | 16,600       |
| 1881-90 . .  | 31,690       | 6,000       | 25,690       |
| 1891-96 . .  | 29,050       | 3,700       | 25,350       |
| 46 years . . | 104,000      | 23,000      | 81,000       |

The current of bullion to and from India, Straits, and Ceylon in thirty-six years was as follows :—

| Years        | Millions £ Sterling |          |          |
|--------------|---------------------|----------|----------|
|              | Imported            | Exported | Retained |
| 1861-70 . .  | 195                 | 26       | 169      |
| 1871-80 . .  | 110                 | 44       | 66       |
| 1881-90 . .  | 171                 | 39       | 132      |
| 1891-96 . .  | 104                 | 49       | 55       |
| 36 years . . | 580                 | 158      | 422      |

The bullion current may be summed up thus :—

|                   | Gold Imported, Millions £ |         |         |          |
|-------------------|---------------------------|---------|---------|----------|
|                   | 1861-80                   | 1881-88 | 1889-96 | 36 Years |
| Great Britain . . | 351                       | 96      | 205     | 652      |
| France . . .      | 340                       | 63      | 107     | 510      |
| United States . . | 73                        | 64      | 49      | 186      |
| Various . . .     | 252                       | 187     | 373     | 812      |
| Total . . .       | 1,016                     | 410     | 734     | 2,160    |
|                   | Exported                  |         |         |          |
|                   | 1861-80                   | 1881-88 | 1889-96 | 36 Years |
| Great Britain . . | 284                       | 96      | 155     | 535      |
| France . . .      | 209                       | 67      | 69      | 345      |
| United States . . | 187                       | 35      | 118     | 340      |
| Various . . .     | 336                       | 212     | 392     | 666      |
| Total . . .       | 1,016                     | 410     | 734     | 2,160    |

|                     | Silver Imported, Millions £ |         |         |          |
|---------------------|-----------------------------|---------|---------|----------|
|                     | 1861-80                     | 1881-88 | 1889-96 | 36 Years |
| Great Britain . . . | 225                         | 66      | 88      | 379      |
| France . . . . .    | 203                         | 62      | 49      | 314      |
| United States . . . | 30                          | 23      | 28      | 81       |
| Various . . . . .   | 443                         | 209     | 224     | 876      |
| Total . . . . .     | 901                         | 360     | 389     | 1,650    |

|                     | Exported |         |         |          |
|---------------------|----------|---------|---------|----------|
|                     | 1861-80  | 1881-88 | 1889-96 | 36 Years |
| Great Britain . . . | 210      | 68      | 99      | 377      |
| France . . . . .    | 126      | 49      | 46      | 221      |
| United States . . . | 95       | 41      | 65      | 201      |
| Various . . . . .   | 470      | 202     | 179     | 851      |
| Total . . . . .     | 901      | 360     | 389     | 1,650    |

|                     | Total Bullion Imports, Millions £ |         |         |          |
|---------------------|-----------------------------------|---------|---------|----------|
|                     | 1861-80                           | 1881-88 | 1889-96 | 36 Years |
| Great Britain . . . | 576                               | 162     | 293     | 1,031    |
| France . . . . .    | 543                               | 125     | 156     | 824      |
| United States . . . | 103                               | 87      | 77      | 267      |
| Various . . . . .   | 695                               | 396     | 597     | 1,688    |
| Total . . . . .     | 1,917                             | 770     | 1,123   | 3,810    |

|                     | Exports |         |         |          |
|---------------------|---------|---------|---------|----------|
|                     | 1861-80 | 1881-88 | 1889-96 | 36 Years |
| Great Britain . . . | 494     | 164     | 254     | 912      |
| France . . . . .    | 335     | 116     | 115     | 566      |
| United States . . . | 282     | 76      | 183     | 541      |
| Various . . . . .   | 806     | 414     | 571     | 1,791    |
| Total . . . . .     | 1,917   | 770     | 1,123   | 3,810    |

In the whole period of 36 years we find that Great Britain has had a net influx of precious metals averaging £3,300,000 per annum; France, 7,200,000; while the United States show an average outflow of £7,600,000 per annum over the same lapse of years.

The following table shows the net balance of imports and exports in 8 years down to end of 1896:—

|                     | Imports, Mill. £ |        | Exports, Mill. £ |        |
|---------------------|------------------|--------|------------------|--------|
|                     | Gold             | Silver | Gold             | Silver |
| Great Britain . . . | 50               | ...    | ...              | 11     |
| France . . . . .    | 38               | 3      | ...              | ...    |
| United States . . . | ...              | ...    | 69               | 37     |
| Various . . . . .   | ...              | 45     | 19               | ...    |
| The World . . . .   | 88               | 48     | 88               | 48     |

See *Bullion*, page 649.

The following table shows the production, net imports and exports of gold, as regards the United States:—

| Years              | Gold, Millions \$ |         |         |         |
|--------------------|-------------------|---------|---------|---------|
|                    | Product           | Imports | Exports | Balance |
| 1847-51 . . . . .  | 156               | ...     | 7       | 149     |
| 1852-56 . . . . .  | 295               | ...     | 196     | 99      |
| 1857-61 . . . . .  | 244               | ...     | 196     | 48      |
| 1862-66 . . . . .  | 232               | ...     | 282     | ...     |
| 1867-71 . . . . .  | 243               | ...     | 189     | 54      |
| 1872-76 . . . . .  | 179               | ...     | 168     | 11      |
| 1877-81 . . . . .  | 208               | 179     | ...     | 387     |
| 1882-86 . . . . .  | 160               | ...     | 14      | 146     |
| 1887-91 . . . . .  | 165               | ...     | 63      | 102     |
| 1892-96 . . . . .  | 207               | ...     | 202     | 5       |
| 50 years . . . . . | 2,089             | 179     | 1,317   | 951     |

It appears that 45 per cent. of the gold produced in the United States remained in the country. The production, imports and exports of silver, at the nominal value of 60 pence per ounce, were as follows:—

| Years              | Silver, Millions \$ |         |         |         |
|--------------------|---------------------|---------|---------|---------|
|                    | Product             | Imports | Exports | Balance |
| 1847-51 . . . . .  | ...                 | ...     | 6       | ...     |
| 1852-56 . . . . .  | ...                 | 6       | ...     | 6       |
| 1857-61 . . . . .  | 3                   | 9       | ...     | 12      |
| 1862-66 . . . . .  | 45                  | ...     | 18      | 27      |
| 1867-71 . . . . .  | 77                  | ...     | 76      | 1       |
| 1872-76 . . . . .  | 172                 | ...     | 111     | 61      |
| 1877-81 . . . . .  | 209                 | ...     | 36      | 173     |
| 1882-86 . . . . .  | 245                 | ...     | 59      | 186     |
| 1887-91 . . . . .  | 321                 | ...     | 58      | 263     |
| 1892-96 . . . . .  | 372                 | ...     | 136     | 236     |
| 50 years . . . . . | 1,444               | 15      | 500     | 959     |

This shows that 60 per cent. of the production of silver remained in the country. The total value of precious metal which the above balances represent, as surplus of production over exports in 50 years, is 198 millions sterling for gold, and 67 millions for silver at its present depreciated value (27 pence per ounce).

The current of bullion to and from the United States is shown in American money as follows:—

| Years              | Millions \$ Gold |         |             |             |
|--------------------|------------------|---------|-------------|-------------|
|                    | Imports          | Exports | Net Imports | Net Exports |
| 1851-60 . . . . .  | 37               | 465     | ...         | 428         |
| 1861-70 . . . . .  | 140              | 536     | ...         | 396         |
| 1871-80 . . . . .  | 191              | 337     | ...         | 146         |
| 1881-90 . . . . .  | 333              | 244     | 89          | ...         |
| 1891-96 . . . . .  | 230              | 501     | ...         | 271         |
| 46 years . . . . . | 931              | 2,083   | ...         | 1,152       |

| Years              | Silver  |         |             |             |
|--------------------|---------|---------|-------------|-------------|
|                    | Imports | Exports | Net Imports | Net Exports |
| 1851-60 . . . . .  | 40      | 31      | 9           | ...         |
| 1861-70 . . . . .  | 49      | 124     | ...         | 75          |
| 1871-80 . . . . .  | 114     | 273     | ...         | 159         |
| 1881-90 . . . . .  | 151     | 270     | ...         | 119         |
| 1891-96 . . . . .  | 113     | 254     | ...         | 141         |
| 46 years . . . . . | 467     | 952     | ...         | 485         |

| Years              | Gold and Silver |         |             |             |
|--------------------|-----------------|---------|-------------|-------------|
|                    | Imports         | Exports | Net Imports | Net Exports |
| 1851-60 . . . . .  | 77              | 496     | ...         | 419         |
| 1861-70 . . . . .  | 189             | 660     | ...         | 471         |
| 1871-80 . . . . .  | 305             | 610     | ...         | 305         |
| 1881-90 . . . . .  | 484             | 514     | ...         | 30          |
| 1891-96 . . . . .  | 343             | 755     | ...         | 412         |
| 46 years . . . . . | 1,398           | 3,035   | ...         | 1,637       |

The account for 6 years ending Dec. 1896 showed:—

|                       | Bullion, Millions \$ |            |
|-----------------------|----------------------|------------|
|                       | Imports from         | Exports to |
| Great Britain . . . . | 74                   | 330        |
| France . . . . .      | 45                   | 116        |
| Other countries . . . | 224                  | 309        |
| Total . . . . .       | 343                  | 755        |

Imports and exports in 1897 were even; each 115 million dollars.

The outflow of gold caused anxiety in 1895: the minimum of "free gold balance" in the Treasury was touched on the 11th of February 1895 (\$41,200,000).

The stock of gold in Great Britain was estimated in 1760 at £25,000,000; of gold and silver in 1799 at £44,000,000; and of gold alone in 1812 at £15,000,000. The stock of coined money in the United States was estimated at 7 million dollars in 1774, and at 17 millions (£3,500,000) in 1804. Humboldt calculated the coined money of the world in 1825 at 325 millions sterling; Jacob, a better authority, at 380 millions.

We have seen that the production of gold since 1850 has been as follows:—

| Period             | Millions £ Sterling | Per Annum |
|--------------------|---------------------|-----------|
| 1851-70 . . . . .  | 547                 | 27.4      |
| 1871-80 . . . . .  | 241                 | 24.1      |
| 1881-90 . . . . .  | 225                 | 22.5      |
| 1891-96 . . . . .  | 162                 | 27.0      |
| 46 years . . . . . | 1,175               | 25.1      |

The countries which absorbed the above quantities\* were as follows:—

|                     | Millions £ Sterling |         |         |         | Tons of Gold |
|---------------------|---------------------|---------|---------|---------|--------------|
|                     | 1851-70             | 1871-80 | 1881-90 | 46 yrs. |              |
| U. Kingdom . . .    | 103                 | 15      | 49      | 167     | 1,190        |
| France . . . . .    | 204                 | 53      | 33      | 290     | 2,060        |
| Germany . . . . .   | 3                   | 27      | 29      | 59      | 420          |
| Russia . . . . .    | 31                  | 23      | 94      | 148     | 1,050        |
| Austria . . . . .   | 16                  | 19      | 44      | 79      | 560          |
| Spain . . . . .     | 8                   | 4       | 3       | 15      | 107          |
| Portugal . . . . .  | 3                   | 4       | 8       | 15      | 107          |
| Holland . . . . .   | 2                   | 5       | 10      | 17      | 120          |
| Belgium . . . . .   | 7                   | 3       | 8       | 18      | 128          |
| Switzerland . . .   | 2                   | 1       | 8       | 11      | 78           |
| Europe . . . . .    | 379                 | 154     | 286     | 819     | 5,820        |
| United States . .   | 49                  | 49      | 76      | 174     | 1,236        |
| Other countries . . | 119                 | 38      | 25      | 182     | 1,294        |
| The World . . . .   | 547                 | 241     | 387     | 1,175   | 8,350        |

The production of silver in the same period was as follows:—

| Period             | Value      |           | Weight  |           |
|--------------------|------------|-----------|---------|-----------|
|                    | Millions £ | Per Annum | Tons    | Per Annum |
| 1851-70 . . . . .  | 192        | 9.6       | 21,160  | 1,058     |
| 1871-80 . . . . .  | 183        | 18.3      | 22,100  | 2,210     |
| 1881-90 . . . . .  | 223        | 22.3      | 31,690  | 3,169     |
| 1891-96 . . . . .  | 148        | 24.7      | 29,050  | 4,842     |
| 46 years . . . . . | 746        | 16.2      | 104,000 | 2,261     |

The countries which absorbed the above quantities were as follows:—

|                     | Millions £ Sterling |         |         |         | Tons of Silver |
|---------------------|---------------------|---------|---------|---------|----------------|
|                     | 1851-70             | 1871-80 | 1881-90 | 46 yrs. |                |
| U. Kingdom . . .    | 4.3                 | 11.9    | ...     | 4.0     | 500            |
| Germany . . . . .   | 16.9                | 17.6    | 8.5     | 43.0    | 5,200          |
| Russia . . . . .    | 7.8                 | 7.8     | 13.5    | 29.1    | 3,600          |
| Spain . . . . .     | 4.3                 | 8.2     | 6.9     | 19.4    | 2,400          |
| Holland . . . . .   | 9.7                 | 2.0     | 1.1     | 12.8    | 1,500          |
| Belgium . . . . .   | 0.9                 | 8.2     | 6.6     | 15.7    | 1,900          |
| Various . . . . .   | 0.2                 | 2.0     | 10.9    | 13.1    | 1,600          |
| Europe . . . . .    | 44.1                | 57.7    | 35.3    | 137.1   | 16,700         |
| U. States . . . . . | 8.2                 | 31.3    | 81.3    | 120.8   | 18,500         |
| India . . . . .     | 160.3               | 46.5    | 95.3    | 302.1   | 37,800         |
| China . . . . .     | 12.6                | 13.5    | 23.8    | 49.9    | 7,100          |
| Other countries . . | 8.8                 | 34.0    | 147.5   | 190.3   | 31,500         |
| Total . . . . .     | 234.0               | 183.0   | 383.2   | 800.2   | 111,600        |
| Deduct . . . . .    | 42.0                | ...     | 12.2    | 54.2    | 7,600          |
| Balance . . . . .   | 192.0               | 183.0   | 371.0   | 746.0   | 104,000        |

In the period ending 1870 France exported 42 millions of silver, and Great Britain 12 millions in that ending 1896.

## GRAIN

See *Agriculture*, page 613; *Food*, page 713; also *Grain*, page 310.

## H

### HAY AND STRAW

See page 311.

### HEMP

The production and consumption of this fibre in 1895 were:—

|                     | Acres     | Produc. Tons | Consum. Tons | Manufacture Value, £ |
|---------------------|-----------|--------------|--------------|----------------------|
| Great Britain . . . | ...       | ...          | 70,000       | 5,200,000            |
| France . . . . .    | 90,000    | 27,000       | 50,000       | 3,500,000            |
| Germany . . . . .   | 30,000    | 10,000       | 30,000       | 2,100,000            |
| Russia . . . . .    | 2,010,000 | 247,000      | 177,000      | 9,000,000            |
| Austria . . . . .   | 290,000   | 70,000       | 70,000       | 5,000,000            |
| Italy . . . . .     | 260,000   | 78,000       | 30,000       | 2,000,000            |
| United States . . . | 60,000    | 18,000       | 140,000      | 10,000,000           |
| Manilla . . . . .   | 260,000   | 50,000       | ...          | ...                  |
| Various . . . . .   | 100,000   | 30,000       | 63,000       | 4,200,000            |
| Total . . . . .     | 3,100,000 | 530,000      | 530,000      | 41,000,000           |

Production has increased 20 per cent. since Neumann Spallart's estimate for 1885. See Part I., page 312.

Exports of hemp from Russia were as follows:—

| Year           | Tons   | Value, £  | £ per Ton |
|----------------|--------|-----------|-----------|
| 1885 . . . . . | 50,000 | 1,300,000 | 26        |
| 1890 . . . . . | 55,000 | 1,600,000 | 29        |
| 1896 . . . . . | 70,000 | 1,600,000 | 23        |

Imports into the United Kingdom and the United States were:—

| Year           | Tons       |           |
|----------------|------------|-----------|
|                | U. Kingdom | U. States |
| 1888 . . . . . | 50,000     | 90,000    |
| 1892 . . . . . | 50,000     | 120,000   |
| 1895 . . . . . | 70,000     | 120,000   |

The hemp factories of the United Kingdom had

\* See Atkinson's lecture to the Royal Statistical Society, in March 1898.

32,000 spindles in 1870, and 54,000 in 1890, being an increase of 70 per cent.

Exports of hemp from Italy rose from 32,000 tons in 1885 to 48,000 tons in 1895.

### HORSES

The United Kingdom is no longer able to raise a sufficient number of horses for its own requirements, but has to import some thousands yearly, as the trade returns show :—

| Year       | Number   |          | Value, £  |          |
|------------|----------|----------|-----------|----------|
|            | Imported | Exported | Imported  | Exported |
| 1887 . . . | 11,600   | 9,500    | 200,000   | 550,000  |
| 1892 . . . | 21,000   | 11,200   | 400,000   | 560,000  |
| 1897 . . . | 49,500   | 34,500   | 1,250,000 | 820,000  |

Respecting the losses of horses in war, Vet.-Capt. F. Smith in the *Journal of the United Service*, April 1894, gives 40 pages of statistics. The following table shows the records which exist as to losses in cavalry and artillery :—

| Battle             | Men, Loss | Horses, Loss | Observation |
|--------------------|-----------|--------------|-------------|
| Dettingen . . .    | 313       | 483          | 9 regiments |
| Fontenoy . . .     | 301       | 635          | 8 "         |
| Tourmay . . .      | 143       | 229          | 9 "         |
| Talavera . . .     | 244       | 288          | 2 "         |
| Waterloo . . .     | 4,727     | 5,572        | Allies      |
| Moodkee . . .      | 254       | 298          | Sikh war    |
| Feroeshah . . .    | 335       | 582          | "           |
| Aliwal . . .       | 265       | 351          | "           |
| Balaklava . . .    | 383       | 476          | Crimea      |
| Gettysburg . . .   | 1,255     | 1,629        | Amer. war   |
| Chickamauga . . .  | 303       | 406          | "           |
| Koenigsgratz . . . | 929       | 843          | Prussians   |
| " . . .            | 979       | 2,140        | Austrians   |
| Custoza . . .      | 464       | 566          | "           |
| Worth . . .        | 197       | 276          | Germans     |
| Vionville . . .    | 2,126     | 2,626        | "           |
| Gravelotte . . .   | 1,109     | 1,559        | "           |
| Sedan . . .        | 491       | 840          | "           |

In the war of 1812, Bonaparte crossed the Niemen in June with 187,000 horses, but on November 6 he had only 95,000 left; three days after the passage of the Beresina, on December 13, only 1600 horses came back from Russia.

At Corunna four British regiments landed with 2490 horses, and in two months lost 1210. In Massena's retreat from Portugal he had 8800 horses, of which he lost 1955 in ten days. In the Crimean war the British landed 7377 horses, and on April 1 only 3698 survived, showing a loss of 50 per cent. in six months, 2120 having died for want of food. At the siege of Plevna the Russians lost 22,000 horses out of 66,000, used only as draught, exclusive of horses killed in action.

See *Castle*.

### HOSPITALS

In 1891 London had 86 hospitals, with 8888 beds, but owing to want of funds 2510 beds were always kept vacant, the maximum never being allowed to exceed 6370 indoor patients, while outdoor patients in 1890 were 1,057,000. There are, meantime, 17,440 beds for the sick poor of London, in Poor-Law Infirmarys and Hospitals maintained by local authorities, which brings up the total accommodation to 23,800 beds, or 6 per thousand of the population of London. Dr. Steel's table (1891) shows the number of beds occupied and the cost

of 75 London hospitals, as well as the number of patients admitted, thus :—

| Hospital                 | Beds  | Expend. £ | Per Bed £ | Patients |
|--------------------------|-------|-----------|-----------|----------|
| London . . .             | 622   | 56,700    | 91        | 8,503    |
| Guy's . . .              | 418   | 34,300    | 82        | 5,385    |
| St. George's . . .       | 316   | 27,700    | 88        | 4,029    |
| St. Mary's . . .         | 251   | 21,200    | 84        | 3,451    |
| University College . . . | 179   | 19,700    | 110       | 3,007    |
| Middlesex . . .          | 254   | 26,400    | 104       | 2,948    |
| Westminster . . .        | 175   | 14,100    | 81        | 2,572    |
| Seamen's . . .           | 186   | 11,700    | 63        | 2,401    |
| Ophthalmic . . .         | 96    | 6,200     | 64        | 2,337    |
| King's College . . .     | 163   | 20,000    | 123       | 2,189    |
| Royal Free . . .         | 133   | 10,600    | 80        | 2,019    |
| Charing Cross . . .      | 143   | 14,300    | 100       | 1,948    |
| Brompton . . .           | 275   | 25,800    | 93        | 1,669    |
| West London . . .        | 87    | 5,600     | 64        | 1,283    |
| Shadwell . . .           | 78    | 6,800     | 86        | 1,074    |
| 15 principal . . .       | 3,376 | 301,100   | 90        | 44,815   |
| 60 others . . .          | 2,274 | 208,900   | 92        | 23,585   |
| Total . . .              | 5,650 | 510,000   | 91        | 68,400   |

In the larger hospitals each bed averaged 13 patients, in the smaller only 10, yearly: the average cost for each patient was 133 shillings in the large, 177 in the small, hospitals. The Poor-Law Infirmarys of London had 12,300 beds, with an annual expenditure of £440,000, equal to £36 per bed.

In Paris there are 30 hospitals, besides various asylums for aged persons: the returns for the year 1894 showed :—

|                            | Hospitals | Asylums | Total   |
|----------------------------|-----------|---------|---------|
| No. on January 1 . . .     | 11,566    | 10,125  | 21,691  |
| Admitted during year . . . | 163,817   | 7,993   | 171,810 |
| Left, cured . . .          | 148,173   | 6,380   | 154,553 |
| Died . . .                 | 15,667    | 1,508   | 17,175  |
| No. on December 31 . . .   | 11,543    | 10,230  | 21,773  |

Death-rate was 9½ per cent. in the hospitals, 15 per cent. in the aged asylums. The days of sickness in the hospitals averaged 26 to each patient admitted.

Switzerland is the country best supplied with hospitals, having 17,800 beds, or 6 to every thousand of population. See *Charities*, page 655.

### HOUSES

The following table gives an approximate statement of the number and value of houses in the principal countries.

|                          | Number of Houses | Value, Millions £ | Per House |        |
|--------------------------|------------------|-------------------|-----------|--------|
|                          |                  |                   | Value, £  | Inhab. |
| United Kingdom . . .     | 7,874,000        | 2,490             | 315       | 5.1    |
| France . . .             | 8,829,000        | 2,159             | 245       | 4.4    |
| Germany . . .            | 5,791,000        | 1,755             | 303       | 9.0    |
| Russia . . .             | 11,436,000       | 1,019             | 89        | 9.3    |
| Austria . . .            | 4,996,000        | 719               | 144       | 8.7    |
| Italy . . .              | 4,470,000        | 503               | 113       | 7.0    |
| Spain and Portugal . . . | 3,810,000        | 355               | 93        | 6.1    |
| Scandinavia . . .        | 1,200,000        | 221               | 184       | 7.7    |
| Belgium . . .            | 1,060,000        | 175               | 165       | 6.2    |
| Holland . . .            | 730,000          | 178               | 244       | 6.7    |
| Europe . . .             | 50,196,000       | 9,574             | 190       | 7.1    |
| United States . . .      | 12,690,000       | 3,889             | 306       | 4.9    |
| Australia . . .          | 804,000          | 174               | 216       | 4.8    |

The above is irrespective of public buildings, which in some countries are estimated at one-fifth of the value of houses, but includes all houses, whether occupied or not.

The last census of the United Kingdom showed as follows :—

| With Rooms     | England   | Scotland | Ireland | Total     |
|----------------|-----------|----------|---------|-----------|
| One or two . . | 985,000   | 536,000  | 472,000 | 1,993,000 |
| Three . . . .  | 757,000   | 143,000  | 361,000 | 1,261,000 |
| Four or more   | 4,389,000 | 194,000  | 37,000  | 4,620,000 |
| Total . . . .  | 6,131,000 | 873,000  | 870,000 | 7,874,000 |

The rateable annual value in 1896 was as follows :—

|                  | Houses    | Annual Value, £ | Average, £ |
|------------------|-----------|-----------------|------------|
| England . . . .  | 6,170,000 | 135,930,000     | 22.1       |
| Scotland . . . . | 930,000   | 14,600,000      | 15.7       |
| Ireland . . . .  | 870,000   | 4,010,000       | 4.6        |
| U. Kingdom . .   | 7,970,000 | 154,540,000     | 19.3       |

The capital value of house property compares with population as follows :—

|                    | Millions £ | £ per Inhab. |
|--------------------|------------|--------------|
| England . . . .    | 2,266      | 74           |
| Scotland . . . .   | 243        | 58           |
| Ireland . . . .    | 67         | 15           |
| United Kingdom . . | 2,576      | 65           |

In the following table is shown the increase in value of house property in ten years :—

|                    | Millions £ Sterling |       |          | £ per Inhab. |
|--------------------|---------------------|-------|----------|--------------|
|                    | 1886                | 1896  | Increase |              |
| England . . . .    | 1,924               | 2,266 | 342      | 11.8         |
| Scotland . . . .   | 209                 | 243   | 34       | 8.5          |
| Ireland . . . .    | 57                  | 67    | 10       | 2.1          |
| United Kingdom . . | 2,190               | 2,576 | 386      | 10.2         |

The annual increase averaged £38,600,000, which is equal to about one-fourth of the ordinary accumulation of wealth in the United Kingdom.

There are 490,000 uninhabited houses in the United Kingdom, or 6 per cent. of the total, but in Ireland the ratio is 8 per cent.

The number and value of houses in Great Britain increased in twelve years as follows :—

|                  | Number    |           | Valuation, £ |             |
|------------------|-----------|-----------|--------------|-------------|
|                  | 1884      | 1896      | 1884         | 1896        |
| England . . . .  | 5,272,000 | 6,166,000 | 111,600,000  | 136,700,000 |
| Scotland . . . . | 816,000   | 930,000   | 12,100,000   | 14,700,000  |
| Total . . . .    | 6,088,000 | 7,096,000 | 123,700,000  | 151,400,000 |

The number increased 17, the valuation rental 22, per cent. Those under £20 a year are exempt from house-duty. The total for Great Britain (there is no house-tax in Ireland) showed as follows :—

|                    | Houses    |           |           |
|--------------------|-----------|-----------|-----------|
|                    | 1884      | 1896      | Increase  |
| Under £20 . . . .  | 4,424,000 | 5,181,000 | 757,000   |
| Over £20 . . . .   | 1,172,000 | 1,380,000 | 208,000   |
| Pub. buildgs., &c. | 492,000   | 535,000   | 43,000    |
| Total . . . .      | 6,088,000 | 7,096,000 | 1,008,000 |

|                    | Valuation, £ |             |            |
|--------------------|--------------|-------------|------------|
|                    | 1884         | 1896        | Increase   |
| Under £20 . . . .  | 36,500,000   | 45,600,000  | 9,100,000  |
| Over £20 . . . .   | 60,800,000   | 70,200,000  | 9,400,000  |
| Pub. buildgs., &c. | 26,400,000   | 35,600,000  | 9,200,000  |
| Total . . . .      | 123,700,000  | 151,400,000 | 27,700,000 |

The rental valuation of houses in the three kingdoms compares with population as follows :—

|                    | £ Sterling  |             | £ per Inhab. |      |
|--------------------|-------------|-------------|--------------|------|
|                    | 1884        | 1896        | 1884         | 1896 |
| England . . . .    | 111,600,000 | 136,700,000 | 4.1          | 4.5  |
| Scotland . . . .   | 12,100,000  | 14,700,000  | 3.2          | 3.5  |
| Ireland . . . .    | 3,400,000   | 3,900,000   | 0.7          | 0.8  |
| U. Kingdom . . . . | 127,100,000 | 155,300,000 | 3.6          | 3.9  |

On the usual basis of computation that the rateable value represents 6 per cent. of the selling price of house property, it appears that the values compared with population result as follows :—

| <i>England</i>    |             |                   |              |
|-------------------|-------------|-------------------|--------------|
|                   | Assessed, £ | Value, Millions £ | £ per Inhab. |
| London . . .      | 35,820,000  | 597               | 133          |
| Manchester . . .  | 3,670,000   | 61                | 84           |
| Liverpool . . .   | 3,630,000   | 61                | 95           |
| Birmingham . .    | 2,080,000   | 35                | 70           |
| Leeds . . . . .   | 1,340,000   | 22                | 55           |
| Sheffield . . . . | 1,150,000   | 19                | 57           |
| Bradford . . . .  | 1,070,000   | 18                | 82           |
| Bristol . . . . . | 1,060,000   | 18                | 82           |
| Newcastle . . . . | 910,000     | 15                | 75           |
| Cardiff . . . . . | 830,000     | 14                | 90           |
| Hull . . . . .    | 760,000     | 13                | 62           |
| Brighton . . . .  | 710,000     | 12                | 101          |
| Portsmouth . . .  | 630,000     | 11                | 66           |
| Croydon . . . . . | 600,000     | 10                | 90           |
| Oldham . . . . .  | 600,000     | 10                | 70           |
| 15 Cities . . . . | 54,860,000  | 916               | 108          |

| Scotland         |           |     |     |
|------------------|-----------|-----|-----|
| Glasgow . . . .  | 3,730,000 | 62  | 90  |
| Edinburgh . . .  | 2,750,000 | 46  | 140 |
| Dundee . . . . . | 700,000   | 12  | 80  |
| Aberdeen . . . . | 600,000   | 10  | 75  |
| 4 Cities . . . . | 7,780,000 | 130 | 97  |

| Ireland           |             |            |            |
|-------------------|-------------|------------|------------|
|                   | Assessed, £ | Value, £   | £ per Head |
| Dublin . . . . .  | 1,170,000   | 19,500,000 | 55         |
| Belfast . . . . . | 910,000     | 15,200,000 | 61         |
| Cork . . . . .    | 165,000     | 2,700,000  | 36         |
| Derry . . . . .   | 90,000      | 1,500,000  | 45         |
| Limerick . . . .  | 69,000      | 1,150,000  | 28         |
| Waterford . . . . | 47,000      | 800,000    | 40         |
| 6 Cities . . . .  | 2,451,000   | 40,850,000 | 52         |

The average value of house property to inhabitant is higher in Edinburgh than elsewhere, London taking the

second, Brighton the third place. Building sites in London reach the highest price in the world, £2,000,000 per acre. In 1884 two sites were sold in Threadneedle Street and Cheapside at £30 and £44 respectively per square foot. In March 1898 an acre was sold in Edinburgh (for a new printing-office for the *Scotsman*) at the price of £120,000, or 53 shillings per square foot, which is perhaps the highest price recorded in that city. Outside of the large cities and in the rural districts the average of house property per inhabitant is much lower, viz. :—

*England*

|                 | Millions £<br>House-prop. | Number of<br>Inhabitants | £ per<br>Head |
|-----------------|---------------------------|--------------------------|---------------|
| 15 Cities . . . | 916                       | 8,500,000                | 108           |
| Outside . . .   | 1,350                     | 22,200,000               | 61            |
| Total . . .     | 2,266                     | 30,700,000               | 74            |

*Scotland*

|                | Millions £<br>House-prop. | Number of<br>Inhabitants | £ per<br>Head |
|----------------|---------------------------|--------------------------|---------------|
| 4 Cities . . . | 130                       | 1,330,000                | 97            |
| Outside . . .  | 113                       | 2,850,000                | 40            |
| Total . . .    | 243                       | 4,180,000                | 58            |

*Ireland*

|                | Millions £<br>House-prop. | Number of<br>Inhabitants | £ per<br>Head |
|----------------|---------------------------|--------------------------|---------------|
| 6 Cities . . . | 41                        | 780,000                  | 52            |
| Outside . . .  | 26                        | 3,780,000                | 7             |
| Total . . .    | 67                        | 4,560,000                | 15            |

*U. Kingdom*

|                 | Millions £<br>House-prop. | Number of<br>Inhabitants | £ per<br>Head |
|-----------------|---------------------------|--------------------------|---------------|
| 25 Cities . . . | 1,087                     | 10,610,000               | 97            |
| Outside . . .   | 1,489                     | 28,830,000               | 53            |
| Total . . .     | 2,576                     | 39,440,000               | 65            |

The rural population of Ireland has almost the same ratio of house property per head as the Russian Moujiks. The ratio of house property to population is higher in Belfast than in Dublin, as already shown: Belfast built 49,000 new houses between 1862 and 1896.

There are five principal companies or trusts for the purpose of providing dwellings for the working-classes of London at a minimum rental, viz. :—

|                         | Capital<br>£ | Occupants | Pence per<br>Room<br>Weekly |
|-------------------------|--------------|-----------|-----------------------------|
| Artisans' Company . . . | 2,250,000    | 6,600     | 18                          |
| Peabody . . .           | 1,150,000    | 25,100    | 26                          |
| Industrial . . .        | 600,000      | 6,300     | 26                          |
| Guinness . . .          | 260,000      | 7,300     | 26                          |
| County Council . . .    | 390,000      | 6,600     | ...                         |
| Total . . .             | 4,650,000    | 51,900    | 27                          |

Miss Octavia Hill and Lord Rowton have also built blocks of workmen's dwellings to be let at 5 per cent. of cost. Lord Rowton's cost £50 per occupant, and the rent averages 1 shilling a week per head. The buildings of the County Council cost £60 per occupant. The Council cleared 15 acres, demolishing 20 streets and 730 houses, and erecting on the site blocks to admit 6600 persons, with rooms 12×8½ ft. The blocks are intersected by 7 avenues 60 ft. wide, and have a central

garden 270 ft. diameter. The Artisans' Company have 5000 cottages in the suburbs of London: average cost £400. See page 413.

## FRANCE

An official return by M. Boutin in 1890 shows the number and rental of houses thus :—

| Year       | Houses    | Rental, £   | £ per House |
|------------|-----------|-------------|-------------|
| 1851 . . . | 7,125,000 | 38,300,000  | 5.2         |
| 1890 . . . | 8,829,000 | 110,800,000 | 12.6        |

The value in 1890 was returned as 1942 millions sterling. Among the houses are 5650 castles, with an average rental of £160 each. The rental classification was :—

| Rental               | Number    | Ratio |
|----------------------|-----------|-------|
| Under £10 . . . . .  | 1,150,000 | 13.1  |
| £10 to £24 . . . . . | 2,633,000 | 29.8  |
| £24 to £48 . . . . . | 2,140,000 | 24.2  |
| £48 to £96 . . . . . | 1,390,000 | 15.6  |
| Over £96 . . . . .   | 1,516,000 | 17.3  |
| Total . . . . .      | 8,829,000 | 100.0 |

Boutin further shows that France built 835,000 houses between 1871 and 1881, of the value of £640 millions sterling.

There are various philanthropic associations in the large cities for providing cheap houses for workmen. That of Lyons has expended £150,000; those of Paris, Marseilles, &c., £280,000, in erecting buildings on the Peabody system.

## AUSTRIA

An official statement regarding the houses of Vienna shows the population to be lodged thus :—

| In                     | Tenements | Population |
|------------------------|-----------|------------|
| 1 room . . . . .       | 23,920    | 64,620     |
| 2 rooms . . . . .      | 103,430   | 411,310    |
| 3 rooms . . . . .      | 86,600    | 426,520    |
| Over 3 rooms . . . . . | 72,810    | 439,450    |
| Total . . . . .        | 286,760   | 1,341,900  |

Only the last class is properly housed, that is, one-third of the population. It appears that 902,000 persons live in 214,000 tenements, containing 490,000 rooms, being an average of 2 persons to each room.

## UNITED STATES

The estimated value of buildings, according to census commissioners, includes public buildings worth 17, and houses worth 83, per cent. of the total, which in 1890 stood thus :—

| States            | Millions £ Sterling |                     |       | Value of<br>Houses.<br>£ per<br>Inhabitant |
|-------------------|---------------------|---------------------|-------|--------------------------------------------|
|                   | Houses              | Public<br>Buildings | Total |                                            |
| New England . . . | 433                 | 86                  | 519   | 92                                         |
| Middle . . .      | 1,434               | 287                 | 1,721 | 101                                        |
| South . . .       | 428                 | 85                  | 513   | 23                                         |
| West . . .        | 1,594               | 319                 | 1,913 | 63                                         |
| Union . . .       | 3,889               | 777                 | 4,666 | 62                                         |

In 1897 the assessed value of houses and buildings in New York city was 513 millions sterling, equal to £205 per inhabitant.

The total number of houses in the Union is shown by census thus (1890):—

|             | Occupied by |           |            |
|-------------|-------------|-----------|------------|
|             | Owner       | Tenant    | Total      |
| Urban . . . | 1,074,000   | 2,625,000 | 3,699,000  |
| Rural . . . | 4,992,000   | 3,999,000 | 8,991,000  |
| Total . . . | 6,066,000   | 6,624,000 | 12,690,000 |

In the towns 30 per cent., and in the rural districts 55 per cent., of the people lived in their own houses.

Some of the largest cities showed as follows:—

|                     | Occupied by |           |           | Inhab. per House |
|---------------------|-------------|-----------|-----------|------------------|
|                     | Owner       | Tenant    | Total     |                  |
| New York . . .      | 20,000      | 293,000   | 313,000   | 5.2              |
| Philadelphia . . .  | 46,000      | 158,000   | 204,000   | 5.2              |
| Chicago . . .       | 63,000      | 157,000   | 220,000   | 5.0              |
| Brooklyn . . .      | 32,000      | 139,000   | 171,000   | 4.7              |
| St. Louis . . .     | 19,000      | 73,000    | 92,000    | 4.9              |
| Boston . . .        | 17,000      | 73,000    | 90,000    | 5.0              |
| Baltimore . . .     | 23,000      | 64,000    | 87,000    | 5.0              |
| Cincinnati . . .    | 12,000      | 51,000    | 63,000    | 4.8              |
| San Francisco . . . | 11,000      | 41,000    | 52,000    | 5.8              |
| New Orleans . . .   | 10,000      | 38,000    | 48,000    | 5.0              |
| 10 Cities . . .     | 253,000     | 1,087,000 | 1,340,000 | 4.9              |

In three years ending December 1893, New York built new houses to the value of £24,300,000, say £8,100,000 per annum, as compared with £6,400,000 in 1888.

AUSTRALIA

The census of 1891 gave only the number of houses, but the approximate value will be as in the following table:—

|                    | No. of Houses | Value, £    | £ per House | Inhab. per House |
|--------------------|---------------|-------------|-------------|------------------|
| N. S. Wales . . .  | 242,000       | 68,000,000  | 280         | 4.7              |
| Victoria . . .     | 242,000       | 53,000,000  | 218         | 4.7              |
| N. Zealand . . .   | 134,000       | 25,000,000  | 187         | 4.7              |
| Queensland . . .   | 81,000        | 8,000,000   | 90          | 4.8              |
| S. Australia . . . | 64,000        | 12,000,000  | 188         | 5.0              |
| Tasmania . . .     | 30,000        | 6,000,000   | 200         | 4.9              |
| W. Australia . . . | 11,000        | 2,000,000   | 180         | 4.5              |
| Total . . .        | 804,000       | 174,000,000 | 216         | 4.8              |

The material of the houses was as follows:—

|                      | Number  | Ratio |
|----------------------|---------|-------|
| Brick or stone . . . | 232,000 | 29.0  |
| Wood, &c. . .        | 572,000 | 71.0  |
| Total . . .          | 804,000 | 100.0 |

The two great cities have a high ratio of house-property per inhabitant, viz.:—

|                 | Value, £   | £ per Inhab. |
|-----------------|------------|--------------|
| Sydney . . .    | 30,600,000 | 124          |
| Melbourne . . . | 58,000,000 | 128          |

It would appear that the total value of house property in Australia is equal to £46 per inhabitant, against £62 in the United States, and £29 in Canada.

CANADA

Municipal assessments show an increase of 130 per cent. in house property in 20 years, viz.:—

|                  | £ Sterling |             |            |
|------------------|------------|-------------|------------|
|                  | 1873       | 1893        | Increase   |
| Quebec . . .     | 15,500,000 | 30,600,000  | 15,100,000 |
| Ontario . . .    | 22,300,000 | 57,600,000  | 35,300,000 |
| Acadia . . .     | 9,600,000  | 12,100,000  | 2,500,000  |
| North-West . . . | 1,200,000  | 11,700,000  | 10,500,000 |
| Total . . .      | 48,600,000 | 112,000,000 | 63,400,000 |

Bodio's tables of building sites and rents of houses in various cities (1888-91) may be condensed as follows: the rents shown are the average paid in those years for an unfurnished house or flat of 6 rooms:—

|                | Sites, Shillings per Sq. Foot | Rents, Shillings per Month |
|----------------|-------------------------------|----------------------------|
| Paris . . .    | 2-120                         | 268                        |
| Berlin . . .   | 4-10                          | 60                         |
| Brussels . . . | 16-75                         | 36                         |
| Vienna . . .   | 3-140                         | 130                        |
| Dresden . . .  | 1-7                           | 32                         |
| Rome . . .     | 4-60                          | 80                         |
| Genoa . . .    | 3-9                           | 53                         |
| Naples . . .   | 4-20                          | 80                         |

In the above table the rent for Paris probably refers to the better quarters. As regards building sites, 53 shillings per sq. foot was recently paid in Edinburgh, £20 in London.

HOUSE-TAX

This tax in certain cities shows as follows:—

|               | £ Stg.  | Pence per Inhab. |              | £ Stg.  | Pence per Inhab. |
|---------------|---------|------------------|--------------|---------|------------------|
| Berlin . . .  | 590,000 | 95               | Naples . . . | 420,000 | 190              |
| Breslau . . . | 85,000  | 60               | Milan . . .  | 420,000 | 230              |
| Rome . . .    | 490,000 | 270              | Genoa . . .  | 210,000 | 230              |

In London the Inhabited House-duty averages £400,000, or 20 pence per inhabitant yearly, whereas in Italy this tax is equivalent to 20 pence a month per inhabitant.

HUNTING

See page 319.



## I

## INCOME

The incomes or earnings of nations in 1895 were approximately as follows :—

|                           | Millions £ Sterling |          |       |           |            |           |            |             | Total  |
|---------------------------|---------------------|----------|-------|-----------|------------|-----------|------------|-------------|--------|
|                           | Agricul.            | Manufac. | Trade | Transport | Mines, &c. | Domestics | House-Rent | Professions |        |
| United Kingdom . . . . .  | 138                 | 438      | 161   | 167       | 87         | 100       | 150        | 180         | 1,421  |
| France . . . . .          | 250                 | 298      | 120   | 131       | 35         | 79        | 118        | 174         | 1,205  |
| Germany . . . . .         | 250                 | 345      | 135   | 143       | 48         | 61        | 92         | 211         | 1,285  |
| Russia . . . . .          | 324                 | 190      | 103   | 108       | 54         | 31        | 47         | 147         | 1,004  |
| Austria . . . . .         | 192                 | 164      | 73    | 76        | 28         | 25        | 37         | 112         | 707    |
| Italy . . . . .           | 122                 | 95       | 45    | 47        | 8          | 18        | 27         | 74          | 436    |
| Spain . . . . .           | 81                  | 60       | 30    | 35        | 8          | 9         | 14         | 40          | 277    |
| Portugal . . . . .        | 16                  | 14       | 7     | 4         | 2          | 3         | 4          | 11          | 61     |
| Scandinavia . . . . .     | 49                  | 41       | 23    | 22        | 20         | 8         | 12         | 25          | 200    |
| Holland . . . . .         | 22                  | 25       | 21    | 8         | 1          | 7         | 10         | 15          | 109    |
| Belgium . . . . .         | 26                  | 59       | 24    | 14        | 11         | 5         | 8          | 22          | 169    |
| Switzerland . . . . .     | 12                  | 20       | 10    | 6         | 1          | 3         | 5          | 9           | 66     |
| Danubian States . . . . . | 50                  | 28       | 16    | 10        | 5          | 4         | 7          | 20          | 140    |
| Greece . . . . .          | 8                   | 5        | 3     | 3         | 1          | 1         | 2          | 5           | 28     |
| Europe . . . . .          | 1,540               | 1,782    | 771   | 774       | 309        | 354       | 533        | 1,045       | 7,108  |
| United States . . . . .   | 488                 | 976      | 313   | 357       | 250        | 178       | 267        | 349         | 3,178  |
| Canada . . . . .          | 34                  | 49       | 20    | 25        | 25         | 5         | 7          | 21          | 186    |
| Australia . . . . .       | 42                  | 42       | 20    | 25        | 15         | 14        | 21         | 34          | 213    |
| Argentina . . . . .       | 28                  | 20       | 10    | 12        | ...        | 5         | 7          | 13          | 95     |
| Total . . . . .           | 2,132               | 2,869    | 1,134 | 1,193     | 599        | 556       | 835        | 1,462       | 10,780 |

In the above table the column of Mines, &c., comprises the aggregate earnings from mines, forests, and fisheries; that of Professions includes the income of army, navy, and civil service, and of all persons not engaged in any of the preceding employments.

## UNITED KINGDOM

Baxter's table for 1867, compared with the apparent earnings of the people of the United Kingdom in 1895, stands thus :—

| Class                    | 1867       |            |            | 1895       |            |            |
|--------------------------|------------|------------|------------|------------|------------|------------|
|                          | Number     | Millions £ | Average, £ | Number     | Millions £ | Average, £ |
| Over £5000 . . . . .     | 8,500      | 126        | 14,800     | 27,000     | 216        | 8,200      |
| £1000 to £5000 . . . . . | 48,800     | 83         | 1,700      | 103,000    | 165        | 1,600      |
| £300 to £1000 . . . . .  | 178,300    | 88         | 490        | 360,000    | 144        | 400        |
| £100 to £300 . . . . .   | 1,026,400  | 111        | 108        | 1,600,000  | 240        | 150        |
| Under £100 . . . . .     | 12,458,000 | 406        | 33         | 15,910,000 | 656        | 41         |
| Total . . . . .          | 13,720,000 | 814        | 59         | 18,000,000 | 1,421      | 79         |

The earnings of the people were certainly underestimated by Baxter in 1867. They were approximately as follows in 1895\* :—

|                             | Millions £ |          |         |          |
|-----------------------------|------------|----------|---------|----------|
|                             | England    | Scotland | Ireland | U. King. |
| Agricultural . . . . .      | 88         | 17       | 33      | 138      |
| Manufacturing . . . . .     | 351        | 68       | 19      | 438      |
| Mines, forests, &c. . . . . | 74         | 13       | ...     | 87       |
| Trade . . . . .             | 126        | 23       | 12      | 161      |
| Transport . . . . .         | 137        | 21       | 9       | 167      |
| House-rent . . . . .        | 132        | 14       | 4       | 150      |
| Domestics . . . . .         | 88         | 10       | 2       | 100      |
| Public service . . . . .    | 44         | 4        | 3       | 51       |
| Professions . . . . .       | 104        | 17       | 8       | 129      |
| Total . . . . .             | 1,144      | 187      | 90      | 1,421    |

The above gives an average income of £38 per inhabi-

tant in England, £45 in Scotland, and £20 in Ireland. If the above were divided among the number of persons of gainful occupation, according to census of 1891, it would give to each person in England £89, in Scotland £105, in Ireland £42, and for the whole United Kingdom £84, which is only 32 shillings a week.

## FRANCE

There were by last census 17,300,000 persons of gainful pursuits, and the gross earnings may be estimated to be apportioned thus :—

| Class             | Number     | Millions £ | Average, £ |
|-------------------|------------|------------|------------|
| Rich . . . . .    | 700,000    | 440        | 630        |
| Middle . . . . .  | 2,500,000  | 240        | 96         |
| Working . . . . . | 14,100,000 | 525        | 37         |
| Total . . . . .   | 17,300,000 | 1,205      | 70         |

\* See "Industries and Wealth of Nations," Longmans, 1896.

The Société Statistique de Paris in 1891 estimated the earnings of the French people at 944 millions sterling. Leroy Beaulieu says that there are in Paris 36,000 persons with incomes over £500 a year.

## GERMANY

The principal States stand in the following order of earnings :—

|                   | Millions £ Sterling |         |        |            |            | Total |
|-------------------|---------------------|---------|--------|------------|------------|-------|
|                   | Prussia             | Bavaria | Saxony | Wurtemberg | Baden, &c. |       |
| Agriculture . . . | 155                 | 35      | 10     | 10         | 40         | 250   |
| Manufacture . . . | 197                 | 34      | 38     | 16         | 60         | 345   |
| Mines, &c. . . .  | 36                  | 3       | 3      | 1          | 5          | 48    |
| Trade . . . . .   | 80                  | 15      | 11     | 6          | 23         | 135   |
| Transport . . . . | 86                  | 16      | 11     | 6          | 24         | 143   |
| House-rent . . .  | 55                  | 10      | 6      | 4          | 17         | 92    |
| Domestics . . . . | 36                  | 7       | 4      | 3          | 11         | 61    |
| Professions . . . | 125                 | 23      | 16     | 8          | 39         | 211   |
| Total . . . . .   | 770                 | 143     | 99     | 54         | 219        | 1,285 |

The census of 1895 gave 22,910,000 persons earning a livelihood, and judging by income-tax returns the earnings may be apportioned thus :—

|                     | Number     | Millions £ | Average, £ |
|---------------------|------------|------------|------------|
| Over £1100 . . . .  | 30,000     | 115        | 3,800      |
| £240 to £1100 . . . | 144,000    | 70         | 480        |
| £150 to £240 . . .  | 360,000    | 67         | 185        |
| Under £150 . . . .  | 22,376,000 | 1,033      | 46         |
| Total . . . . .     | 22,910,000 | 1,285      | 56         |

## SCANDINAVIA

The three northern kingdoms show thus :—

|                     | Millions £ |        |         |             |
|---------------------|------------|--------|---------|-------------|
|                     | Sweden     | Norway | Denmark | Scandinavia |
| Agriculture . . . . | 22         | 6      | 21      | 49          |
| Manufactures . . .  | 23         | 8      | 10      | 41          |
| Trade . . . . .     | 12         | 4      | 7       | 23          |
| Transport . . . . . | 10         | 7      | 5       | 22          |
| Forests, &c. . . .  | 13         | 6      | 1       | 20          |
| Domestics . . . .   | 4          | 1      | 3       | 8           |
| House-rent . . . .  | 6          | 2      | 4       | 12          |
| Professions . . . . | 12         | 6      | 7       | 25          |
| Total . . . . .     | 102        | 40     | 58      | 200         |

## DANUBIAN STATES

The earnings of these States are approximately as follows :—

|                      | Millions £ Sterling |        |          |       |
|----------------------|---------------------|--------|----------|-------|
|                      | Roumania            | Servia | Bulgaria | Total |
| Agriculture . . . .  | 27                  | 10     | 13       | 50    |
| Manufactures, &c. .  | 16                  | 7      | 10       | 33    |
| Trade, &c. . . . .   | 15                  | 5      | 6        | 26    |
| Professions, &c. . . | 17                  | 6      | 8        | 31    |
| Total . . . . .      | 75                  | 28     | 37       | 140   |

## AUSTRIA-HUNGARY

The earnings of Austrians and Hungarians seem to be:

|                      | Millions £ Sterling |         |       |
|----------------------|---------------------|---------|-------|
|                      | Austria             | Hungary | Total |
| Agriculture . . . .  | 99                  | 93      | 192   |
| Manufactures . . .   | 90                  | 74      | 164   |
| Trade . . . . .      | 39                  | 34      | 73    |
| Transport . . . . .  | 41                  | 35      | 76    |
| Mines, forests . . . | 17                  | 11      | 28    |
| House-rent . . . .   | 28                  | 9       | 37    |
| Domestics . . . . .  | 19                  | 6       | 25    |
| Professions . . . .  | 64                  | 48      | 112   |
| Total . . . . .      | 397                 | 310     | 707   |

The above, divided among the number of persons following gainful pursuits in 1890, gives :—

|                   | Earners    | Millions £ | Average, £ |
|-------------------|------------|------------|------------|
| Austria . . . . . | 13,570,000 | 397        | 29         |
| Hungary . . . . . | 7,390,000  | 310        | 42         |
| Total . . . . .   | 20,960,000 | 707        | 34         |

## UNITED STATES

The distribution of earnings is approximately :—

|                     | Millions £ Sterling |        |       |       |       |
|---------------------|---------------------|--------|-------|-------|-------|
|                     | N. Eng.             | Middle | South | West  | Union |
| Agriculture . . . . | 19                  | 65     | 124   | 280   | 488   |
| Manufactures . . .  | 156                 | 380    | 74    | 366   | 976   |
| Mining . . . . .    | 4                   | 32     | 8     | 57    | 101   |
| Forestry, &c. . . . | 12                  | 23     | 56    | 58    | 149   |
| Trade . . . . .     | 38                  | 96     | 43    | 130   | 313   |
| Transport . . . . . | 44                  | 109    | 49    | 155   | 357   |
| House-rent . . . .  | 30                  | 98     | 30    | 109   | 267   |
| Domestics . . . . . | 20                  | 65     | 20    | 73    | 178   |
| Professions . . . . | 40                  | 108    | 50    | 151   | 349   |
| Total . . . . .     | 363                 | 976    | 454   | 1,385 | 3,178 |

If we allow an increase of 10 per cent. on the number of persons earning livelihoods by census of 1890, the division of earnings will be thus :—

| States            | No. of Earners | Millions £ | Average, £ |
|-------------------|----------------|------------|------------|
| New England . . . | 2,200,000      | 363        | 165        |
| Middle . . . . .  | 6,080,000      | 976        | 160        |
| South . . . . .   | 6,820,000      | 454        | 67         |
| West . . . . .    | 9,900,000      | 1,385      | 140        |
| Union . . . . .   | 25,000,000     | 3,178      | 127        |

## CANADA

The earnings of Canada are approximately :—

|                     | £ Sterling (000 omitted) |        |        |                  |
|---------------------|--------------------------|--------|--------|------------------|
|                     | Ontario                  | Quebec | Acadia | N. West Dominion |
| Agriculture . . . . | 19,400                   | 5,800  | 3,100  | 5,700            |
| Manufac. . . . .    | 24,700                   | 15,600 | 5,600  | 3,100            |
| Trade, &c. . . . .  | 22,100                   | 11,900 | 6,600  | 4,400            |
| Sundries . . . . .  | 22,200                   | 15,900 | 13,400 | 6,500            |
| Total . . . . .     | 88,400                   | 49,200 | 28,700 | 19,700           |

Acadia comprises Nova Scotia, New Brunswick, and the other maritime provinces. The number of persons earning a livelihood in 1890 was 1,611,000, giving an average of £115 each, against £127 in the United States.

## AUSTRALIA

The earnings of the different colonies for 1895 may be distinguished thus :—

|                       | £ Sterling (ooo omitted) |        |              |        |            |          |         |
|-----------------------|--------------------------|--------|--------------|--------|------------|----------|---------|
|                       | Farming                  | Mining | Manufactures | Trade  | House-rent | Sundries | Total   |
| New South Wales . .   | 12,400                   | 4,900  | 13,000       | 14,000 | 6,800      | 15,400   | 66,500  |
| Victoria . . . . .    | 9,600                    | 2,800  | 17,000       | 14,200 | 7,300      | 13,900   | 64,800  |
| New Zealand . . . .   | 8,500                    | 1,700  | 6,700        | 7,800  | 2,300      | 7,200    | 34,200  |
| Queensland . . . . .  | 5,800                    | 2,700  | 2,400        | 4,800  | 1,900      | 5,300    | 22,900  |
| South Australia . . . | 3,900                    | 400    | 1,900        | 3,000  | 1,300      | 3,400    | 13,900  |
| Tasmania . . . . .    | 1,300                    | 700    | 800          | 1,200  | 1,000      | 1,800    | 6,800   |
| West Australia . . .  | 500                      | 800    | 300          | 700    | 400        | 1,200    | 3,900   |
| Total . . . . .       | 42,000                   | 14,000 | 42,100       | 45,700 | 21,000     | 48,200   | 213,000 |

Dividing the above among the earners, we find :—

|                       | Earners   | £ Sterling  | £ each |
|-----------------------|-----------|-------------|--------|
| New South Wales . .   | 465,000   | 66,500,000  | 143    |
| Victoria . . . . .    | 502,000   | 64,800,000  | 129    |
| New Zealand . . . .   | 253,000   | 34,200,000  | 135    |
| Queensland . . . . .  | 180,000   | 22,900,000  | 127    |
| South Australia . . . | 134,000   | 13,900,000  | 104    |
| Tasmania . . . . .    | 61,000    | 6,800,000   | 111    |
| West Australia . . .  | 25,000    | 3,900,000   | 156    |
| Total . . . . .       | 1,620,000 | 213,000,000 | 132    |

The general average per worker is £132, against £127 in the United States, £115 in Canada, and £84 in the United Kingdom.

## INCOME-TAX

The assessments have risen in twenty years as follows :

## England, £

|                       | 1876        | 1886        | 1896        | Increase in 20 Years |
|-----------------------|-------------|-------------|-------------|----------------------|
| Land . . . . .        | 50,200,000  | 46,000,000  | 39,400,000  | ...                  |
| Houses . . . . .      | 83,900,000  | 115,400,000 | 135,900,000 | 52,000,000           |
| Railways . . . . .    | 24,200,000  | 31,800,000  | 43,500,000  | 19,300,000           |
| Mines . . . . .       | 13,200,000  | 6,500,000   | 11,500,000  | ...                  |
| Professions . . . . . | 318,300,000 | 333,300,000 | 375,600,000 | 57,300,000           |
| Total . . . . .       | 489,800,000 | 533,000,000 | 605,900,000 | 116,100,000          |

## Scotland, £

|                       | 1876       | 1886       | 1896       | Increase in 20 Years |
|-----------------------|------------|------------|------------|----------------------|
| Land . . . . .        | 7,500,000  | 7,300,000  | 6,100,000  | ...                  |
| Houses . . . . .      | 9,400,000  | 12,600,000 | 14,600,000 | 5,200,000            |
| Railways . . . . .    | 2,700,000  | 3,900,000  | 4,300,000  | 1,600,000            |
| Mines . . . . .       | 1,400,000  | 1,000,000  | 1,500,000  | 100,000              |
| Professions . . . . . | 32,900,000 | 35,300,000 | 39,100,000 | 6,200,000            |
| Total . . . . .       | 53,900,000 | 60,100,000 | 65,600,000 | 11,700,000           |

## Ireland, £

|                       | 1876       | 1886       | 1896       | Increase in 20 Years |
|-----------------------|------------|------------|------------|----------------------|
| Land . . . . .        | 9,300,000  | 10,000,000 | 9,900,000  | 600,000              |
| Houses . . . . .      | 3,600,000  | 3,400,000  | 3,900,000  | 300,000              |
| Railways . . . . .    | 1,100,000  | 1,300,000  | 1,600,000  | 500,000              |
| Professions . . . . . | 21,500,000 | 22,000,000 | 22,800,000 | 1,300,000            |
| Total . . . . .       | 35,500,000 | 36,700,000 | 38,200,000 | 2,700,000            |

## United Kingdom, £

|                       | 1876        | 1886        | 1896        | Increase in 20 Years |
|-----------------------|-------------|-------------|-------------|----------------------|
| Land . . . . .        | 67,000,000  | 63,300,000  | 55,400,000  | ...                  |
| Houses . . . . .      | 96,900,000  | 131,400,000 | 154,400,000 | 57,500,000           |
| Railways . . . . .    | 28,000,000  | 37,000,000  | 49,400,000  | 21,400,000           |
| Mines . . . . .       | 14,600,000  | 7,500,000   | 13,000,000  | ...                  |
| Professions . . . . . | 372,700,000 | 390,600,000 | 437,500,000 | 64,800,000           |
| Total . . . . .       | 579,200,000 | 629,800,000 | 709,700,000 | 130,500,000          |

The average annual increase of income since 1876 has been £5,800,000 in England, £590,000 in Scotland, and £130,000 in Ireland.

The assessments of Schedule D (for trades and professions only) in 1896, compared with 1876, show as follows, excluding all under £300 :—

## England

|                       | 1876   | 1896   | Decrease |
|-----------------------|--------|--------|----------|
| Over £10,000 . . . .  | 1,082  | 823    | 259      |
| £2,000 to £10,000 . . | 7,633  | 6,689  | 944      |
| £800 to £2,000 . . .  | 15,900 | 15,268 | 632      |
| £300 to £800 . . . .  | 68,406 | 65,799 | 2,607    |
| Over £300 . . . . .   | 93,021 | 88,579 | 4,442    |

## Scotland

|                       | 1876  | 1896   | Increase |
|-----------------------|-------|--------|----------|
| Over £10,000 . . . .  | 146   | 120    | ...      |
| £2,000 to £10,000 . . | 933   | 936    | 3        |
| £800 to £2,000 . . .  | 1,772 | 1,743  | ...      |
| £300 to £800 . . . .  | 6,519 | 7,322  | 803      |
| Over £300 . . . . .   | 9,370 | 10,121 | 751      |

## Ireland

|                       | 1876  | 1896  | Decrease |
|-----------------------|-------|-------|----------|
| Over £10,000 . . . .  | 38    | 11    | 27       |
| £2,000 to £10,000 . . | 321   | 172   | 149      |
| £800 to £2,000 . . .  | 884   | 565   | 319      |
| £300 to £800 . . . .  | 3,719 | 2,850 | 869      |
| Over £300 . . . . .   | 4,962 | 3,598 | 1,364    |

## United Kingdom

|                       | 1876    | 1896    | Decrease |
|-----------------------|---------|---------|----------|
| Over £10,000 . . . .  | 1,266   | 954     | 312      |
| £2,000 to £10,000 . . | 8,887   | 7,797   | 1,090    |
| £800 to £2,000 . . .  | 18,556  | 17,576  | 980      |
| £300 to £800 . . . .  | 78,644  | 75,971  | 2,673    |
| Over £300 . . . . .   | 107,353 | 102,298 | 5,055    |

Although the number of assessed persons has diminished in twenty years, the profits under Schedule D have risen from 272 to 352 millions, that is, an increase of 80 millions, or 4 millions a year. This is partly explained by the fact that companies count only as one person, and small traders are diminishing, to make way for companies.

The assessments of Schedule D, for trades and pro-

essions only, were in 1896 as follows, excluding all under £300 :—

| Income, £         | Number of Persons |          |         |          |
|-------------------|-------------------|----------|---------|----------|
|                   | England           | Scotland | Ireland | U. King. |
| Over 10,000 . . . | 823               | 120      | 11      | 954      |
| 2000-10,000 . . . | 6,689             | 936      | 172     | 7,797    |
| 800-2000 . . .    | 15,268            | 1,743    | 565     | 17,576   |
| 300-800 . . .     | 65,799            | 7,322    | 2,850   | 75,971   |
| Total . . .       | 88,579            | 10,121   | 3,598   | 102,298  |

The ratio of such persons to population is :—

|                | Population | Over £300 | Ratio per 100,000 |
|----------------|------------|-----------|-------------------|
| England . . .  | 30,790,000 | 88,579    | 289               |
| Scotland . . . | 4,190,000  | 10,121    | 241               |
| Ireland . . .  | 4,560,000  | 3,598     | 79                |

### PRUSSIA

The assessments of income for 1897 compare with previous returns as follows :—

| £ Sterling       | Numbers Assessed |         |         |         |
|------------------|------------------|---------|---------|---------|
|                  | 1881             | 1886    | 1893    | 1897    |
| 150 to 480 . . . | 150,700          | 172,000 | 260,100 | 272,800 |
| Over 480 . . .   | 21,800           | 26,800  | 56,700  | 58,300  |
| Total . . .      | 172,500          | 198,800 | 316,800 | 331,100 |

The increase has been in the towns, while the rural districts show a decline in incomes over £480, viz. :—

| £ Sterling       | Urban   |         | Increase per Cent. |
|------------------|---------|---------|--------------------|
|                  | 1883    | 1897    |                    |
| 150 to 480 . . . | 190,800 | 203,200 | 6.0                |
| Over 480 . . .   | 46,940  | 48,800  | 4.0                |
| Total . . .      | 237,740 | 252,000 | 5.5                |

|                  | Rural  |        |     |
|------------------|--------|--------|-----|
|                  | 1883   | 1897   |     |
| 150 to 480 . . . | 69,300 | 69,600 | 1.0 |
| Over 480 . . .   | 9,810  | 9,490  | 0   |
| Total . . .      | 79,110 | 79,090 | 0   |

It will be observed that since 1881 the number of persons with moderate incomes, between £150 and £480, increased 80 per cent., but it appears, moreover, that incomes over £480 increased 167 per cent., which shows that a congestion of wealth is taking place, just as in Great Britain.

### INDIANS

The census of 1890 shows that the number of Indians in the United States was 248,000, against 332,000 in 1880, a decline of 25 per cent. They were classed as Civilised and Prairie, thus :—

| States            | Civilised | Prairie | Total   |
|-------------------|-----------|---------|---------|
| New England . . . | 1,400     | ...     | 1,400   |
| Middle . . .      | 1,800     | 5,400   | 7,200   |
| South . . .       | 6,800     | 64,900  | 71,700  |
| Prairie . . .     | 16,800    | 46,200  | 63,000  |
| Pacific . . .     | 32,000    | 72,900  | 104,900 |
| Union . . .       | 58,800    | 189,400 | 248,200 |

The Cherokees numbered 29,600, the Creeks 14,600, the Choctaws 14,400, and the rest was made up of a variety of tribes. The total was 125,700 males and 122,500 females. See *Indians*, p. 123.

### INDUSTRIES \*

|                     | Millions £ Sterling |              |             |           |        | per 100,000 |
|---------------------|---------------------|--------------|-------------|-----------|--------|-------------|
|                     | Agriculture         | Manufactures | Mining, &c. | Transport | Total  |             |
| U. Kingdom . . .    | 230                 | 876          | 87          | 167       | 1,360  | 34          |
| France . . .        | 416                 | 596          | 35          | 122       | 1,169  | 30          |
| Germany . . .       | 417                 | 600          | 48          | 133       | 1,288  | 24          |
| Russia . . .        | 540                 | 380          | 54          | 99        | 1,073  | 9           |
| Austria . . .       | 319                 | 328          | 28          | 65        | 744    | 18          |
| Italy . . .         | 204                 | 190          | 8           | 31        | 433    | 14          |
| Spain . . .         | 135                 | 121          | 8           | 32        | 296    | 17          |
| Portugal . . .      | 26                  | 29           | 2           | 4         | 61     | 12          |
| Sweden . . .        | 37                  | 45           | 13          | 9         | 104    | 21          |
| Norway . . .        | 9                   | 17           | 6           | 7         | 39     | 19          |
| Denmark . . .       | 35                  | 19           | 1           | 5         | 60     | 27          |
| Holland . . .       | 36                  | 49           | 1           | 8         | 94     | 20          |
| Belgium . . .       | 44                  | 118          | 11          | 14        | 187    | 30          |
| Switzerland . . .   | 20                  | 41           | 1           | 6         | 68     | 23          |
| Danub. States . . . | 83                  | 56           | 5           | 10        | 154    | 14          |
| Greece . . .        | 14                  | 10           | 1           | 3         | 28     | 13          |
| Europe . . .        | 2,565               | 3,565        | 309         | 719       | 7,158  | 20          |
| U. States . . .     | 813                 | 1,952        | 224         | 327       | 3,316  | 47          |
| Canada . . .        | 57                  | 98           | 26          | 23        | 204    | 40          |
| Australia . . .     | 70                  | 85           | 20          | 23        | 198    | 47          |
| Total . . .         | 3,505               | 5,700        | 579         | 1,092     | 10,876 | 25          |

### INFIRM

The proportions of insane, blind, and deaf mutes in the principal countries are as follows :—

|                     | Per 100,000 of Population |       |            |       |
|---------------------|---------------------------|-------|------------|-------|
|                     | Insane                    | Blind | Deaf Mutes | Total |
| England . . .       | 201                       | 81    | 49         | 331   |
| Scotland . . .      | 289                       | 69    | 53         | 411   |
| Ireland . . .       | 416                       | 114   | 72         | 602   |
| France . . .        | 250                       | 84    | 55         | 389   |
| Germany . . .       | 240                       | 88    | 92         | 420   |
| Russia . . .        | 110                       | 187   | 57         | 354   |
| Austria . . .       | 217                       | 81    | 129        | 427   |
| Hungary . . .       | 161                       | 105   | 109        | 375   |
| Italy . . .         | 170                       | 93    | 66         | 329   |
| Spain . . .         | 70                        | 120   | 63         | 253   |
| Sweden . . .        | 342                       | 82    | 111        | 535   |
| Norway . . .        | 387                       | 128   | 107        | 622   |
| Finland . . .       | 270                       | 155   | 116        | 541   |
| Belgium . . .       | 187                       | 81    | 41         | 309   |
| Switzerland . . .   | 110                       | 75    | 230        | 415   |
| Bulgaria . . .      | 213                       | 314   | 56         | 583   |
| United States . . . | 323                       | 81    | 65         | 469   |
| Canada . . .        | 276                       | 70    | 100        | 446   |
| Australia . . .     | 318                       | 70    | 36         | 424   |
| Average . . .       | 244                       | 109   | 85         | 438   |

It appears that  $4\frac{1}{2}$  persons per thousand, or one in 227 of all living, is mentally or bodily afflicted as in the above table. Meantime the average of 4.4 per thousand is exceeded in Norway, Ireland, Bulgaria, Finland, Sweden, and United States.

\* See "Industries and Wealth of Nations," Longmans, 1890.

## UNITED KINGDOM

The numbers of insane in 1895 were :—

|                      | Male   | Female | Total   | Per 100,000 Inhab. |
|----------------------|--------|--------|---------|--------------------|
| England . . .        | 42,796 | 51,285 | 94,081  | 310                |
| Scotland . . .       | 5,426  | 6,234  | 11,660  | 280                |
| Ireland . . .        | 9,121  | 8,534  | 17,655  | 390                |
| United Kingdom . . . | 57,343 | 66,053 | 123,396 | 316                |

Returns for 1896 are worse, viz. :—

|                      | Insane  | Per 100,000 Pop. |
|----------------------|---------|------------------|
| Great Britain . . .  | 109,930 | 314              |
| Ireland . . .        | 18,966  | 416              |
| United Kingdom . . . | 128,896 | 328              |

The number of insane in the United Kingdom has increased as follows :—

| Year           | Number  | Per 100,000 Inhab. |
|----------------|---------|--------------------|
| 1862 . . . . . | 55,525  | 181                |
| 1872 . . . . . | 77,013  | 241                |
| 1882 . . . . . | 98,871  | 294                |
| 1896 . . . . . | 128,896 | 328                |

The ratio of age among lunatics in 1851 and 1881 was as follows :—

|                    | Males |       | Females |       |
|--------------------|-------|-------|---------|-------|
|                    | 1851  | 1881  | 1851    | 1881  |
| Under 15 . . . . . | 13    | 2     | 6       | 1     |
| 15-25 . . . . .    | 86    | 60    | 66      | 52    |
| 25-45 . . . . .    | 497   | 462   | 436     | 399   |
| 45-65 . . . . .    | 333   | 376   | 399     | 417   |
| Over 65 . . . . .  | 71    | 100   | 93      | 131   |
| Total . . . . .    | 1,000 | 1,000 | 1,000   | 1,000 |

Dr. Humphreys maintains that the increased ratio of insane in England is due to kinder treatment, which of course diminishes the mortality. The death-rate yearly per thousand has been :—

| Years             | Males | Females | Total |
|-------------------|-------|---------|-------|
| 1871-75 . . . . . | 160   | 112     | 133   |
| 1876-80 . . . . . | 105   | 67      | 83    |
| 1881-85 . . . . . | 80    | 75      | 77    |
| 1886-88 . . . . . | 78    | 71      | 74    |

Dr. Tukey shows the ratio of recoveries has been at Wakefield thus :—

| Years             | Per 1000 |
|-------------------|----------|
| 1849-58 . . . . . | 451      |
| 1859-68 . . . . . | 405      |
| 1879-87 . . . . . | 407      |

Pauper lunatics in Ireland cost £22 per head yearly, the local rates contributing 60 per cent., the Government 40 per cent., of the cost (£330,000).

The number of blind in the United Kingdom was as follows :—

|                          | Number |        | Per Million Pop. |       |
|--------------------------|--------|--------|------------------|-------|
|                          | 1861   | 1891   | 1861             | 1891  |
| England . . . . .        | 19,352 | 23,467 | 957              | 809   |
| Scotland . . . . .       | 2,820  | 2,797  | 921              | 693   |
| Ireland . . . . .        | 6,879  | 5,341  | 1,184            | 1,140 |
| United Kingdom . . . . . | 29,051 | 31,605 | 999              | 836   |

The number of deaf mutes in the same years was :—

|                          | Number |        | Per Million Pop. |      |
|--------------------------|--------|--------|------------------|------|
|                          | 1861   | 1891   | 1861             | 1891 |
| England . . . . .        | 12,323 | 14,192 | 610              | 489  |
| Scotland . . . . .       | 2,335  | 2,125  | 762              | 527  |
| Ireland . . . . .        | 4,930  | 3,365  | 850              | 720  |
| United Kingdom . . . . . | 19,588 | 19,682 | 675              | 520  |

It will be seen that the numbers of blind and of deaf mutes to population have declined remarkably since 1861, the blind 16 per cent., and deaf mutes 22 per cent.

There are 50 institutions in the United Kingdom, including 8 in Scotland and 4 in Ireland, for instructing deaf and dumb persons, and the number of inmates was as follows :—

|                          | 1861  | 1896  |
|--------------------------|-------|-------|
| England . . . . .        | 1,001 | 2,755 |
| Scotland . . . . .       | 240   | 525   |
| Ireland . . . . .        | 399   | 555   |
| United Kingdom . . . . . | 1,640 | 3,835 |

The latest returns of schools for deaf mutes, in 1895, show thus :—

|                          | Schools | Teachers | Pupils |
|--------------------------|---------|----------|--------|
| United Kingdom . . . . . | 50      | 250      | 3,835  |
| France . . . . .         | 84      | 364      | 4,570  |
| Germany . . . . .        | 97      | 595      | 6,280  |
| Russia . . . . .         | 12      | ...      | 800    |
| Austria . . . . .        | 31      | ...      | 1,820  |
| Italy . . . . .          | 51      | ...      | 2,140  |
| Switzerland . . . . .    | 17      | ...      | 570    |
| Scandinavia, &c. . . . . | 30      | ...      | 2,010  |
| Europe . . . . .         | 372     | ...      | 22,025 |
| United States . . . . .  | 60      | 600      | 7,500  |
| South America . . . . .  | 43      | ...      | 2,700  |
| Australia . . . . .      | 4       | ...      | 160    |
| Asia, &c. . . . .        | 10      | ...      | 270    |
| Total . . . . .          | 489     | ...      | 32,655 |

## AUSTRIA

The census of Austria, without Hungary, for 1890 compares with that of 1880 as follows :—

|                      | Number |         | Per Million Pop. |       |
|----------------------|--------|---------|------------------|-------|
|                      | 1880   | 1890    | 1880             | 1890  |
| Insane . . . . .     | 45,140 | 51,880  | 2,050            | 2,170 |
| Blind . . . . .      | 20,150 | 19,360  | 910              | 810   |
| Deaf mutes . . . . . | 22,360 | 30,840  | 1,010            | 1,290 |
| Total . . . . .      | 87,650 | 102,080 | 3,970            | 4,270 |

The sexes in 1890 were as follows :—

|                  | Number |         | Per Mill. Persons |         |
|------------------|--------|---------|-------------------|---------|
|                  | Males  | Females | Males             | Females |
| Insane . . .     | 28,025 | 23,855  | 2,400             | 1,955   |
| Blind . . .      | 10,100 | 9,260   | 863               | 760     |
| Deaf mutes . . . | 16,960 | 13,880  | 1,450             | 1,138   |
| Total . . .      | 55,085 | 46,995  | 4,713             | 3,853   |

## HUNGARY

The census of 1890 showed as follows :—

|                  | Number |         | Per Mill. Persons |         |
|------------------|--------|---------|-------------------|---------|
|                  | Males  | Females | Males             | Females |
| Insane . . .     | 15,346 | 12,812  | 1,770             | 1,456   |
| Blind . . .      | 9,174  | 9,189   | 1,058             | 1,044   |
| Deaf mutes . . . | 10,310 | 8,714   | 1,190             | 990     |
| Total . . .      | 34,830 | 30,715  | 4,018             | 3,490   |

Compared with the whole population the number of afflicted persons is 3745 per million, against 4270 in Austria.

## SWEDEN

According to the census of 1890 we find as follows :—

|                  | Number |         | Per Mill. Persons |         |
|------------------|--------|---------|-------------------|---------|
|                  | Males  | Females | Males             | Females |
| Insane . . .     | 8,595  | 7,727   | 3,708             | 3,132   |
| Blind . . .      | 1,880  | 2,068   | 812               | 838     |
| Deaf mutes . . . | 2,952  | 2,355   | 1,274             | 955     |
| Total . . .      | 13,427 | 12,150  | 5,794             | 4,925   |

This gives an average for the whole Swedish people of 5330 afflicted persons per million, as compared with 4636 in the United Kingdom, and 4683 in the United States.

## NORWAY

The census of 1890 gives the infirm as follows :—

|                  | Number |         | Per Mill. Persons |         |
|------------------|--------|---------|-------------------|---------|
|                  | Males  | Females | Males             | Females |
| Insane . . .     | 3,846  | 3,903   | 4,018             | 3,755   |
| Blind . . .      | 1,287  | 1,278   | 1,351             | 1,230   |
| Deaf mutes . . . | 1,176  | 963     | 1,235             | 927     |
| Total . . .      | 6,309  | 6,144   | 6,604             | 5,912   |

The total number afflicted is equal to 6226 persons in a million of population, against 5330 in Sweden.

## FINLAND

According to the census of 1890 we find as follows :—

|                  | Number |         | Per Mill. Persons |         |
|------------------|--------|---------|-------------------|---------|
|                  | Males  | Females | Males             | Females |
| Insane . . .     | 3,505  | 2,950   | 2,998             | 2,442   |
| Blind . . .      | 1,328  | 2,374   | 1,135             | 1,966   |
| Deaf mutes . . . | 1,537  | 1,230   | 1,313             | 1,018   |
| Total . . .      | 6,370  | 6,554   | 5,446             | 5,426   |

The total number of afflicted persons is equal to 5432 in a million of population, which is a little higher than the ratio in Sweden.

## BULGARIA

The census of 1890 gave the following results :—

|                  | Number |         | Per Mill. Persons |         |
|------------------|--------|---------|-------------------|---------|
|                  | Males  | Females | Males             | Females |
| Insane . . .     | 2,006  | 1,168   | 1,250             | 753     |
| Blind . . .      | 5,520  | 4,411   | 3,440             | 2,846   |
| Deaf mutes . . . | 1,126  | 654     | 704               | 422     |
| Total . . .      | 8,652  | 6,233   | 5,394             | 4,021   |

The total gives a ratio of 4715 afflicted persons per million inhabitants.

## UNITED STATES

The census of 1890 compared with that of 1880 as follows :—

|                  | Number  |         | Per Million Pop. |       |
|------------------|---------|---------|------------------|-------|
|                  | 1880    | 1890    | 1880             | 1890  |
| Insane . . .     | 168,854 | 202,094 | 3,366            | 3,227 |
| Deaf mutes . . . | 33,878  | 40,592  | 675              | 648   |
| Blind . . .      | 48,928  | 50,568  | 976              | 808   |
| Total . . .      | 251,660 | 293,254 | 5,017            | 4,683 |

There is a decline in all three classes of infirmity, and it is to be observed that insanity and blindness are more frequent among foreign settlers than among the native-born population, the figures for 1890 showing these ratios :—

|                  | Per Million Persons |         |       |        |
|------------------|---------------------|---------|-------|--------|
|                  | Native              | Foreign | Male  | Female |
| Insane . . .     | 3,060               | 4,180   | 3,320 | 3,140  |
| Deaf mutes . . . | 680                 | 460     | 700   | 590    |
| Blind . . .      | 780                 | 990     | 880   | 740    |
| Total . . .      | 4,520               | 5,630   | 4,900 | 4,470  |

|                  | White | Coloured | Total Pop. |
|------------------|-------|----------|------------|
| Insane . . .     | 3,360 | 2,290    | 3,227      |
| Deaf mutes . . . | 680   | 420      | 648        |
| Blind . . .      | 790   | 950      | 808        |
| Total . . .      | 4,830 | 3,660    | 4,683      |

The coloured population suffers more from blindness, but less from other infirmities, than the white. The census further shows that the mothers of afflicted persons were born in the following countries :—

| Mothers Born in   | Insane  | Blind  | Dumb   | Total   |
|-------------------|---------|--------|--------|---------|
| U. States* . . .  | 145,557 | 37,842 | 30,013 | 213,412 |
| England . . .     | 4,188   | 1,562  | 1,056  | 6,806   |
| Scotland . . .    | 1,115   | 370    | 254    | 1,739   |
| Ireland . . .     | 22,118  | 4,290  | 2,229  | 28,637  |
| France . . .      | 653     | 206    | 146    | 1,005   |
| Germany . . .     | 15,408  | 3,509  | 3,833  | 22,750  |
| Russia . . .      | 684     | 127    | 241    | 1,052   |
| Austria . . .     | 837     | 152    | 218    | 1,207   |
| Italy . . .       | 407     | 54     | 52     | 513     |
| Scandinavia . . . | 4,001   | 566    | 665    | 5,232   |
| Canada . . .      | 1,986   | 730    | 925    | 3,641   |
| Various . . .     | 5,140   | 1,160  | 960    | 7,260   |
| Total . . .       | 202,094 | 50,568 | 40,592 | 293,254 |

\* The census makes the items of this line less, and leaves 30,841 mothers unaccounted for, who should be counted as Americans, and are included in this table.

Comparing the parentage of afflicted persons with the population of each nationality in the United States in 1890, we find as follows:—

|                          | In One Million Persons |       |       |        |
|--------------------------|------------------------|-------|-------|--------|
|                          | Insane                 | Blind | Dumb  | Total  |
| Americans . . .          | 2,726                  | 709   | 562   | 3,997  |
| English . . .            | 4,607                  | 1,718 | 1,162 | 7,487  |
| Scotch . . .             | 4,595                  | 1,525 | 1,046 | 7,166  |
| Irish . . .              | 11,830                 | 2,294 | 1,192 | 15,316 |
| Canadians . . .          | 2,026                  | 745   | 943   | 3,714  |
| French . . .             | 5,760                  | 1,817 | 1,288 | 8,865  |
| Germans . . .            | 5,495                  | 1,252 | 1,368 | 8,115  |
| Russians . . .           | 3,762                  | 608   | 1,325 | 5,785  |
| Austrians . . .          | 3,482                  | 632   | 905   | 5,020  |
| Italians . . .           | 2,140                  | 297   | 286   | 2,823  |
| Scandinavians . . .      | 4,280                  | 606   | 712   | 5,598  |
| Various . . .            | 6,120                  | 1,380 | 1,143 | 8,643  |
| General population . . . | 3,227                  | 808   | 618   | 4,683  |

Italians, Canadians, and Americans are much below the average as regards infirmities, while Irish, French, and Germans are greatly in excess. The ratio of insanity among Irish is extraordinary, and it is remarkable that in Ireland likewise the rate is higher than in any other nation of Europe. There is, of course, a difference between the rates of insane, &c., for persons native or foreign born, and for persons of native or foreign parentage (as regards the mother), as shown thus:—

|                  | Number  |            | Rate per Million |            |
|------------------|---------|------------|------------------|------------|
|                  | Natives | Foreigners | Natives          | Foreigners |
| Insane . . .     | 163,410 | 38,684     | 3,060            | 4,180      |
| Blind . . .      | 41,652  | 8,916      | 780              | 990        |
| Deaf mutes . . . | 36,337  | 4,255      | 680              | 460        |
| Total . . .      | 241,399 | 51,855     | 4,520            | 5,630      |

|                  | Of Mother |         | Rate per Million |         |
|------------------|-----------|---------|------------------|---------|
|                  | American  | Foreign | American         | Foreign |
| Insane . . .     | 145,557   | 56,537  | 2,726            | 6,106   |
| Blind . . .      | 37,842    | 12,726  | 709              | 1,374   |
| Deaf mutes . . . | 30,013    | 10,579  | 562              | 1,142   |
| Total . . .      | 213,412   | 79,842  | 3,997            | 8,622   |

The census makes a distinction of two classes; persons really insane, and those who are feeble-minded, viz:—

|                     | Number  |         | Per Million Pop. |       |
|---------------------|---------|---------|------------------|-------|
|                     | 1880    | 1890    | 1880             | 1890  |
| Insane . . .        | 91,959  | 106,485 | 1,833            | 1,700 |
| Feeble-minded . . . | 76,895  | 95,609  | 1,533            | 1,527 |
| Total . . .         | 168,854 | 202,094 | 3,366            | 3,227 |

As regards the former class, the following table shows the ratios according to age:—

|               | Male  | Female | White | Col.  | Total |
|---------------|-------|--------|-------|-------|-------|
| 0-20 . . .    | 21    | 18     | 17    | 53    | 19    |
| 21-30 . . .   | 150   | 119    | 131   | 195   | 135   |
| 31-40 . . .   | 260   | 226    | 242   | 258   | 243   |
| 41-50 . . .   | 238   | 245    | 243   | 221   | 241   |
| 51-60 . . .   | 166   | 193    | 182   | 134   | 180   |
| 61-70 . . .   | 101   | 118    | 111   | 76    | 109   |
| Over 70 . . . | 64    | 81     | 74    | 63    | 73    |
|               | 1,000 | 1,000  | 1,000 | 1,000 | 1,000 |

Under 40 the rate of insanity is heavier among males than females, also among coloured people than whites, but after 40 the tables are reversed. Nevertheless, taken altogether, insanity prevails much more among males than females, and also among whites than coloured people, viz:—

|                        | Insane per Million |         |       |
|------------------------|--------------------|---------|-------|
|                        | Males              | Females | Total |
| Whites . . .           | 3,450              | 3,260   | 3,360 |
| Coloured . . .         | 2,360              | 2,220   | 2,290 |
| Total population . . . | 3,320              | 3,140   | 3,227 |

## CANADA

The census of 1891 compares with that of 1881 thus:—

|                  | Number |        | Per 100,000 Pop. |      |
|------------------|--------|--------|------------------|------|
|                  | 1881   | 1891   | 1881             | 1891 |
| Insane . . .     | 9,940  | 13,355 | 230              | 276  |
| Blind . . .      | 3,020  | 3,380  | 70               | 70   |
| Deaf mutes . . . | 5,180  | 4,840  | 120              | 100  |
| Total . . .      | 18,140 | 21,575 | 420              | 446  |

In 1891 the statistics of insanity were as follows:—

|                 | Number |         | Per 100,000 Persons |         |
|-----------------|--------|---------|---------------------|---------|
|                 | Males  | Females | Males               | Females |
| Married . . .   | 1,239  | 1,576   | 156                 | 199     |
| Unmarried . . . | 5,441  | 4,065   | 340                 | 280     |
| Widowed . . .   | 482    | 552     | 768                 | 425     |
| Total . . .     | 7,162  | 6,193   | 291                 | 261     |

The nationality of the insane was as follows:—

|                            | Number | Ratio |
|----------------------------|--------|-------|
| Canadians . . .            | 6,906  | 51.7  |
| Foreigners . . .           | 3,044  | 22.8  |
| Of foreign parentage . . . | 3,405  | 25.5  |
| Total . . .                | 13,355 | 100.0 |

The rate of insanity among foreign (and British) settlers was 468 per 100,000 persons, whereas the native-born, including children of foreigners, had a rate of only 216 per 100,000. With regard to age the returns show:—

|                | Number | Per 100,000 Persons |
|----------------|--------|---------------------|
| Under 15 . . . | 762    | 43                  |
| 15-20 . . .    | 701    | 136                 |
| 20-30 . . .    | 2,429  | 282                 |
| 30-40 . . .    | 2,643  | 440                 |
| Over 40 . . .  | 6,820  | 575                 |
| Total . . .    | 13,355 | 276                 |

The rate of insanity, 276 per 100,000, compares favourably with 323 in the United States and 303 in Australia.

## AUSTRALIA

The census of 1891 gave the following results:—

|                     | Insane | Blind | Mutes | Total  | Per Mill. Pop. |
|---------------------|--------|-------|-------|--------|----------------|
| N. S. Wales . . .   | 3,415  | 741   | 383   | 4,539  | 4,040          |
| Victoria . . .      | 4,125  | 995   | 364   | 5,484  | 4,810          |
| New Zealand . . .   | 1,926  | 274   | 166   | 2,366  | 3,777          |
| Queensland . . .    | 1,104  | 199   | 154   | 1,457  | 3,696          |
| South Australia . . | 936    | 247   | 234   | 1,417  | 4,430          |
| Tasmania . . .      | 429    | 165   | 54    | 648    | 4,410          |
| West Australia . .  | 136    | 54    | 11    | 201    | 4,020          |
| Total . . .         | 12,071 | 2,675 | 1,366 | 16,112 | 4,240          |

Taking all the colonies in a group, the ratio of afflicted persons to population is 9 per cent. lower than in the United Kingdom, and nearly 10 per cent. lower than in the United States. In December 1894 the returns of lunatic asylums were as follows:—

|                     | Inmates<br>Number | Per Mill.<br>Inhab. | Expense<br>£ | £ per<br>Patient |
|---------------------|-------------------|---------------------|--------------|------------------|
| New South Wales . . | 3,587             | 2,870               | 85,000       | 23.6             |
| Victoria . . .      | 4,116             | 3,480               | 89,000       | 21.6             |
| New Zealand . . .   | 2,168             | 3,097               | 45,000       | 20.8             |
| Queensland . . .    | 1,340             | 2,910               | 32,000       | 24.0             |
| South Australia . . | 893               | 2,502               | 23,000       | 25.8             |
| Tasmania . . .      | 367               | 2,290               | 11,000       | 30.0             |
| West Australia . .  | 148               | 1,620               | 5,000        | 33.8             |
| Total . . .         | 12,619            | 3,030               | 290,000      | 23.0             |

The ratio of insane is 303 per 100,000 inhabitants, against 323 in the United States, 290 in Great Britain, and 416 in Ireland. It will be observed that although New Zealand has a higher rate of insanity than the Australian continent or Tasmania, its sum of afflicted persons of all kinds is only 378 per 100,000 of population, while the general average for Australasia is 424.

## INSANE

See *Infirm*, page 750, also *Insane*, page 327.

## INSURANCE

The number of Life Insurance Companies in the United Kingdom fell from 95 in 1886 to 82 in 1896, and the aggregate amount of business rose nearly 50 per cent, viz. :—

|                    | 1886        | 1896        | Increase    |
|--------------------|-------------|-------------|-------------|
| Number of Policies | 902,000     | 1,494,000   | 63 p. cent. |
| Amount, £ . . .    | 421,000,000 | 582,000,000 | 38 "        |
| Premiums, £ . . .  | 12,800,000  | 18,700,000  | 46 "        |
| Assets, £ . . .    | 143,000,000 | 204,400,000 | 43 "        |
| Paid-up Capital, £ | 11,300,000  | 12,300,000  | 9 "         |

Income and expenditure in 1896 were as follows:—

| Income, £         |            | Expenditure, £ |            |
|-------------------|------------|----------------|------------|
| Premiums . . .    | 18,700,000 | Policies . . . | 16,800,000 |
| Investments . . . | 10,400,000 | Sundries . . . | 4,000,000  |
| Total . . .       | 29,100,000 | Total . . .    | 20,800,000 |

Assets in 1896 were made up as follows:—

|                  | £           |
|------------------|-------------|
| Mortgages . . .  | 83,400,000  |
| Debentures . . . | 35,300,000  |
| Stocks, &c. . .  | 85,700,000  |
| Total . . .      | 204,400,000 |

The business of 1882 compared with 1896 showed the relative progress in 14 years as follows:—

|                    | 1882 | 1896 |
|--------------------|------|------|
| Premiums . . . . . | 100  | 160  |
| Claims . . . . .   | 100  | 138  |
| Assets . . . . .   | 100  | 159  |

The investments which constituted the assets of the Companies gave a net return of 4½ per cent. in 1882, and 3½ in 1896.

The following table shows how much of the money received as premiums in Ordinary Companies goes back to insured persons under the head of claims, and how much goes for management, out of the total income:—

| Year       | Premiums<br>£ | Claims<br>£ | Per-<br>centage |
|------------|---------------|-------------|-----------------|
| 1885 . . . | 12,850,000    | 11,350,000  | 88.3            |
| 1890 . . . | 14,830,000    | 11,780,000  | 79.6            |
| 1895 . . . | 18,660,000    | 13,610,000  | 73.0            |

|            | Income<br>£ | Management<br>£ |     |
|------------|-------------|-----------------|-----|
| 1885 . . . | 19,640,000  | 1,870,000       | 9.5 |
| 1890 . . . | 22,870,000  | 2,120,000       | 9.3 |
| 1895 . . . | 28,800,000  | 2,720,000       | 9.4 |

Turning to Industrial Companies the results to insured persons are less favourable:—

| Year       | Premiums<br>£ | Claims<br>£ | Per-<br>centage |
|------------|---------------|-------------|-----------------|
| 1885 . . . | 3,550,000     | 1,370,000   | 38.6            |
| 1890 . . . | 5,030,000     | 2,180,000   | 43.4            |
| 1895 . . . | 6,620,000     | 2,770,000   | 41.8            |

|            | Income<br>£ | Management<br>£ |      |
|------------|-------------|-----------------|------|
| 1885 . . . | 3,690,000   | 1,500,000       | 40.5 |
| 1890 . . . | 5,310,000   | 2,220,000       | 41.9 |
| 1895 . . . | 7,100,000   | 2,920,000       | 41.1 |

It is evident that State insurances would be more beneficial to the public than the present system.

There are also industrial assurances for the working classes, viz. :—

|                    | 1887       | 1893        | Increase   |
|--------------------|------------|-------------|------------|
| Policies . . . . . | 9,146,000  | 13,214,000  | 4,068,000  |
| Amount, £ . . .    | 83,200,000 | 127,300,000 | 44,100,000 |
| Premiums, £ . . .  | 5,040,000  | 5,930,000   | 890,000    |

The average amount of each policy is under £10, the object in most cases being to pay funeral expenses. Children are so often insured in this way that terrible abuses are at times reported in the police courts. Many eminent physicians regard these assurances as causes of child murder and wilful neglect or ill-treatment of the young.

The British Government issues insurances and annuities through the Post-Office and National Debt Office, the returns for 1896 comparing with 1887 thus:—

|                      | Number |       | Amount, £ |         |
|----------------------|--------|-------|-----------|---------|
|                      | 1887   | 1896  | 1887      | 1896    |
| Post-Office . . . .  | 1,416  | 3,633 | 53,400    | 130,800 |
| National Debt Office | 1,000  | 514   | 60,000    | 34,900  |
| Total . . . . .      | 2,416  | 4,147 | 113,400   | 165,700 |



|                      | Receipts, £ |           | Payments, £ |         |
|----------------------|-------------|-----------|-------------|---------|
|                      | 1886        | 1896      | 1886        | 1896    |
| Post-Office . . . .  | 235,000     | 868,000   | 163,000     | 365,000 |
| National Debt Office | 688,000     | 475,000   | ...         | ...     |
| Total . . . .        | 923,000     | 1,343,000 | ...         | ...     |

Annuities issued by the Post-Office in 1896 were for the average amount of £28 a year, say 11 shillings a week: the price paid by insurer averaged £375, so that the annuity averaged 7½ per cent. on the sum paid for it.

## GERMANY

There are three kinds of compulsory insurance, showing in 1894 as follows:—

| Against          | No. Insured | Premiums £ | Shillings per Head |
|------------------|-------------|------------|--------------------|
| Sickness . . . . | 7,107,000   | 5,240,000  | 15.0               |
| Accident . . . . | 18,191,000  | 3,260,000  | 3.6                |
| Old age . . . .  | 11,200,000  | 4,640,000  | 8.3                |

All the above persons were insured in two classes, the total numbers being only 18,200,000. The persons insured against sickness had 46,200,000 days of sickness in 1894, that is, 6½ days each. Those insured against accident had in the same year 6250 killed and 62,430 injured; that is to say, one operative in 3000 was killed, and one in 300 injured or disabled. In a period of twelve years to December 1896, there were 349,000 operatives killed or disabled, which was equivalent to 48 per 10,000, the ratio being higher in manufactures than in agriculture, viz:—

|                                 |                 |
|---------------------------------|-----------------|
| In agricultural labours . . . . | 38.4 per 10,000 |
| In manufactures . . . .         | 67.2 „          |

The number of killed or disabled during the last two years showed thus:—

| Year         | Insured    | Injured | Per 10,000 |
|--------------|------------|---------|------------|
| 1895 . . . . | 18,380,000 | 74,467  | 40.5       |
| 1896 . . . . | 17,620,000 | 85,272  | 48.4       |

Compensation paid for injuries in 1896 was as follows:—

|                       | Insured    | Injured | £         | Average £ |
|-----------------------|------------|---------|-----------|-----------|
| Agricultural . . . .  | 11,190,000 | 54,210  | 630,000   | 12        |
| Manufacturing . . . . | 6,430,000  | 31,062  | 1,940,000 | 63        |
| Total . . . .         | 17,620,000 | 85,272  | 2,570,000 | 30        |

The average paid for injuries to agricultural labourers was low, because they were mostly slight: of 10,000 such labourers only five were killed or permanently disabled; 44 were slightly injured, the total number compensated being 49 per 10,000. The cost of management for both classes was £540,000, or sevenpence a year for each of the persons insured. Hospital and burial expenses amounted to £213,000. The number of widows and orphans receiving pensions was 86,000: a widow's pension ceases if she re-marries. As regards the insurance for old age, there were in 1894 in enjoyment of pension 329,000 persons, being nearly 4 per cent. of the number insured. These pensions summed up £2,300,000, or £7 each, to which the Government adds £5, making in all £12 a year. The company charges for each operative

8 shillings a year, from the age of 20 until 50, 4 shillings from the master, and 4 from the man: the reserve fund on hand in 1894 amounted to £5,850,000 sterling. The cost of management for this section of insurance was £220,000, or sixpence per head yearly.

The premiums are made up as follows, yearly:—

| Paid by            | Sickness £ | Accidents £ | Old Age £ | Total £    |
|--------------------|------------|-------------|-----------|------------|
| Masters . . . .    | 1,500,000  | 3,260,000   | 2,320,000 | 7,080,000  |
| Operatives . . . . | 3,740,000  | ...         | 2,320,000 | 6,060,000  |
| Total . . . .      | 5,240,000  | 3,260,000   | 4,640,000 | 13,140,000 |

Of the total amount collected yearly the masters contribute almost 55 per cent., the men a little more than 45 per cent. The masters find that the burthen on them is £13 to every £1000 paid in wages, that is, about 3 pence to the pound sterling. From this it appears that the employers in Germany pay in wages 544 millions sterling, equal to £30 per head on the number of persons insured, say 12 shillings a week, with 2 pence a week added for insurance. The Companies have, moreover, a certain income from investments of accumulated reserves, the annual receipts and expenditure of all kinds summing up as follows:—

| Class            | Receipts, £ | Outgoings, £ | Reserve, £ |
|------------------|-------------|--------------|------------|
| Sickness . . . . | 6,600,000   | 6,200,000    | 5,500,000  |
| Accident . . . . | 3,900,000   | 3,300,000    | 5,100,000  |
| Old age . . . .  | 5,000,000   | 2,500,000    | 5,900,000  |
| Total . . . .    | 15,500,000  | 12,000,000   | 16,500,000 |

The returns for the Insurance Companies of Miners in Germany during ten years ending December 31, 1894, show as follows:—

|                      | Yearly Average |             |            |
|----------------------|----------------|-------------|------------|
|                      | Collieries     | Other Mines | Total      |
| Men insured . . . .  | 238,000        | 124,000     | 362,000    |
| Wages, £ . . . .     | 10,700,000     | 4,300,000   | 15,000,000 |
| Killed . . . .       | 602            | 170         | 772        |
| Disabled . . . .     | 1,913          | 483         | 2,396      |
| Widows left . . . .  | 380            | 117         | 497        |
| Orphans left . . . . | 1,063          | 304         | 1,367      |

The compensation paid, according to the actuaries' estimates, for capitalising pensions, and including cash payments, averaged as follows:—

|                        | £     | £                     |
|------------------------|-------|-----------------------|
| Person injured . . . . | 94    | Orphan . . . . 53.1   |
| Widow . . . .          | 121.1 | Relative . . . . 90.8 |

The expenditure for such compensation averaged 26 shillings on each coal-miner, and 24 shillings on the number of miners all round. It amounted to 2.8 per cent. of the wages of all miners. The expenses were as follows, including capital of pensions:—

| For               | Yearly Average |           |               |
|-------------------|----------------|-----------|---------------|
|                   | Colliers, £    | Others, £ | All Miners, £ |
| Sickness . . . .  | 72,000         | 17,000    | 89,000        |
| Funeral . . . .   | 43,000         | 54,000    | 97,000        |
| Pensions . . . .  | 125,000        | 27,000    | 152,000       |
| Widows, &c. . . . | 70,000         | 17,000    | 87,000        |
| Total . . . .     | 310,000        | 115,000   | 425,000       |

## FRANCE

The returns are incomplete, but 19 principal companies showed in 1896 as follows (amount of fire and maritime policies estimated from sums paid for premium):—

|                    | Premiums, £ | Policies, £   | Do. Paid, £ |
|--------------------|-------------|---------------|-------------|
| Life . . . . .     | ...         | 139,000,000   | 2,100,000   |
| Fire . . . . .     | 4,040,000   | 4,440,000,000 | 2,100,000   |
| Maritime . . . . . | 800,000     | 200,000,000   | 740,000     |
| Total . . . . .    | ...         | 4,779,000,000 | ...         |

The death-rate of the life insurance offices, or rather the payments on policies of persons who died, compared with amount of policies running, was as follows:—

|                   |                |
|-------------------|----------------|
| 1886-90 . . . . . | 1.52 per cent. |
| 1891-95 . . . . . | 1.57 " "       |

Payments on losses by fire compared with amount received as premium thus:—

|                |                |
|----------------|----------------|
| 1886 . . . . . | 56.8 per cent. |
| 1890 . . . . . | 53.3 " "       |
| 1895 . . . . . | 51.8 " "       |

There is also insurance against hail-storms, premiums £130,000, payments for losses £120,000.

## AUSTRIA

In 1894 the insurance of operatives showed thus:—

| Against            | Number Insured | Premiums £ | Shillings per Head |
|--------------------|----------------|------------|--------------------|
| Sickness . . . . . | 1,940,000      | 1,200,000  | 12.4               |
| Accident . . . . . | 1,470,000      | 380,000    | 5.2                |
| Total . . . . .    | 3,410,000      | 1,580,000  | 9.3                |

The persons insured against sickness had 15,600,000 days of sickness, or 8 days each, as compared with 6½ in Germany. Those against accident had 10,900 killed or disabled, being 74 per 10,000, against 48 in Germany.

## VARIOUS COUNTRIES

The amount of life insurance in various countries in 1890 compared with 1880 as follows, excluding the policies of workmen:—

|                          | Millions £ Sterling |       |          | 1890<br>Number<br>of Policies |
|--------------------------|---------------------|-------|----------|-------------------------------|
|                          | 1880                | 1890  | Increase |                               |
| United States . . . . .  | 312                 | 636   | 324      | 2,410,000                     |
| United Kingdom . . . . . | 422                 | 442   | 20       | 1,150,000                     |
| Germany . . . . .        | 127                 | 189   | 62       | 760,000                       |
| France . . . . .         | 87                  | 122   | 35       | 290,000                       |
| Austria . . . . .        | 20                  | 34    | 14       | ...                           |
| Various . . . . .        | 22                  | 27    | 5        | ...                           |
| Total . . . . .          | 990                 | 1,450 | 460      | ...                           |

This shows an increase of 46 per cent. in 10 years. According to Bellour, in 1894 the life insurance business of the world stood thus:—

|                         | Millions £ Sterling |        | Ratio<br>of Assets |
|-------------------------|---------------------|--------|--------------------|
|                         | Policies            | Assets |                    |
| United States . . . . . | 980                 | 182    | 18.6               |
| Great Britain . . . . . | 573                 | 115    | 20.1               |
| Continent . . . . .     | 498                 | 140    | 28.1               |
| Canada . . . . .        | 31                  | 5      | 16.0               |
| Australia . . . . .     | 68                  | 20     | 29.5               |
| Total . . . . .         | 2,150               | 462    | 21.5               |

Germany had 940,000 life policies, amounting to 205

millions sterling. The amount set down for Canada was only that of policies issued by native companies.

## AUSTRALIA

The largest share of life assurance is done by the Australian Mutual Company, the business in 1895 showing:—

|                           | Mutual     | Various    | Total      |
|---------------------------|------------|------------|------------|
| No. of Policies . . . . . | 123,752    | 179,862    | 303,614    |
| Amount, £ . . . . .       | 39,940,000 | 47,840,000 | 87,780,000 |
| Premiums, £ . . . . .     | 1,310,000  | 1,620,000  | 2,930,000  |
| Assets, £ . . . . .       | 13,710,000 | 10,700,000 | 24,410,000 |

The average amount of life assurance running was £287, against £336 in Canada.

## UNITED STATES

Life insurance returns by census of 1890 compare with those of 1879 as follows:—

|                         | £ Sterling (000 omitted) |        |             |         |        |         |
|-------------------------|--------------------------|--------|-------------|---------|--------|---------|
|                         | Receipts                 |        | Liabilities |         | Assets |         |
|                         | 1879                     | 1889   | 1879        | 1889    | 1879   | 1889    |
| New York . . . . .      | 8,800                    | 23,900 | 37,000      | 74,000  | 43,800 | 85,600  |
| Connecticut . . . . .   | 3,800                    | 3,500  | 18,700      | 21,300  | 21,600 | 24,000  |
| Pennsylvania . . . . .  | 1,900                    | 700    | 3,100       | 9,300   | 3,800  | 10,800  |
| Massachusetts . . . . . | 1,000                    | 2,200  | 5,200       | 8,400   | 6,300  | 9,600   |
| Various . . . . .       | 1,800                    | 7,400  | 14,000      | 22,200  | 16,500 | 24,000  |
| The Union . . . . .     | 17,300                   | 37,700 | 78,000      | 135,200 | 92,000 | 154,000 |

Fire and transport insurance showed as follows:—

| States                | Millions £ Sterling |       |          |
|-----------------------|---------------------|-------|----------|
|                       | 1879                | 1889  | Increase |
| New England . . . . . | 402                 | 669   | 267      |
| Middle . . . . .      | 1,044               | 1,738 | 694      |
| South . . . . .       | 61                  | 92    | 31       |
| Prairie . . . . .     | 257                 | 446   | 189      |
| Pacific . . . . .     | 20                  | 86    | 66       |
| Union . . . . .       | 1,784               | 3,031 | 1,247    |
| Foreign . . . . .     | 354                 | 857   | 503      |
| Total . . . . .       | 2,138               | 3,888 | 1,750    |

The States that show largest amounts insured are:—

|                         | Millions £ |       | £ per<br>Inhab. |
|-------------------------|------------|-------|-----------------|
|                         | 1879       | 1889  |                 |
| New York . . . . .      | 628        | 1,116 | 186             |
| Pennsylvania . . . . .  | 297        | 491   | 93              |
| Connecticut . . . . .   | 173        | 301   | 401             |
| Massachusetts . . . . . | 169        | 218   | 98              |
| Illinois . . . . .      | 54         | 102   | 27              |
| Rhode Island . . . . .  | 41         | 97    | 276             |
| Ohio . . . . .          | 87         | 83    | 23              |

The general average of property insured in 1889 was £48 per inhabitant of the whole Union.

## CANADA

Fire insurance is done by native, British, and American companies, the aggregate of which shows as follows:—

|                | Premiums, £ | Losses, £ | Loss Ratio |
|----------------|-------------|-----------|------------|
| 1870 . . . . . | 380,000     | 325,000   | 84.8       |
| 1880 . . . . . | 700,000     | 330,000   | 47.9       |
| 1890 . . . . . | 1,170,000   | 650,000   | 55.0       |
| 1896 . . . . . | 1,410,000   | 830,000   | 58.7       |

The returns for 1896, compared with the average for 28 years, show thus :—

| Companies      | Premiums, £ |         | Losses, £ |         | Loss Ratio |         |
|----------------|-------------|---------|-----------|---------|------------|---------|
|                | 1896        | 1869-96 | 1896      | 1869-96 | 1896       | 1869-96 |
| Native . . .   | 210,000     | 230,000 | 140,000   | 160,000 | 67.0       | 71.5    |
| British . . .  | 1,000,000   | 580,000 | 570,000   | 400,000 | 57.0       | 68.2    |
| American . . . | 200,000     | 90,000  | 120,000   | 60,000  | 60.0       | 66.7    |
| Total . . .    | 1,410,000   | 900,000 | 830,000   | 620,000 | 58.7       | 69.0    |

Life insurance was as follows :—

| Companies      | Lives  |         | Amount, £  |            |
|----------------|--------|---------|------------|------------|
|                | 1886   | 1896    | 1886       | 1896       |
| Native . . .   | 52,601 | 121,817 | 17,600,000 | 38,500,000 |
| British . . .  | 13,454 | 17,538  | 5,500,000  | 7,000,000  |
| American . . . | 31,927 | 50,379  | 11,100,000 | 18,600,000 |
| Total . . .    | 97,982 | 189,734 | 34,200,000 | 64,100,000 |

The receipts as premiums for life insurance and the sums paid to policy holders showed as follows :—

| Year           | Premiums, £ | Payments, £ |
|----------------|-------------|-------------|
| 1890 . . . . . | 1,600,000   | 900,000     |
| 1892 . . . . . | 1,800,000   | 1,100,000   |
| 1895 . . . . . | 2,120,000   | 1,170,000   |

The increase of business is shown thus, as regards premiums :—

|                     | 1886<br>£ | 1896<br>£ |
|---------------------|-----------|-----------|
| Fire . . . . .      | 980,000   | 1,410,000 |
| Life . . . . .      | 1,040,000 | 2,120,000 |
| Marine, &c. . . . . | 180,000   | 470,000   |
| Total . . . . .     | 2,200,000 | 4,000,000 |

Life insurance in 1895 showed 3078 deaths, out of 278,000 persons insured, being at the rate of 11 per thousand.

## IRON

Production of pig iron increased 50 per cent. in 10 years, viz. :—

|                     | Tons       |            |           |
|---------------------|------------|------------|-----------|
|                     | 1885       | 1895       | Increase  |
| United States . . . | 4,040,000  | 9,450,000  | 5,410,000 |
| Great Britain . . . | 7,420,000  | 8,020,000  | 600,000   |
| Germany . . . . .   | 3,690,000  | 5,790,000  | 2,100,000 |
| France . . . . .    | 1,630,000  | 2,010,000  | 380,000   |
| Austria . . . . .   | 610,000    | 930,000    | 320,000   |
| Russia . . . . .    | 520,000    | 1,410,000  | 890,000   |
| Belgium . . . . .   | 670,000    | 830,000    | 160,000   |
| Sweden . . . . .    | 430,000    | 500,000    | 70,000    |
| Various . . . . .   | 330,000    | 360,000    | 30,000    |
| The World . . . . . | 19,340,000 | 29,300,000 | 9,960,000 |

Production of iron in the United States has been as follows :—

|                      | Tons      |           |           |
|----------------------|-----------|-----------|-----------|
|                      | 1885      | 1895      | Increase  |
| Pennsylvania . . .   | 2,180,000 | 4,700,000 | 2,520,000 |
| Southern States . .  | 620,000   | 1,690,000 | 1,070,000 |
| Western States . . . | 1,240,000 | 3,060,000 | 1,820,000 |
| Total . . . . .      | 4,040,000 | 9,450,000 | 5,410,000 |

The production of steel increased 135 per cent. in the same interval, viz. :—

|                     | Tons      |            |           |
|---------------------|-----------|------------|-----------|
|                     | 1885      | 1895       | Increase  |
| United States . . . | 1,710,000 | 6,110,000  | 4,400,000 |
| Great Britain . . . | 1,920,000 | 3,880,000  | 1,960,000 |
| Germany . . . . .   | 1,140,000 | 2,160,000  | 1,020,000 |
| France . . . . .    | 530,000   | 810,000    | 280,000   |
| Austria . . . . .   | 200,000   | 500,000    | 300,000   |
| Russia . . . . .    | 250,000   | 380,000    | 130,000   |
| Belgium . . . . .   | 160,000   | 220,000    | 60,000    |
| Sweden . . . . .    | 40,000    | 170,000    | 130,000   |
| Various . . . . .   | 250,000   | 370,000    | 120,000   |
| The World . . . . . | 6,200,000 | 14,600,000 | 8,400,000 |

The production and consumption of iron in 1896 were in English tons as follows :—

|                       | Production | Consumption |
|-----------------------|------------|-------------|
| United Kingdom . . .  | 8,660,000  | 5,010,000   |
| France . . . . .      | 2,340,000  | 2,330,000   |
| Germany . . . . .     | 6,370,000  | 5,600,000   |
| Russia . . . . .      | 1,550,000  | 1,950,000   |
| Austria . . . . .     | 1,000,000  | 1,120,000   |
| Italy . . . . .       | 200,000    | 300,000     |
| Spain . . . . .       | 200,000    | 300,000     |
| Scandinavia . . . . . | 500,000    | 450,000     |
| Belgium . . . . .     | 950,000    | 430,000     |
| United States . . . . | 9,450,000  | 9,500,000   |
| Other Countries . . . | 380,000    | 4,310,000   |
| Total . . . . .       | 31,600,000 | 31,600,000  |

## GREAT BRITAIN

The output of pig iron, and the value of iron and steel manufactures at various dates, are shown thus :—

| Year           | Iron Tons | Value, Millions £ |             |          |
|----------------|-----------|-------------------|-------------|----------|
|                |           | Manufac-<br>tures | Home<br>Use | Exported |
| 1860 . . . . . | 3,830,000 | 52                | 30          | 22       |
| 1870 . . . . . | 5,960,000 | 82                | 45          | 37       |
| 1880 . . . . . | 7,750,000 | 101               | 57          | 44       |
| 1890 . . . . . | 7,900,000 | 116               | 59          | 57       |
| 1896 . . . . . | 8,660,000 | 119               | 68          | 51       |

The average output for each blast-furnace was as follows :—

| Year           | Tons   |
|----------------|--------|
| 1870 . . . . . | 9,000  |
| 1885 . . . . . | 18,000 |
| 1894 . . . . . | 22,300 |

The details of the iron and steel industry in 1896 may be summed up thus:—

| Used as     | Tons      | Destination  | Tons      |
|-------------|-----------|--------------|-----------|
| Steel . . . | 4,130,000 | Exported . . | 3,650,000 |
| Iron . . .  | 4,530,000 | Home use . . | 5,010,000 |
| Total . .   | 8,660,000 | Total . .    | 8,660,000 |

The value was approximately as follows:—

|                             |             |
|-----------------------------|-------------|
| Iron and steel exported . . | 23,800,000  |
| Machinery . . . . .         | 16,100,000  |
| Cutlery, arms, &c. . . .    | 11,300,000  |
| Exports . . . . .           | 51,200,000  |
| Home articles . . . . .     | 67,500,000  |
| Total output, value . .     | 118,700,000 |

It needs 6 tons of pig iron to make 5 tons of steel, and 4 of iron to make 3 of railway bars. As a rule one mile of railway takes 270 tons of rails.

Although the weight of metal retained for British manufactures in 1896 was 5,010,000 tons, it appears that one-tenth of this quantity was subsequently exported as cutlery, machinery, &c., leaving for home use 4,500,000 tons. The goods manufactured herefrom, at an estimate of £15 per ton, would represent £67,500,000, or 56 per cent. of the total industry, and the home consumption of such goods is equal to 34 shillings per inhabitant. If we deduct the iron and steel exported in bars, &c., the remaining 5,000,000 tons are manufactured into goods of the approximate value of £93,000,000, or nearly £19 per ton. This shows that iron and steel goods are much cheaper here than in other countries. The official value per ton of such goods in 1892 was as follows:—

|                   |    |                   |    |
|-------------------|----|-------------------|----|
| Germany . . . . . | 34 | Austria . . . . . | 45 |
| Holland . . . . . | 36 | Italy . . . . .   | 45 |
| Sweden . . . . .  | 45 | Spain . . . . .   | 57 |

Iron and steel exports from Great Britain were as follows:—

| Year           | In Bar<br>£ | Manufactures<br>£ | Total<br>£ |
|----------------|-------------|-------------------|------------|
| 1860 . . . . . | 12,200,000  | 9,900,000         | 22,100,000 |
| 1870 . . . . . | 24,100,000  | 12,600,000        | 36,700,000 |
| 1880 . . . . . | 28,400,000  | 15,400,000        | 43,800,000 |
| 1890 . . . . . | 31,600,000  | 25,100,000        | 56,700,000 |
| 1896 . . . . . | 23,800,000  | 27,400,000        | 51,200,000 |
| 1897 . . . . . | 24,600,000  | 24,100,000        | 48,700,000 |

#### UNITED STATES

Production, imports, and consumption of pig iron show thus:—

| Year           | Tons       |          |            |
|----------------|------------|----------|------------|
|                | Product    | Imported | Consumed   |
| 1877 . . . . . | 2,070,000  | 50,000   | 2,120,000  |
| 1887 . . . . . | 5,680,000  | 420,000  | 6,100,000  |
| 1892 . . . . . | 8,280,000  | 70,000   | 8,350,000  |
| 1893 . . . . . | 9,160,000  | 40,000   | 9,200,000  |
| 1894 . . . . . | 7,120,000  | ...      | 7,120,000  |
| 1895 . . . . . | 6,660,000  | ...      | 6,660,000  |
| 1896 . . . . . | 9,450,000  | 50,000   | 9,500,000  |
| 1898 . . . . . | 11,670,000 | ...      | 12,020,000 |

In 1898 consumption exceeded production, the stock remaining from previous years having been drawn upon.

#### VARIOUS COUNTRIES

The imports of iron in the following European countries were:—

|                       | Tons    |           |
|-----------------------|---------|-----------|
|                       | 1885    | 1896      |
| Russia . . . . .      | 230,000 | 410,000   |
| Austria . . . . .     | 50,000  | 140,000   |
| Italy . . . . .       | 60,000  | 130,000   |
| Denmark . . . . .     | 50,000  | 110,000   |
| Switzerland . . . . . | 40,000  | 190,000   |
| Spain . . . . .       | 70,000  | 60,000    |
| Portugal . . . . .    | 40,000  | 40,000    |
| Norway . . . . .      | 30,000  | 30,000    |
| Total . . . . .       | 570,000 | 1,110,000 |

Exports of the principal countries were as follows:—

|                         | Tons      |           |
|-------------------------|-----------|-----------|
|                         | 1885      | 1896      |
| Great Britain . . . . . | 3,130,000 | 3,650,000 |
| Germany . . . . .       | 320,000   | 510,000   |
| Belgium . . . . .       | 340,000   | 440,000   |
| Sweden . . . . .        | 40,000    | 80,000    |
| Total . . . . .         | 3,830,000 | 4,680,000 |

So many improvements have taken place that a ton of iron is now produced with 1½ ton of coal, whereas it took 8 tons of coal in 1791. So rapid is the process in use that iron ore can be landed at Cardiff, and converted into steel-plates in 48 hours. Iron is now much used for building, as at Astor's Hotel, New York, 16 storeys, in which 10,000 tons are employed: the skeleton of an iron hotel of 13 storeys was run up at Chicago in 25 days. See *Iron*, pp. 332-37; also *Manufactures*, p. 767.

#### IRRIGATION

The quantity of water ordinarily required per acre for irrigation is:—

| Culture          | Gallons<br>per Minute | Hours<br>each Time | Tons<br>per Month |
|------------------|-----------------------|--------------------|-------------------|
| Meadow . . . . . | 150                   | 6                  | 1,100             |
| Grain . . . . .  | ...                   | ...                | 800               |
| Garden . . . . . | 12                    | ...                | 700               |

Meadow must be irrigated 4 days, grain 3 days, gardens 30 days, monthly. Irrigation for vineyards is estimated at 250 tons weekly per hectare, equal to 400 tons a month per acre. According to Messrs. Lawes and Gilbert, an acre of wheat evaporates 60 tons of water monthly.

Latest returns of irrigated areas and the annual cost per acre are as follows:—

|                         | Shillings<br>per Acre |     |
|-------------------------|-----------------------|-----|
|                         | Acres                 |     |
| India . . . . .         | 25,000,000            | 8   |
| Egypt . . . . .         | 5,100,000             | 4   |
| Italy . . . . .         | 2,800,000             | 16  |
| Spain . . . . .         | 2,000,000             | 14  |
| France . . . . .        | 600,000               | 22  |
| United States . . . . . | 5,000,000             | ... |
| Australia . . . . .     | 120,000               | ... |

The charge for irrigation in Italy is measured by the "bocca," which is a supply of 480 gallons per minute.

The Cavour canal charges 36 shillings a year for a constant supply of 12 gallons a minute all the year round: a "bocca" would, therefore, cost £72 a year and suffice to irrigate 90 acres. Irrigated lands in France produce 25 per cent. heavier crops. Works are now in progress in Upper Egypt to extend the irrigated area of the Nile valley by 200,000 acres. Messrs. Aird signed a contract in January 1898 for constructing a breakwater at Assouan, 2000 yards long, which will hold 19 billion tons of water, and permit the discharge of Nile water in excessive flood at 14,000 tons per second: to be completed in 5 years, cost £2,000,000. The area to be irrigated will add £2,300,000 to the value of agricultural products, and £400,000 to revenue yearly.

For drainage and irrigation Holland has 1,900,000 miles of canals, big and little, being an average of 420 yards of canal for each acre of farm-lands.

See *Irrigation*, page 337.

## ISLANDS

The area of the principal islands is as follows:—

|                       | Sq. Miles |                 | Sq. Miles |
|-----------------------|-----------|-----------------|-----------|
| New Guinea . . .      | 303,000   | Formosa . . .   | 15,000    |
| Borneo . . .          | 284,000   | Sicily . . .    | 9,800     |
| Madagascar . . .      | 227,000   | Jamaica . . .   | 4,200     |
| Sumatra . . .         | 162,000   | Cyprus . . .    | 3,600     |
| Great Britain . . .   | 83,700    | Corsica . . .   | 3,400     |
| Celebes . . .         | 68,800    | Crete . . .     | 2,900     |
| Java . . .            | 48,400    | Trinidad . . .  | 1,750     |
| Cuba . . .            | 45,000    | Teneriffe . . . | 1,010     |
| Newfoundland . . .    | 40,200    | Mauritius . . . | 710       |
| Iceland . . .         | 39,800    | Madeira . . .   | 510       |
| Ireland . . .         | 32,600    | Corfu . . .     | 430       |
| Hayti . . .           | 28,800    | Man . . .       | 230       |
| Tasmania . . .        | 26,200    | Malta . . .     | 100       |
| Ceylon . . .          | 24,700    | Jersey . . .    | 45        |
| Terra del Fuego . . . | 18,500    | Hong-Kong . . . | ~         |

## J

### JEWS

See page 338; also *Religion*, page 799.

### JEWELLERY

See page 338.

### JUTE

Exports of raw jute from India have more than doubled in twenty years, viz:—

| Year       | Tons    | Value, £  | £ per Ton |
|------------|---------|-----------|-----------|
| 1876 . . . | 260,000 | 2,500,000 | 9.6       |
| 1886 . . . | 390,000 | 3,300,000 | 8.5       |
| 1896 . . . | 610,000 | 5,500,000 | 9.0       |

The area under jute cultivation in 1896 was 2,250,000 acres, the ordinary crop being 900 lbs. per acre, and the product about 900,000 tons. There are in India 28 jute mills, employing 80,000 operatives, with 11,000 looms and 220,000 spindles, which consume 250,000 tons of jute per annum. Indian exports of jute manufactures rose from £800,000 in 1886 to £2,600,000 in 1896.

Jute manufacture in the United Kingdom shows:—

| Year       | Tons Jute | Output, £  | Exported, £ |
|------------|-----------|------------|-------------|
| 1884 . . . | 170,000   | 9,100,000  | 2,800,000   |
| 1890 . . . | 260,000   | 13,000,000 | 3,000,000   |
| 1896 . . . | 240,000   | 11,100,000 | 2,600,000   |

Dundee is the principal seat of this industry. The factories of jute in the United Kingdom have trebled their power since 1870, viz:—

| Year       | Spindles | Power-Looms | Operatives |
|------------|----------|-------------|------------|
| 1870 . . . | 115,000  | 4,000       | 18,000     |
| 1890 . . . | 280,000  | 14,000      | 45,000     |

France consumes 55,000 tons of raw jute yearly, producing goods worth more than £2,000,000; Austria a like quantity. The imports of raw jute into the United States from 1888 to 1896 averaged 95,000 tons yearly. The world at present consumes nearly 900,000 tons, and the goods manufactured are approximately of the value of 35 millions sterling per annum. For details of earlier years see Part I., page 339.

## K

### KINGS

See Part I., page 340; also page 762.

## L

### LAND

The following is a record (*Times*, April 1889) of all landed estates over 30 acres sold by auction in London, situate in England and Wales, from 1781 to 1880:—

| Period          | Acres   | Rental, £ | Price, £   | £ per Acre |
|-----------------|---------|-----------|------------|------------|
| 1781-1800 . . . | 72,000  | 76,000    | 2,430,000  | 33.8       |
| 1801-1820 . . . | 136,000 | 152,000   | 4,920,000  | 36.2       |
| 1821-1840 . . . | 246,000 | 221,000   | 5,830,000  | 23.7       |
| 1841-1860 . . . | 189,000 | 261,000   | 6,880,000  | 36.4       |
| 1861-1870 . . . | 122,000 | 153,000   | 5,250,000  | 43.0       |
| 1871-1880 . . . | 109,000 | 163,000   | 5,590,000  | 51.3       |
| 100 years . . . | 874,000 | 1,026,000 | 30,900,000 | 35.1       |

A similar record was published in 1897, for 3 years ending December 1896, showing 125,500 acres sold for

£3,300,000, being at the rate of £26, 10s. per acre, a fall of 49 per cent. from the price of 1871-80.

According to a parliamentary report (1896) the productive area of the island of Great Britain was 32,580,000 acres, and the change of tenure since 1835 is shown thus:—

| Acres          | Number of Farms |         | Difference |
|----------------|-----------------|---------|------------|
|                | 1885            | 1895    |            |
| 1-5 . . .      | 135,000         | 118,000 | -17,000    |
| 5-50 . . .     | 233,000         | 235,000 | +2,000     |
| 50-100 . . .   | 65,000          | 67,000  | +2,000     |
| 100-500 . . .  | 94,000          | 94,800  | +800       |
| Over 500 . . . | 6,000           | 5,200   | -800       |
| Total . . .    | 533,000         | 520,000 | -13,000    |

| Farms                | Area, Acres |            |
|----------------------|-------------|------------|
|                      | 1885        | 1895       |
| Under 50 acres . . . | 4,800,000   | 4,900,000  |
| 50-100 acres . . .   | 4,600,000   | 4,900,000  |
| Over 100 acres . . . | 23,000,000  | 22,800,000 |
| Total . . .          | 32,400,000  | 32,600,000 |

For Ireland, see page 341.

Assessments of land in the three kingdoms compare :—

|                      | 1886<br>£  | 1896<br>£  |
|----------------------|------------|------------|
| England . . . . .    | 40,200,000 | 39,370,000 |
| Scotland . . . . .   | 5,600,000  | 6,150,000  |
| Ireland . . . . .    | 8,630,000  | 9,890,000  |
| United Kingdom . . . | 54,430,000 | 55,410,000 |

In Ireland rents have been reduced by the Commissioners 20 per cent. since 1880, the rental in 1895 standing thus :—

|                     | £ Sterling (000 omitted) |          |             |        |
|---------------------|--------------------------|----------|-------------|--------|
|                     | Old rent                 | Judicial | Un-reformed | Total  |
| Ulster . . . . .    | 1,910                    | 1,540    | 1,270       | 2,810  |
| Leinster . . . . .  | 1,620                    | 1,290    | 1,930       | 3,220  |
| Connaught . . . . . | 760                      | 600      | 680         | 1,280  |
| Munster . . . . .   | 1,690                    | 1,310    | 1,610       | 2,920  |
| Total . . . . .     | 5,980                    | 4,740    | 5,490       | 10,230 |

In the United States the census of 1890 compared with that of 1860 thus :—

|                     | 1860      | 1890      | Increase  |
|---------------------|-----------|-----------|-----------|
| Farmers . . . . .   | 1,850,000 | 5,282,000 | 3,432,000 |
| Labourers . . . . . | 1,509,000 | 3,038,000 | 1,529,000 |
| Total . . . . .     | 3,359,000 | 8,320,000 | 4,961,000 |

As to manner of holding land, the census of 1890 shows that the ratio of farms cultivated by the owner is declining, while that of tenants rapidly increases: there are two kinds of tenancy, that of a fixed money rental, and that of sharing profits on the system known in France as Metayer: the figures for 1880 and 1890 were :—

| Worked by         | Number of Farms |           | Ratio |       |
|-------------------|-----------------|-----------|-------|-------|
|                   | 1880            | 1890      | 1880  | 1890  |
| Owner . . . . .   | 2,984,000       | 3,270,000 | 74.4  | 71.5  |
| Tenant . . . . .  | 323,000         | 455,000   | 8.1   | 10.0  |
| Metayer . . . . . | 702,000         | 840,000   | 17.5  | 18.5  |
| Total . . . . .   | 4,009,000       | 4,565,000 | 100.0 | 100.0 |

The price of land in various sections of the Union shows as follows :—

| States               | \$ per Acre |      |      |
|----------------------|-------------|------|------|
|                      | 1850        | 1880 | 1890 |
| New England . . . .  | 34          | 44   | 46   |
| Middle . . . . .     | 45          | 65   | 63   |
| Southern . . . . .   | 20          | 21   | 23   |
| Prairie . . . . .    | 28          | 37   | 38   |
| Pacific . . . . .    | ...         | 25   | 48   |
| Union, average . . . | 29          | 36   | 37   |

## LAND-TENURE AND LAND-TAXES

See pages 341-352.

## LANGUAGE

See page 352.

## LAW COURTS

The total number of lawsuits in the superior and inferior courts of England and Wales, since 1859, is given by Dr. John MacDonell, Master, as follows :—

| Period            | Average Suits Yearly |           |           |
|-------------------|----------------------|-----------|-----------|
|                   | Superior             | Inferior  | Total     |
| 1859-66 . . . . . | 113,000              | 837,000   | 950,000   |
| 1867-74 . . . . . | 83,000               | 959,000   | 1,042,000 |
| 1875-82 . . . . . | 94,000               | 1,065,000 | 1,159,000 |
| 1883-90 . . . . . | 83,000               | 1,064,000 | 1,147,000 |
| 1891-92 . . . . . | 82,000               | 1,115,000 | 1,197,000 |

Taking the number of barristers, solicitors, and law-clerks at each census of England and Wales, and comparing it with lawsuits, we find the amount of work to each was as follows :—

| Period            | Lawyers | Lawsuits  | Per Lawyer |
|-------------------|---------|-----------|------------|
| 1859-66 . . . . . | 34,990  | 950,000   | 27         |
| 1867-74 . . . . . | 37,330  | 1,042,000 | 28         |
| 1875-82 . . . . . | 43,640  | 1,159,000 | 27         |
| 1883-92 . . . . . | 47,520  | 1,157,000 | 24         |

The supply of lawyers seems to exceed the demand, the average to each being now only 24 suits a year, which shows a relative fall of 11 per cent. since 30 years ago. Comparing the above figures with population, we find the number of suits and lawyers showed thus :—

| Period            | Per 100,000 Inhabitants |         |
|-------------------|-------------------------|---------|
|                   | Lawsuits                | Lawyers |
| 1859-66 . . . . . | 4,750                   | 175     |
| 1867-82 . . . . . | 4,580                   | 170     |
| 1883-92 . . . . . | 4,130                   | 170     |

This shows that the spirit of litigation, as represented by the number of lawsuits, has declined 13 per cent. in the last 30 years.

For criminal cases, see *Crime*, pages 162 and 679.

## LEAD

Production has increased 50 per cent. in eight years, viz :—

|                       | Tons    |         |          |
|-----------------------|---------|---------|----------|
|                       | 1888    | 1896    | Increase |
| United States . . . . | 160,000 | 170,000 | 10,000   |
| Spain . . . . .       | 84,000  | 170,000 | 86,000   |
| Germany . . . . .     | 92,000  | 110,000 | 18,000   |
| Great Britain . . . . | 38,000  | 30,000  | ...      |
| Various . . . . .     | 83,000  | 200,000 | 117,000  |
| Total . . . . .       | 457,000 | 680,000 | 223,000  |

In 1896 Australia produced 65,000, Mexico 50,000, tons.

The above is the weight of metallic lead produced, 100 tons of mineral giving usually 70 tons of metal. The price of pig lead has been as follows per ton :—

| Year       | £    | Year       | £    | Year       | £    |
|------------|------|------------|------|------------|------|
| 1882 . . . | 14.4 | 1888 . . . | 13.9 | 1893 . . . | 9.9  |
| 1885 . . . | 11.2 | 1890 . . . | 13.2 | 1896 . . . | 11.1 |

Great Britain imports 150,000 tons yearly, and exports 60,000. The Spanish lead mines gave as follows :—

| Year           | Tons, Ore | Value, £  |
|----------------|-----------|-----------|
| 1892 . . . . . | 310,000   | 1,050,000 |
| 1895 . . . . . | 305,000   | 1,400,000 |

## LEATHER

The production and consumption of all kinds of hides and skins (exclusive of furs), and the equivalent in leather, are approximately as follows :—

|                     | Tons Hides |             | Tons Leather Consumed |
|---------------------|------------|-------------|-----------------------|
|                     | Production | Consumption |                       |
| U. Kingdom . . .    | 102,000    | 196,000     | 118,000               |
| France . . . . .    | 105,000    | 150,000     | 90,000                |
| Germany . . . . .   | 133,000    | 220,000     | 132,000               |
| Russia . . . . .    | 237,000    | 190,000     | 114,000               |
| Austria . . . . .   | 110,000    | 133,000     | 80,000                |
| Italy . . . . .     | 37,000     | 53,000      | 32,000                |
| Other States . . .  | 150,000    | 180,000     | 107,000               |
| Europe . . . . .    | 874,000    | 1,122,000   | 673,000               |
| U. States . . . . . | 420,000    | 510,000     | 306,000               |
| Australia . . . . . | 227,000    | 120,000     | 72,000                |
| Argentina, &c. . .  | 389,000    | 158,000     | 95,000                |
| Total . . . . .     | 1,910,000  | 1,910,000   | 1,146,000             |

Production and consumption of leather manufactures show approximately thus :—

|                         | Output Millions £ | Consumption |                    |
|-------------------------|-------------------|-------------|--------------------|
|                         |                   | Millions £  | Shillings per Head |
| United Kingdom . . .    | 59                | 56          | 30                 |
| France . . . . .        | 45                | 37          | 20                 |
| Germany . . . . .       | 65                | 60          | 12                 |
| Russia . . . . .        | 57                | 57          | 10                 |
| Austria . . . . .       | 40                | 39          | 18                 |
| Italy . . . . .         | 16                | 16          | 10                 |
| Spain . . . . .         | 14                | 13          | 15                 |
| Other States . . . . .  | 39                | 39          | 16                 |
| Europe . . . . .        | 336               | 317         | 17                 |
| United States . . . . . | 106               | 108         | 30                 |
| Total . . . . .         | 442               | 425         | 19                 |

The estimate of British leather manufactures at page 354 is 10 per cent. too low as regards value.

## LEGACY AND PROBATE

See page 354; also *Death-duties*, page 689.

## LIBRARIES

See Part I., page 355.

## LIFE

The value of life in persons devoted to science is shown by the returns of Fellows of the Royal Society from 1848 to 1891, viz :—

| Term              | Average        |                 | Survivors in 1891 | Average Age |
|-------------------|----------------|-----------------|-------------------|-------------|
|                   | No. of Fellows | Age at Election |                   |             |
| 1848-57 . . . . . | 715            | 42              | 39                | 75          |
| 1858-67 . . . . . | 614            | 43              | 67                | 67          |
| 1868-77 . . . . . | 536            | 45              | 111               | 61          |
| 1878-87 . . . . . | 481            | 45              | 138               | 53          |
| 1888-91 . . . . . | 466            | 46              | 46                | 48          |
| 1848-91 . . . . . | 575            | 44              | 401               | 59          |

## FRANCE

According to Turquand, the span of life in France is now 7 years longer than it was 60 years ago :—

| Period            | Span of Life |        | Die under 20 per 1000 born |
|-------------------|--------------|--------|----------------------------|
|                   | Years        | Months |                            |
| 1821-40 . . . . . | 33           | 0      | 394                        |
| 1841-60 . . . . . | 36           | 0      | 389                        |
| 1861-76 . . . . . | 36           | 10     | 376                        |
| 1877-90 . . . . . | 40           | 2      | 370                        |

## UNITED STATES

Dr. Billings's tables of the expectation of life in the city of Baltimore (1886), compiled from the census returns of 1880, show the difference between white and coloured people at all ages as follows :—

| Age          | Years to Live |        |          |        |
|--------------|---------------|--------|----------|--------|
|              | White         |        | Coloured |        |
|              | Male          | Female | Male     | Female |
| 1 . . . . .  | 44.7          | 47.4   | 32.2     | 38.4   |
| 5 . . . . .  | 50.5          | 53.0   | 41.8     | 46.8   |
| 10 . . . . . | 48.5          | 50.8   | 40.1     | 44.8   |
| 15 . . . . . | 44.4          | 46.6   | 36.8     | 42.0   |
| 20 . . . . . | 40.4          | 42.7   | 33.8     | 39.5   |
| 25 . . . . . | 36.9          | 39.3   | 31.0     | 36.3   |
| 30 . . . . . | 33.5          | 36.0   | 27.8     | 33.5   |
| 40 . . . . . | 26.7          | 29.4   | 21.7     | 27.6   |
| 50 . . . . . | 20.0          | 22.6   | 16.3     | 21.6   |
| 60 . . . . . | 14.1          | 16.0   | 11.3     | 15.5   |
| 70 . . . . . | 10.1          | 10.4   | 7.8      | 9.9    |
| 80 . . . . . | 7.4           | 6.9    | 6.3      | 6.5    |
| 85 . . . . . | 6.2           | 5.8    | 5.9      | 5.6    |

Taking all inhabitants, without distinction of colour or sex, the expectation of life in other cities of the Union is :—

| Age          | Years to Live |              |        |         |           |
|--------------|---------------|--------------|--------|---------|-----------|
|              | New York      | Philadelphia | Boston | Chicago | St. Louis |
| 1 . . . . .  | 43.7          | 49.5         | 46.7   | 47.3    | 51.3      |
| 5 . . . . .  | 49.1          | 52.0         | 50.9   | 52.9    | 53.7      |
| 10 . . . . . | 45.9          | 48.6         | 48.0   | 51.1    | 50.0      |
| 15 . . . . . | 41.6          | 44.3         | 43.7   | 47.1    | 45.8      |
| 20 . . . . . | 37.6          | 40.4         | 40.1   | 43.2    | 41.7      |
| 30 . . . . . | 31.1          | 33.8         | 33.8   | 36.0    | 34.7      |
| 40 . . . . . | 25.1          | 27.5         | 27.4   | 29.1    | 28.1      |
| 50 . . . . . | 19.2          | 21.1         | 20.9   | 22.1    | 21.8      |
| 60 . . . . . | 13.8          | 15.1         | 15.0   | 15.7    | 16.1      |
| 70 . . . . . | 9.4           | 10.2         | 10.1   | 10.5    | 11.9      |
| 80 . . . . . | 6.7           | 6.9          | 7.1    | 7.3     | 9.3       |

For other countries see page 355.

The following table of survivals for Massachusetts and New Jersey shows the number of persons, out of 1000 born, who will survive to certain ages :—

| Age      | Massachusetts |        | New Jersey |        |
|----------|---------------|--------|------------|--------|
|          | Male          | Female | Male       | Female |
| 0 . . .  | 1,000         | 1,000  | 1,000      | 1,000  |
| 1 . . .  | 858           | 880    | 868        | 892    |
| 5 . . .  | 760           | 777    | 776        | 798    |
| 10 . . . | 729           | 742    | 748        | 769    |
| 15 . . . | 717           | 728    | 737        | 757    |
| 20 . . . | 700           | 707    | 723        | 740    |
| 30 . . . | 646           | 643    | 673        | 685    |
| 40 . . . | 588           | 580    | 615        | 627    |
| 50 . . . | 523           | 517    | 544        | 563    |
| 60 . . . | 434           | 440    | 444        | 481    |
| 70 . . . | 302           | 323    | 308        | 352    |
| 80 . . . | 135           | 163    | 141        | 167    |
| 90 . . . | 24            | 37     | 30         | 35     |

In New Jersey the woman's life throughout is better than the man's, but the reverse is true in Massachusetts between 30 and 50 years of age.

### LIFE-BOATS

In 1897 those of the United Kingdom were launched 375 times, and saved 659 lives. Since 1824 they have saved 40,470 lives, or 550 yearly.

### LIFE-SPAN

According to ten years' tables, 1881-90, those persons who safely complete their fifth year usually pass their sixtieth. The mean age at death (excluding infants under five) was :—

|                |      |                     |      |
|----------------|------|---------------------|------|
| England . . .  | 62.5 | Sweden . . .        | 67.8 |
| Scotland . . . | 62.1 | Norway . . .        | 67.1 |
| Ireland . . .  | 62.8 | Denmark . . .       | 65.8 |
| France . . .   | 63.2 | Holland . . .       | 65.2 |
| Russia . . .   | 61.4 | Belgium . . .       | 64.3 |
| Bavaria . . .  | 62.2 | Switzerland . . .   | 61.8 |
| Austria . . .  | 58.1 | Massachusetts . . . | 63.2 |
| Italy . . .    | 63.8 | Japan . . .         | 60.8 |
| Spain . . .    | 58.2 | Average . . .       | 63.0 |

### LIVES OF MONARCHS

In 400 years, from 1498 to 1898, the average life of crowned heads has been as follows :—

| Sovereigns    | Number | Average Years | Sovereigns     | Number | Average Years |
|---------------|--------|---------------|----------------|--------|---------------|
| Popes . . .   | 43     | 9.3           | Denmark . . .  | 13     | 30.8          |
| Czars . . .   | 27     | 15.0          | Sweden . . .   | 24     | 16.6          |
| Austria . . . | 16     | 25.0          | Portugal . . . | 22     | 18.2          |
| Prussia . . . | 16     | 25.0          | Turkey . . .   | 27     | 15.0          |
| Spain . . .   | 16     | 25.0          | England . . .  | 17     | 24.0          |

The Popes, being usually elected at advanced age, may be omitted: the general average for the other 178 monarchs would be 20 years of reign; but despotic rulers, Czars and Sultans, had short reigns, being sometimes assassinated.

### LIGHT

The public lighting of the principal cities of Europe in 1891 was :—

|                  | Number of Lamps |        |       | Cost       |                |
|------------------|-----------------|--------|-------|------------|----------------|
|                  | Electric        | Gas    | Oil   | £ Sterling | Pence per Inh. |
| London . . .     | ...             | 74,100 | ...   | 220,000    | 12             |
| Paris . . .      | 380             | 58,400 | 400   | 230,000    | 21             |
| Berlin . . .     | 70,400          | 20,300 | 1,200 | 110,000    | 16             |
| Hamburg . . .    | 70              | 21,600 | ...   | ...        | ...            |
| Vienna . . .     | ...             | 17,200 | 300   | 50,000     | 9              |
| Dresden . . .    | ...             | 6,900  | 400   | 20,000     | 14             |
| Buda-Pesth . . . | ...             | 8,800  | 2,500 | 30,000     | 12             |
| Brussels . . .   | ...             | 5,600  | ...   | ...        | ...            |
| Bordeaux . . .   | ...             | 4,700  | ...   | 8,000      | 8              |
| Rome . . .       | 45              | 6,700  | 1,600 | 48,000     | 25             |
| Naples . . .     | 33              | 9,700  | 300   | 47,000     | 22             |
| Milan . . .      | 264             | 3,800  | ...   | 23,000     | 12             |
| Turin . . .      | 2,760           | 3,900  | 400   | 30,000     | 21             |
| Palermo . . .    | ...             | 3,000  | 1,100 | 18,000     | 16             |
| Genoa . . .      | 73              | 3,300  | ...   | 15,000     | 16             |
| Florence . . .   | 29              | 3,500  | 400   | 18,000     | 22             |

The number of electric lights, public and private, in use in the above cities in 1891 was as follows :—

|               |         |                |        |               |        |
|---------------|---------|----------------|--------|---------------|--------|
| London . . .  | 10,000  | Dresden . . .  | 10,000 | Rome . . .    | 13,000 |
| Berlin . . .  | 115,000 | Breslau . . .  | 8,000  | Naples . . .  | 4,000  |
| Vienna . . .  | 37,000  | Venice . . .   | 5,400  | Milan . . .   | 16,000 |
| Hamburg . . . | 42,000  | Florence . . . | 900    | Turin . . .   | 7,000  |
| Leipzig . . . | 22,000  | Genoa . . .    | 600    | Palermo . . . | 2,000  |

The annual consumption of gas, public and private, and the average cost per thousand feet, are shown in the following table :—

|                      | Millions of Cubic Feet |         |        | Pence per 1000 feet |
|----------------------|------------------------|---------|--------|---------------------|
|                      | Public                 | Private | Total  |                     |
| London (inner) . . . | 1,520                  | 25,200  | 26,720 | 36                  |
| Paris . . .          | 950                    | 9,450   | 10,400 | 60                  |
| Berlin . . .         | 500                    | 4,300   | 4,800  | 45                  |
| Vienna . . .         | 250                    | ...     | ...    | 48                  |
| Hamburg . . .        | 240                    | 1,200   | 1,440  | 50                  |
| Leipzig . . .        | 80                     | 550     | 630    | 50                  |
| Bordeaux . . .       | 180                    | 720     | 900    | 47                  |
| Brussels . . .       | 160                    | 800     | 960    | 28                  |
| Breslau . . .        | 105                    | 415     | 520    | 50                  |
| Dresden . . .        | 140                    | 600     | 740    | 48                  |
| Buda-Pesth . . .     | 170                    | 590     | 760    | 47                  |
| Trieste . . .        | 50                     | 150     | 200    | 54                  |
| Rome . . .           | 130                    | 390     | 520    | 64                  |
| Naples . . .         | 170                    | 180     | 350    | 72                  |
| Milan . . .          | 60                     | 480     | 540    | 55                  |
| Turin . . .          | 80                     | 700     | 780    | 40                  |
| Palermo . . .        | 60                     | 70      | 130    | 100                 |
| Genoa . . .          | 50                     | 180     | 230    | 60                  |
| Florence . . .       | 60                     | 90      | 150    | 60                  |
| Venice . . .         | 40                     | 80      | 120    | 70                  |

The average price in the above 20 cities is 54 pence per thousand feet, or 50 per cent. higher than in London. The annual consumption of gas per inhabitant is as follows :—

|                | Feet  |                  | Feet  |                | Feet  |
|----------------|-------|------------------|-------|----------------|-------|
| London . . .   | 6,400 | Brussels . . .   | 1,900 | Naples . . .   | 700   |
| Paris . . .    | 4,200 | Breslau . . .    | 1,500 | Milan . . .    | 1,200 |
| Berlin . . .   | 3,100 | Dresden . . .    | 2,200 | Turin . . .    | 2,200 |
| Hamburg . . .  | 2,400 | Buda-Pesth . . . | 1,400 | Genoa . . .    | 1,100 |
| Leipzig . . .  | 1,600 | Trieste . . .    | 1,200 | Florence . . . | 700   |
| Bordeaux . . . | 3,500 | Rome . . .       | 1,200 | Palermo . . .  | 500   |

The average consumption in the above 18 cities is 2050 cubic feet per inhabitant yearly; Paris is double, and London treble the average.



Those towns in England which are lit with gas by the municipal authorities had 192 establishments in 1894, against 148 in 1884, and showed statistics as follows :—

|            | Capital, £ | Consumers | Street Lamps | Tons Coal Consumed |
|------------|------------|-----------|--------------|--------------------|
| 1884 . . . | 17,300,000 | 917,000   | 137,000      | 2,350,000          |
| 1894 . . . | 23,600,000 | 1,226,000 | 210,000      | 4,030,000          |

The total gas returns for England and Wales in 1897 were :—

| Supply          | Millions Cubic Feet | Tons Coal  | Consumers |
|-----------------|---------------------|------------|-----------|
| Municipal . . . | 48,700              | 4,650,000  | 1,480,000 |
| Companies . . . | 84,000              | 7,950,000  | 1,540,000 |
| Total, 1897 . . | 132,700             | 12,600,000 | 3,020,000 |
| Do. 1890 . . .  | 103,000             | 10,200,000 | 2,310,000 |

This gave an average of  $4\frac{1}{2}$  tons of coal per consumer in 1890, and  $4\frac{1}{2}$  tons in 1897.

See *Gas*, page 304, and *Light*, page 357.

## LIGHTHOUSES

See page 358.

## LIVING, COST OF

The *Journal des Economistes*, 1895, estimates the annual expenditure for a workman's family in various countries thus :—

|                    | Shillings per Annum |         |         |         |       |
|--------------------|---------------------|---------|---------|---------|-------|
|                    | Great Britain       | Belgium | Germany | Austria | Italy |
| Rent . . . . .     | 188                 | 99      | 74      | 62      | 61    |
| Bread . . . . .    | 136                 | 360     | 214     | 354     | 504   |
| Meat . . . . .     | 180                 | 75      | 74      | 52      | 0     |
| Vegetables . . .   | 136                 | 180     | 60      | 128     | 298   |
| Dairy . . . . .    | 90                  | 180     | 472     | 60      | 72    |
| Groceries . . . .  | 676                 | 316     | 134     | 188     | 210   |
| Clothing . . . . . | 175                 | 256     | 120     | 79      | 112   |
| Fuel, &c. . . . .  | 115                 | 65      | 130     | 79      | 35    |
| Total . . . . .    | 1,656               | 1,531   | 1,278   | 1,002   | 1,292 |

Higgs's budgets of the working-classes in the United States show the average earnings and expenditure of 3000 families was as follows :—

|                    | American<br>£ | English<br>£ | Scotch<br>£ | Irish<br>£ |
|--------------------|---------------|--------------|-------------|------------|
| Earnings . . .     | 129           | 103          | 140         | 96         |
| Rent . . . . .     | 15.5          | 10.4         | 10.5        | 9.4        |
| Food . . . . .     | 50.7          | 46.8         | 68.7        | 44.7       |
| Clothes . . . . .  | 23.7          | 17.2         | 21.4        | 14.0       |
| Fuel . . . . .     | 6.3           | 5.7          | 4.3         | 5.7        |
| Liquor, &c. . . .  | 6.3           | 7.4          | 11.2        | 7.1        |
| Sundries . . . . . | 13.1          | 8.5          | 8.9         | 8.1        |
| Total . . . . .    | 115.6         | 96.0         | 125.0       | 89.0       |
| Surplus . . . . .  | 13.4          | 7.0          | 15.0        | 7.0        |

The estimated ratios of expenditure for American working-classes, as given by the *Amer. Econ. Ass.*, compare with the above thus :—

|                    | American | British | Continental |
|--------------------|----------|---------|-------------|
| Rent . . . . .     | 18.6     | 11.1    | 5.8         |
| Food . . . . .     | 45.3     | 65.4    | 73.0        |
| Clothing . . . . . | 18.5     | 10.3    | 11.1        |
| Fuel . . . . .     | 5.0      | 6.7     | 6.1         |
| Sundries . . . . . | 12.6     | 6.5     | 4.0         |
| Total . . . . .    | 100.0    | 100.0   | 100.0       |

The Statistical Society of Paris (1895) shows the yearly expenditure of a gentleman of £600 a year, residing in Paris, with wife, 5 children, and 2 servants, in all 9 persons, and how much goes in taxes :—

|                      | Expenditure<br>£ | Tax Included<br>£ | Tax Ratio |
|----------------------|------------------|-------------------|-----------|
| House . . . . .      | 125.0            | 36.6              | 29.5      |
| Bread, flour . . .   | 27.6             | 5.3               | 48.0      |
| Meat and fish . . .  | 87.0             | 11.2              | 12.9      |
| Dairy products . .   | 37.2             | 2.7               | 7.3       |
| Wines . . . . .      | 35.6             | 17.6              | 49.5      |
| Coffee, sugar, &c. . | 58.9             | 14.0              | 23.7      |
| Clothing . . . . .   | 79.0             | 8.5               | 10.8      |
| Fuel and light . . . | 35.5             | 9.7               | 27.3      |
| Sundries . . . . .   | 84.2             | 24.4              | 29.0      |
| Total . . . . .      | 570.0            | 130.0             | 22.8      |

It appears, therefore, that taxation, between national, communal, and municipal, is equal to 23 per cent. of the above gentleman's expenditure, and his family comprising 7 persons, the average incidence of taxation for them is almost £19 per head.

See *Living*, page 458.

## LOCAL FINANCES

### UNITED KINGDOM

Local expenditure in 1894 amounted to £88,500,000, as compared with £61,200,000 in 1880, viz. :—

|                       | £ Sterling |            |
|-----------------------|------------|------------|
|                       | 1880       | 1894       |
| Police and works . .  | 34,500,000 | 46,500,000 |
| Poor relief . . . . . | 9,900,000  | 11,800,000 |
| Schools . . . . .     | 4,900,000  | 9,700,000  |
| Harbours . . . . .    | 4,700,000  | 5,800,000  |
| Rural affairs . . . . | 7,200,000  | 14,700,000 |
| Total . . . . .       | 61,200,000 | 88,500,000 |

In 1894 the expenditure was made up as follows :—

|                    | £ (000 omitted) |          |         |                |
|--------------------|-----------------|----------|---------|----------------|
|                    | England         | Scotland | Ireland | United Kingdom |
| Urban . . . . .    | 40,220          | 4,930    | 1,410   | 46,560         |
| Poor . . . . .     | 9,670           | 960      | 1,130   | 11,760         |
| Schools . . . . .  | 7,780           | 1,910    | ...     | 9,690          |
| Harbours . . . . . | 4,030           | 1,170    | 580     | 5,780          |
| Rural . . . . .    | 11,520          | 1,400    | 1,750   | 14,670         |
| Total . . . . .    | 73,220          | 10,370   | 4,870   | 88,460         |

Only 60 per cent. of the amount necessary to meet the above expenditure was raised by rates, tolls, and income from water and gas supply, viz. :—

|                        | 1880       | 1894       |
|------------------------|------------|------------|
| Rates and tolls . . .  | 37,100,000 | 54,300,000 |
| Imperial subsidy . . . | 3,400,000  | 11,100,000 |
| Loans . . .            | 15,100,000 | 16,100,000 |
| Sundries . . .         | 5,600,000  | 7,000,000  |
| Total . . .            | 61,200,000 | 88,500,000 |

Local revenue in 1894 was made up as follows :—

|                    | £ (000 omitted) |          |         |                |
|--------------------|-----------------|----------|---------|----------------|
|                    | England         | Scotland | Ireland | United Kingdom |
| Rates, tolls . . . | 45,600          | 6,200    | 3,500   | 54,300         |
| Imp. subsidy . . . | 9,000           | 1,700    | 400     | 11,100         |
| Loans . . .        | 13,400          | 2,100    | 600     | 16,100         |
| Sundries . . .     | 6,200           | 500      | 300     | 7,000          |
| Total . . .        | 73,200          | 10,500   | 4,800   | 88,500         |

Local debt has nearly doubled since 1880, amounting at present to nearly 262 millions sterling, viz. :—

|                      | 1880<br>£   | 1897<br>£   |
|----------------------|-------------|-------------|
| England . . . . .    | 137,000,000 | 223,600,000 |
| Scotland . . . . .   | 16,300,000  | 30,900,000  |
| Ireland . . . . .    | ?           | 6,900,000   |
| U. Kingdom . . . . . | ...         | 261,400,000 |

The local debt of England showed as follows :—

|                      | 1880<br>£   | 1897<br>£   |
|----------------------|-------------|-------------|
| Urban . . . . .      | 56,700,000  | 78,100,000  |
| Docks . . . . .      | 23,200,000  | 32,000,000  |
| Schools, &c. . . . . | 57,100,000  | 113,500,000 |
| Total . . . . .      | 137,000,000 | 223,600,000 |

#### Debt of London

#### Irish Debt

|                          | £          |                       | £         |
|--------------------------|------------|-----------------------|-----------|
| County Council . . . . . | 19,100,000 | Dublin . . . . .      | 1,840,000 |
| School Board . . . . .   | 9,300,000  | Belfast . . . . .     | 1,380,000 |
| Vestries, &c. . . . .    | 10,300,000 | Harbours, &c. . . . . | 3,680,000 |
| Total . . . . .          | 38,700,000 | Total . . . . .       | 6,900,000 |

The debt of London is equal to £9 per inhabitant, with an annual burthen of £2,600,000, equal to 17 pence per pound of the valuation. The local debt of Ireland is equal to 32 shillings per inhabitant. The School Board debt of England is £20,200,000, equal to £10 per head of the children in Board schools.

In 1890, according to Sir John Lubbock, the taxation and debt of various cities gave the following averages per inhabitant :—

|                      | Rates, £ | Debt, £ |
|----------------------|----------|---------|
| London . . . . .     | 2.4      | 9.2     |
| Birmingham . . . . . | 2.8      | 10.1    |
| Paris . . . . .      | 5.2      | 23.3    |
| New York . . . . .   | 6.2      | 16.2    |
| Boston . . . . .     | 6.1      | 24.5    |

#### FRANCE

Local taxation and debt in 1895 were as follows :—

|                             | Revenue, £ | Debt, £     |
|-----------------------------|------------|-------------|
| Paris . . . . .             | 13,800,000 | 70,800,000  |
| Other Cities . . . . .      | 17,500,000 | 69,800,000  |
| Rural Departments . . . . . | 11,000,000 | 16,800,000  |
| Total . . . . .             | 42,300,000 | 157,400,000 |

The debt of Paris exceeds £28 per inhabitant. The amount of Octroi (food tax) at the principal cities was :—

|                      | £         | Shillings per Inhabitant |
|----------------------|-----------|--------------------------|
| Paris . . . . .      | 6,010,000 | 50                       |
| Lyons . . . . .      | 450,000   | 21                       |
| Marseilles . . . . . | 450,000   | 22                       |
| Bordeaux . . . . .   | 250,000   | 20                       |
| Lille . . . . .      | 190,000   | 21                       |
| Rouen . . . . .      | 150,000   | 27                       |
| 6 Cities . . . . .   | 7,500,000 | 38                       |

#### GERMANY

Local taxation is about 48 millions sterling: see page 363.

#### RUSSIA

Local taxation is about 16 millions sterling, of which 40 per cent is municipal, 60 per cent. rural. Local debts sum up 7 millions.

#### ITALY

Local taxation, 31 millions sterling; local debts, 54 millions. The Octroi of the principal cities is as follows :—

|                  | £ Sterling | Shillings per Inhabitant |
|------------------|------------|--------------------------|
| Rome . . . . .   | 700,000    | 32                       |
| Naples . . . . . | 630,000    | 24                       |
| Milan . . . . .  | 390,000    | 18                       |
| Turin . . . . .  | 400,000    | 24                       |
| Genoa . . . . .  | 380,000    | 35                       |

Local taxation in 1897 was made up of £25,800,000 communal, and £5,200,000 provincial: of the former £2,100,000 went to the State.

#### SCANDINAVIA

Local taxes are £4,200,000 in Sweden, £1,300,000 in Norway, and £2,100,000 in Denmark. Sweden has a local debt of £11,000,000.

#### UNITED STATES

Local taxation consists of State, County, Municipal, and School taxes, and these have nearly doubled since 1870, the aggregate showing as follows :—

|                         | £ Sterling |            |            |
|-------------------------|------------|------------|------------|
|                         | 1870       | 1890       | Increase   |
| New England . . . . .   | 8,000,000  | 11,000,000 | 3,000,000  |
| Middle States . . . . . | 16,000,000 | 28,700,000 | 12,700,000 |
| Southern „ . . . . .    | 7,500,000  | 11,900,000 | 4,400,000  |
| Western „ . . . . .     | 19,500,000 | 46,400,000 | 26,900,000 |
| The Union . . . . .     | 51,000,000 | 98,000,000 | 47,000,000 |

Local taxes are raised by a rate on property, varying from  $1\frac{1}{2}$  to  $2\frac{1}{2}$  per cent., viz. :—

|                     | Tax per \$100 of Property |      |
|---------------------|---------------------------|------|
|                     | 1870 .                    | 1890 |
| New England . . .   | 1.61                      | 1.48 |
| Middle . . . . .    | 1.97                      | 1.70 |
| South . . . . .     | 1.67                      | 1.40 |
| West . . . . .      | 2.42                      | 2.29 |
| Union, average. . . | 1.97                      | 1.85 |

It will be seen that although local taxation has risen 92 per cent. since 1870, the increase of wealth has been such that the collective rates are lower per 100 dollars of property in every part of the Union, being 6 per cent. less all round. As regards the local taxation of 1890, if we distribute it over the whole population, it is as follows :—

| Taxes               | £ Sterling | Pence per Inhabitant |
|---------------------|------------|----------------------|
| State . . . . .     | 10,100,000 | 38                   |
| County . . . . .    | 19,700,000 | 75                   |
| Municipal . . . . . | 42,200,000 | 161                  |
| Schools . . . . .   | 26,000,000 | 100                  |
| Total . . . . .     | 98,000,000 | 374                  |

Local debts in 1890 amounted to 237 millions sterling. The municipal debt of New York in 1897 was £47,300,000, equal to £19 per inhabitant.

*Municipal Expenditure.*—Körösi's and Bodio's latest reports show the following :—

|                     | £          |                     | £         |
|---------------------|------------|---------------------|-----------|
| Paris . . . . .     | 12,200,000 | Naples . . . . .    | 600,000   |
| Berlin . . . . .    | 2,040,000  | Milan . . . . .     | 800,000   |
| Vienna . . . . .    | 2,080,000  | Turin . . . . .     | 420,000   |
| Rome . . . . .      | 1,640,000  | Genoa . . . . .     | 700,000   |
| St. Petersburg . .  | 640,000    | Florence . . . . .  | 440,000   |
| Moscow . . . . .    | 500,000    | Palermo . . . . .   | 330,000   |
| Warsaw . . . . .    | 320,000    | Venice . . . . .    | 180,000   |
| Buda-Pesth . . . .  | 1,000,000  | Dresden . . . . .   | 400,000   |
| Stockholm . . . . . | 920,000    | Amsterdam . . . .   | 1,080,000 |
| Copenhagen . . . .  | 500,000    | Bucharest . . . . . | 570,000   |
| Prague . . . . .    | 920,000    | Lyons . . . . .     | 760,000   |
| Washington . . . .  | 930,000    | Munich . . . . .    | 1,400,000 |

Distributing the above sums according to population, we find as follows :—

| Skillings per Inhabitant |     |                      |    |
|--------------------------|-----|----------------------|----|
| Paris . . . . .          | 100 | Bucharest . . . .    | 49 |
| Prague . . . . .         | 100 | Florence . . . . .   | 45 |
| Washington . . . .       | 80  | Amsterdam . . . .    | 44 |
| Rome . . . . .           | 78  | Milan . . . . .      | 40 |
| London . . . . .         | 75  | Buda-Pesth . . . .   | 40 |
| Munich . . . . .         | 70  | Lyons . . . . .      | 33 |
| Genoa . . . . .          | 68  | Copenhagen . . . .   | 32 |
| Stockholm . . . . .      | 62  | Vienna . . . . .     | 30 |
|                          |     | Naples . . . . .     | 26 |
|                          |     | Turin . . . . .      | 26 |
|                          |     | Dresden . . . . .    | 25 |
|                          |     | Berlin . . . . .     | 24 |
|                          |     | Venice . . . . .     | 24 |
|                          |     | Palermo . . . . .    | 24 |
|                          |     | St. Petersburg . . . | 10 |
|                          |     | Moscow . . . . .     | 10 |

## M

## MAIZE

The area and product are ordinarily as follows :—

|                     | Acres       | Tons       | Bushels per Acre | Per Inhab. |
|---------------------|-------------|------------|------------------|------------|
| United States . . . | 72,200,000  | 43,500,000 | 24               | 24         |
| Austria . . . . .   | 6,700,000   | 3,400,000  | 20               | 3          |
| Russia . . . . .    | 6,800,000   | 2,600,000  | 15               | 1          |
| Danub. States . . . | 7,500,000   | 2,500,000  | 13               | 9          |
| Italy . . . . .     | 4,800,000   | 1,700,000  | 14               | 2          |
| Spain . . . . .     | 2,400,000   | 1,100,000  | 18               | 3          |
| Argentina . . . . . | 2,700,000   | 1,100,000  | 16               | 11         |
| France . . . . .    | 1,600,000   | 700,000    | 18               | 1          |
| Portugal . . . . .  | 800,000     | 350,000    | 18               | 3          |
| Australia . . . . . | 300,000     | 200,000    | 26               | 2          |
| Canada . . . . .    | 250,000     | 200,000    | 32               | 2          |
| Greece . . . . .    | 200,000     | 100,000    | 20               | 2          |
| Egypt . . . . .     | 1,500,000   | 500,000    | 13               | 2          |
| Java . . . . .      | 1,900,000   | 600,000    | 13               | 1          |
| Algeria . . . . .   | 100,000     | 30,000     | 13               | ...        |
| Total . . . . .     | 109,750,000 | 58,580,000 | 11               | ...        |

In France and some other countries millet is included with maize.

The production of maize has increased in recent times more rapidly than that of any other grain, having risen 50 per cent. in twenty-five years. Neumann Spallart estimated the world's crop to have averaged only 38,400,000 tons yearly in the decade ending 1880. The United States produce three-fourths of the total, and use the grain largely for fattening hogs.

See *Agriculture*, page 8, and *Food*, page 714; also *Maize*, p. 365

## MANUFACTURES

The output of manufacturing industry has more than doubled since 1860, showing approximately as follows :—

|                    | Millions £ Sterling |       |       |
|--------------------|---------------------|-------|-------|
|                    | 1860                | 1888  | 1896  |
| Textiles . . . . . | 420                 | 684   | 904   |
| Hardware . . . . . | 243                 | 563   | 604   |
| Total . . . . .    | 663                 | 1,247 | 1,508 |

The above are only two of the principal branches of manufactures, the various countries showing approximately the following value of output in 1896 :—

|                      | Millions £ Sterling |          |          |       |
|----------------------|---------------------|----------|----------|-------|
|                      | Textiles            | Hardware | Sundries | Total |
| United Kingdom . .   | 191                 | 142      | 543      | 876   |
| France . . . . .     | 115                 | 47       | 434      | 596   |
| Germany . . . . .    | 108                 | 105      | 477      | 690   |
| Russia . . . . .     | 81                  | 15       | 284      | 380   |
| Austria . . . . .    | 56                  | 19       | 253      | 328   |
| Italy . . . . .      | 32                  | 4        | 154      | 190   |
| Spain . . . . .      | 19                  | 5        | 97       | 121   |
| Belgium . . . . .    | 17                  | 19       | 82       | 118   |
| Scandinavia . . . .  | 9                   | 8        | 64       | 81    |
| Various . . . . .    | 32                  | 6        | 152      | 190   |
| Europe . . . . .     | 660                 | 370      | 2,540    | 3,570 |
| United States . . .  | 188                 | 229      | 1,563    | 1,980 |
| British Colonies . . | 7                   | 5        | 148      | 160   |
| Total . . . . .      | 855                 | 604      | 4,251    | 5,710 |

The above is exclusive of India, South America, &c.

The output of textile manufactures in 1840 was valued thus:—

|                     | Value, £ (000 omitted) |          |        |        |         |
|---------------------|------------------------|----------|--------|--------|---------|
|                     | Cottons                | Woollens | Linens | Silks  | Total   |
| Great Britain . . . | 48,000                 | 24,000   | 12,000 | 9,500  | 93,500  |
| France . . .        | 20,000                 | 16,000   | 14,400 | 10,000 | 60,400  |
| Germany . . .       | 7,000                  | 17,400   | 3,000  | 3,600  | 31,000  |
| Austria . . .       | 4,500                  | 6,600    | 6,000  | 6,000  | 23,100  |
| Belgium . . .       | 3,400                  | 1,000    | 1,000  | ...    | 5,400   |
| Italy . . .         | 2,500                  | 800      | ...    | 3,000  | 6,300   |
| Russia . . .        | 2,800                  | 4,200    | 800    | 800    | 8,600   |
| Europe . . .        | 88,200                 | 70,000   | 37,200 | 32,900 | 228,300 |
| United States . . . | 9,600                  | 4,400    | ...    | ...    | 14,000  |
| Total . . .         | 97,800                 | 74,400   | 37,200 | 32,900 | 242,300 |

In comparing the output of 1840 with that of 1896, we find the value in the various countries compares with population thus:—

|                      | Millions £ |      | £ per Inhabitant |      |
|----------------------|------------|------|------------------|------|
|                      | 1840       | 1896 | 1840             | 1896 |
| United Kingdom . . . | 94         | 191  | 3.6              | 5.0  |
| France . . .         | 60         | 115  | 1.8              | 3.0  |
| Germany . . .        | 31         | 108  | 1.0              | 2.1  |
| Russia . . .         | 9          | 81   | 0.1              | 0.7  |
| Austria . . .        | 23         | 56   | 0.7              | 1.3  |
| Italy . . .          | 6          | 32   | 0.3              | 1.0  |
| Spain . . .          | 6          | 19   | 0.5              | 1.1  |
| Belgium . . .        | 5          | 17   | 1.2              | 2.7  |
| Switzerland . . .    | 2          | 12   | 1.0              | 4.0  |
| Holland, &c. . .     | 2          | 29   | 0.2              | 1.3  |
| Europe . . .         | 238        | 660  | 1.0              | 1.8  |
| United States . . .  | 14         | 188  | 0.8              | 2.7  |
| India, &c. . .       | 8          | 56   | ...              | ...  |
| The World . . .      | 260        | 904  | ...              | ...  |

The value of textile manufactures in 1896 was approximately as follows:—

|                      | Millions £ Sterling |          |             |       |
|----------------------|---------------------|----------|-------------|-------|
|                      | Cottons             | Woollens | Linens, &c. | Total |
| United Kingdom . . . | 92.1                | 61.7     | 37.4        | 191.2 |
| France . . .         | 22.4                | 44.7     | 48.0        | 115.1 |
| Germany . . .        | 35.4                | 42.2     | 30.6        | 108.2 |
| Russia . . .         | 20.4                | 29.0     | 31.6        | 81.0  |
| Austria . . .        | 18.4                | 14.5     | 22.8        | 55.7  |
| Italy . . .          | 12.0                | 5.8      | 13.4        | 32.1  |
| Spain . . .          | 8.8                 | 6.6      | 4.0         | 19.4  |
| Belgium . . .        | 5.2                 | 5.3      | 6.4         | 16.9  |
| Switzerland . . .    | 3.2                 | 1.6      | 7.0         | 11.8  |
| Holland, &c. . .     | 11.2                | 8.6      | 8.8         | 28.6  |
| Europe . . .         | 230.0               | 220.0    | 210.0       | 660.0 |
| United States . . .  | 68.0                | 72.0     | 48.0        | 188.0 |
| India . . .          | 24.0                | 2.0      | 10.0        | 36.0  |
| Various . . .        | 8.0                 | 7.0      | 5.0         | 20.0  |
| The World* . . .     | 330.0               | 301.0    | 273.0       | 904.0 |

The progress of textile manufactures since 1888 is shown approximately thus:—

|                      | Tons Fibre |           | Output Millions £ |      |
|----------------------|------------|-----------|-------------------|------|
|                      | 1888       | 1896      | 1888              | 1896 |
| United Kingdom . . . | 1,240,000  | 1,360,000 | 192               | 191  |
| France . . .         | 530,000    | 580,000   | 108               | 115  |
| Germany . . .        | 430,000    | 590,000   | 82                | 108  |
| Russia . . .         | 400,000    | 740,000   | 52                | 81   |
| Austria . . .        | 260,000    | 360,000   | 36                | 56   |
| Italy . . .          | 170,000    | 200,000   | 21                | 32   |
| Spain . . .          | 100,000    | 110,000   | 16                | 19   |
| Belgium . . .        | 130,000    | 110,000   | 16                | 17   |
| Various . . .        | 60,000     | 150,000   | 15                | 41   |
| Europe . . .         | 3,320,000  | 4,200,000 | 524               | 660  |
| United States . . .  | 840,000    | 1,210,000 | 112               | 188  |
| India, &c. . .       | 360,000    | 690,000   | 48                | 56   |
| The World . . .      | 4,520,000  | 6,100,000 | 684               | 904  |

The consumption of fibre and value of textile manufactures were approximately as follows:—

|            | Tons Fibre | Output Millions | £ per Ton Fibre |
|------------|------------|-----------------|-----------------|
|            |            |                 |                 |
| 1820 . . . | 950,000    | 158             | 106             |
| 1840 . . . | 1,440,000  | 260             | 180             |
| 1860 . . . | 2,380,000  | 420             | 175             |
| 1870 . . . | 2,970,000  | 537             | 180             |
| 1888 . . . | 4,520,000  | 684             | 152             |
| 1896 . . . | 6,100,000  | 904             | 148             |

The weight of fibre consumed has doubled since 1870, but the value of manufactures produced has only risen 66 per cent.

See *Cotton*, page 678; *Flax*, page 712; *Hemp*, page 742; *Jute*, page 759; *Silk*, page 806; *Wool*, page 820.  
The nations most largely exporting textiles show as follows:—

|                      | Exported, Millions £ Sterling |      |      |      |      |
|----------------------|-------------------------------|------|------|------|------|
|                      | 1860                          | 1870 | 1880 | 1890 | 1896 |
| United Kingdom . . . | 83                            | 119  | 117  | 121  | 108  |
| France . . .         | 28                            | 37   | 37   | 39   | 36   |
| Germany . . .        | 10                            | 14   | 27   | 36   | 32   |
| Switzerland . . .    | 6                             | 9    | 11   | 12   | 11   |
| Belgium . . .        | 4                             | 5    | 8    | 8    | 7    |
| Austria . . .        | 3                             | 4    | 4    | 4    | 4    |
| Total . . .          | 134                           | 188  | 204  | 220  | 198  |

The export of British textile goods was as follows:—

|                | Millions £ Sterling |       |       |       |       |
|----------------|---------------------|-------|-------|-------|-------|
|                | 1860                | 1870  | 1880  | 1890  | 1896  |
| Cottons . . .  | 42.1                | 56.7  | 63.7  | 62.1  | 59.3  |
| Woollens . . . | 12.2                | 21.7  | 17.3  | 20.4  | 18.3  |
| Linens . . .   | 4.8                 | 7.2   | 5.8   | 5.7   | 5.0   |
| Silks . . .    | 1.6                 | 1.5   | 2.0   | 2.2   | 1.4   |
| Jutes . . .    | ...                 | 0.8   | 2.3   | 2.6   | 2.3   |
| Yarns . . .    | 15.8                | 23.2  | 17.1  | 19.4  | 18.7  |
| Sundries . . . | 6.8                 | 8.3   | 8.9   | 8.2   | 7.6   |
| Total . . .    | 83.3                | 119.4 | 117.1 | 120.6 | 112.6 |

The consumption of textile goods in various countries is shown thus:—

|                      | Millions £ Sterling |          |       |             |
|----------------------|---------------------|----------|-------|-------------|
|                      | Cottons             | Woollens | Silks | Linens, &c. |
| United Kingdom . . . | 40.1                | 45.0     | 19.0  | 17.4        |
| France . . . . .     | 19.8                | 36.0     | 20.0  | 15.6        |
| Germany . . . . .    | 29.0                | 39.8     | 10.2  | 13.3        |
| Russia . . . . .     | 20.5                | 29.4     | 3.5   | 27.6        |
| Austria . . . . .    | 18.3                | 14.1     | 4.0   | 15.9        |
| Italy . . . . .      | 13.5                | 7.1      | 3.0   | 7.4         |
| Spain . . . . .      | 7.1                 | 6.9      | 1.5   | 2.8         |
| Belgium . . . . .    | 5.0                 | 5.5      | 1.4   | 1.3         |
| Various . . . . .    | 15.7                | 18.2     | 2.4   | 5.7         |
| Europe . . . . .     | 169.0               | 202.0    | 65.0  | 107.0       |
| United States . . .  | 64.0                | 82.0     | 23.0  | 64.0        |
| India . . . . .      | 54.0                | 4.0      | ?     | 10.0        |
| Various . . . . .    | 43.0                | 13.0     | 2.0   | 2.0         |
| Total . . . . .      | 330.0               | 301.0    | 90.0  | 183.0       |

The total value of textiles produced and consumed in various countries compares with population thus:—

|                    | Millions £ |          | Shillings per Head |          |
|--------------------|------------|----------|--------------------|----------|
|                    | Product.   | Consump. | Product.           | Consump. |
| U. Kingdom . . .   | 191        | 122      | 96                 | 62       |
| France . . . . .   | 115        | 92       | 60                 | 48       |
| Germany . . . . .  | 108        | 92       | 42                 | 36       |
| Russia . . . . .   | 81         | 81       | 14                 | 14       |
| Austria . . . . .  | 56         | 52       | 27                 | 25       |
| Italy . . . . .    | 32         | 31       | 21                 | 20       |
| Spain . . . . .    | 19         | 18       | 22                 | 21       |
| Belgium . . . . .  | 17         | 13       | 54                 | 41       |
| Switzerland . . .  | 12         | 5        | 80                 | 51       |
| Holland, &c. . . . | 29         | 37       | 15                 | 19       |
| Europe . . . . .   | 660        | 543      | 36                 | 30       |
| United States . .  | 188        | 233      | 52                 | 66       |
| India . . . . .    | 36         | 68       | 3                  | 5        |
| Various . . . . .  | 20         | 60       | ...                | ...      |
| The World . . . .  | 904        | 904      | 18                 | 18       |

*Textiles.*—The annual consumption of fibre in the factories of the world is approximately as follows:—

|                     | Tons      |           |                 |           |
|---------------------|-----------|-----------|-----------------|-----------|
|                     | Cotton    | Wool      | Flax, Jute, &c. | Total     |
| U. Kingdom . . .    | 710,000   | 230,000   | 420,000         | 1,360,000 |
| France . . . . .    | 180,000   | 210,000   | 190,000         | 580,000   |
| Germany . . . . .   | 280,000   | 200,000   | 110,000         | 590,000   |
| Russia . . . . .    | 190,000   | 110,000   | 440,000         | 740,000   |
| Austria . . . . .   | 120,000   | 60,000    | 180,000         | 360,000   |
| Italy . . . . .     | 110,000   | 20,000    | 70,000          | 200,000   |
| Spain . . . . .     | 70,000    | 25,000    | 15,000          | 110,000   |
| Belgium . . . . .   | 40,000    | 20,000    | 50,000          | 110,000   |
| Various . . . . .   | 100,000   | 25,000    | 25,000          | 150,000   |
| Europe . . . . .    | 1,800,000 | 900,000   | 1,500,000       | 4,200,000 |
| U. States . . . . . | 600,000   | 270,000   | 340,000         | 1,210,000 |
| India . . . . .     | 220,000   | 10,000    | 260,000         | 490,000   |
| Various . . . . .   | 80,000    | 20,000    | 100,000         | 200,000   |
| The World . . . .   | 2,700,000 | 1,200,000 | 2,200,000       | 6,100,000 |

The nominal consumption of wool is 1,200,000 tons, but the real does not exceed 1,100,000 tons (see *Wool*, page 820), the difference arising from the fact that woollen

yarn is included in some countries as wool, having been already counted as wool in the countries which converted it from wool into yarn. In like manner the real consumption of cotton does not exceed 2,600,000 tons.

*Hardware.*—The production of steel, lead, copper, &c., is as follows:—

|                   | Tons       |         |         |         |
|-------------------|------------|---------|---------|---------|
|                   | Steel      | Lead    | Copper  | Zinc    |
| United States . . | 6,110,000  | 170,000 | 210,000 | 70,000  |
| Great Britain . . | 3,880,000  | 30,000  | 100,000 | 70,000  |
| Germany . . . . . | 2,160,000  | 110,000 | 25,000  | 150,000 |
| France . . . . .  | 810,000    | 30,000  | 10,000  | 25,000  |
| Austria . . . . . | 500,000    | 10,000  | ...     | 6,000   |
| Russia . . . . .  | 580,000    | ...     | 5,000   | 5,000   |
| Spain . . . . .   | 40,000     | 170,000 | 60,000  | 20,000  |
| Belgium . . . . . | 420,000    | 20,000  | ...     | 110,000 |
| Various . . . . . | 200,000    | 150,000 | 80,000  | 4,000   |
| The World . . . . | 14,700,000 | 690,000 | 490,000 | 460,000 |

The principal nations that export hardware are shown thus:—

|                     | Exports, Millions £ |      |          |
|---------------------|---------------------|------|----------|
|                     | 1885                | 1895 | Increase |
| Great Britain . . . | 43                  | 55   | 12       |
| Germany . . . . .   | 11                  | 17   | 6        |
| United States . . . | 5                   | 11   | 6        |
| Belgium . . . . .   | 6                   | 9    | 3        |
| France . . . . .    | 4                   | 5    | 1        |
| Total . . . . .     | 69                  | 97   | 28       |

The hardware manufactures of nations sum up 604 millions sterling, and it appears that five-sixths are consumed in the countries where they are made, and one-sixth exported. Two of the largest factories in the world are Armstrong's at Newcastle, with 27,000, and Krupp's at Essen, with 24,000, workmen.

Birmingham is one of the centres of British hardware, turning out weekly 14 million pens, 10 tons of pins, 6000 bedsteads, 7000 guns, 4000 miles of wire, 500 tons of screw bolts, 300 million nails, 5 million coins, and 1 million buttons.

There are in Europe 45 million operatives and artisans, who produce goods worth 3570 millions sterling yearly, say £78 each; and in the United States 6 million hands produce 1980 millions sterling, or £330 each.

## MARKETS

The area of public markets compared with population in the principal cities of Europe gives the following:—

### Square Yards per 1000 Inhabitants

|                       |                        |                        |
|-----------------------|------------------------|------------------------|
| Paris . . . . . 32    | Leipzig . . . . . 28   | Rome . . . . . 204     |
| Brussels . . . . 59   | Bordeaux . . . . . 60  | Naples . . . . . 32    |
| Hamburg . . . . . 490 | Buda-Pesth . . . . 710 | Florence . . . . . 147 |

This gives an average of 196 square yards per 1000.

The meat markets of Paris in 1895 sold 166,000 tons of meat, 35,000 tons of fish, 23,000 tons of fowl and game, besides 34 million oysters, being an average of 150 lbs. meat, 33 lbs. fish, 22 lbs. fowl, and 14 oysters, per inhabitant. The meat consisted of:—

|                  | Head      | Tons Meat | Average, Lbs. |
|------------------|-----------|-----------|---------------|
| Cattle . . . . . | 477,000   | 105,000   | 496           |
| Sheep . . . . .  | 1,760,000 | 35,000    | 45            |
| Pigs . . . . .   | 286,000   | 22,000    | 162           |
| Horses . . . . . | 16,000    | 4,000     | 550           |

Poultry and game included 6,700,000 chickens, 2,100,000 pigeons, 1,700,000 ducks, geese, and turkeys, 3,300,000 rabbits, besides deer, hares, wild boars, &c.

### MARRIAGE

The following table shows, by latest census reports, the proportions of single, married, and widowed persons (divorced being included with widowed) in various countries:—

|                 | Single | Married | Widowed | Total |
|-----------------|--------|---------|---------|-------|
| England . . .   | 608    | 337     | 55      | 1,000 |
| Scotland . . .  | 647    | 296     | 57      | 1,000 |
| Ireland . . .   | 667    | 263     | 69      | 1,000 |
| United Kingdom  | 619    | 323     | 58      | 1,000 |
| France . . .    | 517    | 401     | 82      | 1,000 |
| Germany . . .   | 600    | 340     | 60      | 1,000 |
| Austria . . .   | 608    | 336     | 56      | 1,000 |
| Hungary . . .   | 529    | 408     | 63      | 1,000 |
| Switzerland . . | 611    | 321     | 68      | 1,000 |
| Italy . . .     | 569    | 365     | 66      | 1,000 |
| Spain . . .     | 546    | 384     | 70      | 1,000 |
| Sweden . . .    | 604    | 334     | 62      | 1,000 |
| Norway . . .    | 617    | 322     | 61      | 1,000 |
| Denmark . . .   | 594    | 345     | 61      | 1,000 |
| Holland . . .   | 616    | 328     | 56      | 1,000 |
| Belgium . . .   | 622    | 319     | 59      | 1,000 |
| Finland . . .   | 607    | 337     | 56      | 1,000 |
| Bulgaria . . .  | 535    | 420     | 45      | 1,000 |
| Canada . . .    | 632    | 328     | 40      | 1,000 |
| Australia . . . | 665    | 296     | 39      | 1,000 |
| Average . . .   | 599    | 342     | 59      | 1,000 |

The married ratio is highest in Bulgaria, Hungary, and France: it is lowest in Ireland, being 23 per cent. below the average of nations. The ratio of widowed persons is highest in France and Spain, lowest in Australia and Canada.

If we compare the proportion of adults, male and female, who are married in the various countries, we find thus:—

|                 | Males, per Cent. |            | Females, per Cent. |            |
|-----------------|------------------|------------|--------------------|------------|
|                 | Married          | Un-married | Married            | Un-married |
| England . . .   | 54.0             | 46.0       | 50.0               | 50.0       |
| Scotland . . .  | 49.1             | 50.9       | 44.0               | 56.0       |
| Ireland . . .   | 39.9             | 60.1       | 38.3               | 61.7       |
| U. Kingdom . .  | 51.5             | 48.5       | 47.7               | 52.3       |
| France . . .    | 55.4             | 44.6       | 54.3               | 45.7       |
| Germany . . .   | 54.0             | 46.0       | 51.0               | 49.0       |
| Austria . . .   | 52.7             | 47.3       | 50.0               | 50.0       |
| Hungary . . .   | 64.1             | 35.9       | 63.8               | 36.2       |
| Switzerland . . | 49.3             | 50.7       | 45.6               | 54.4       |
| Spain . . .     | 58.8             | 41.2       | 55.6               | 44.4       |
| Sweden . . .    | 52.7             | 47.3       | 47.9               | 52.1       |
| Norway . . .    | 53.2             | 46.8       | 47.4               | 52.6       |
| Denmark . . .   | 55.0             | 45.0       | 50.5               | 49.5       |
| Holland . . .   | 51.6             | 48.4       | 49.6               | 50.4       |
| Belgium . . .   | 48.0             | 52.0       | 47.4               | 52.6       |
| Finland . . .   | 54.2             | 45.8       | 51.3               | 48.7       |
| Bulgaria . . .  | 69.7             | 30.3       | 72.6               | 27.4       |
| Australia . . . | 35.3             | 64.7       | 60.0               | 40.0       |
| Average . . .   | 52.2             | 47.8       | 51.7               | 48.3       |

It would be a mistake to look for strict conformity between the ratio of married persons and the birth-rate of a country, which are often widely apart. Take for

example the ratio of married women and the birth-rate of the following:—

|                 | Married Women Percentage | Birth-rate per 1000 Pop. |
|-----------------|--------------------------|--------------------------|
| France . . .    | 54.3                     | 22.4                     |
| Scotland . . .  | 44.0                     | 30.7                     |
| Australia . . . | 60.0                     | 27.5                     |
| Norway . . .    | 47.4                     | 30.3                     |

Nevertheless, in most cases a high married ratio indicates a high birth-rate.

The ratios of age at marrying in various countries stand thus:—

|                  | Males    |       |       |         | Total |
|------------------|----------|-------|-------|---------|-------|
|                  | Under 20 | 20-30 | 30-40 | Over 40 |       |
| England . . .    | 21       | 734   | 158   | 87      | 1,000 |
| Scotland . . .   | 25       | 682   | 206   | 87      | 1,000 |
| Ireland . . .    | 25       | 616   | 260   | 99      | 1,000 |
| France . . .     | 19       | 669   | 223   | 89      | 1,000 |
| Germany . . .    | 1        | 695   | 218   | 86      | 1,000 |
| Russia . . .     | 320      | 519   | 98    | 63      | 1,000 |
| Austria . . .    | ...      | 645   | 220   | 135     | 1,000 |
| Hungary . . .    | ...      | 759   | 138   | 103     | 1,000 |
| Italy . . .      | 26       | 658   | 208   | 108     | 1,000 |
| Switzerland . .  | 10       | 608   | 246   | 136     | 1,000 |
| Sweden . . .     | 2        | 628   | 260   | 110     | 1,000 |
| Norway . . .     | 18       | 606   | 259   | 117     | 1,000 |
| Denmark . . .    | ...      | 642   | 261   | 97      | 1,000 |
| Holland . . .    | 30       | 632   | 228   | 110     | 1,000 |
| Belgium . . .    | 47       | 597   | 245   | 111     | 1,000 |
| Europe . . .     | 36       | 646   | 215   | 103     | 1,000 |
| Massachusetts .  | 19       | 687   | 201   | 93      | 1,000 |
| Buenos Ayres . . | 28       | 647   | 248   | 77      | 1,000 |

|                  | Females  |       |       |         | Total |
|------------------|----------|-------|-------|---------|-------|
|                  | Under 20 | 20-30 | 30-40 | Over 40 |       |
| England . . .    | 111      | 722   | 113   | 54      | 1,000 |
| Scotland . . .   | 116      | 708   | 131   | 45      | 1,000 |
| Ireland . . .    | 118      | 737   | 112   | 33      | 1,000 |
| France . . .     | 205      | 628   | 120   | 47      | 1,000 |
| Germany . . .    | 81       | 736   | 136   | 47      | 1,000 |
| Russia . . .     | 564      | 364   | 50    | 22      | 1,000 |
| Austria . . .    | 173      | 606   | 149   | 72      | 1,000 |
| Hungary . . .    | 368      | 493   | 80    | 59      | 1,000 |
| Italy . . .      | 234      | 606   | 107   | 53      | 1,000 |
| Switzerland . .  | 72       | 687   | 166   | 75      | 1,000 |
| Sweden . . .     | 64       | 675   | 201   | 60      | 1,000 |
| Norway . . .     | 79       | 677   | 183   | 61      | 1,000 |
| Denmark . . .    | 74       | 699   | 176   | 51      | 1,000 |
| Holland . . .    | 124      | 652   | 157   | 67      | 1,000 |
| Belgium . . .    | 182      | 570   | 176   | 72      | 1,000 |
| Europe . . .     | 171      | 637   | 137   | 55      | 1,000 |
| Massachusetts .  | 161      | 677   | 118   | 44      | 1,000 |
| Buenos Ayres . . | 456      | 443   | 72    | 29      | 1,000 |

### UNITED KINGDOM

The census of 1891 showed married and unmarried thus:—

#### England and Wales

|               | Number (000 omitted) |         |        | Ratio |
|---------------|----------------------|---------|--------|-------|
|               | Males                | Females | Total  |       |
| Single . . .  | 8,716                | 8,909   | 17,625 | 608   |
| Married . . . | 4,852                | 4,917   | 9,769  | 337   |
| Widowed . . . | 485                  | 1,124   | 1,609  | 55    |
| Total . . .   | 14,053               | 14,950  | 29,003 | 1,000 |

| <i>Scotland</i> |                      |         |       |       |
|-----------------|----------------------|---------|-------|-------|
|                 | Number (ooo omitted) |         |       | Ratio |
|                 | Males                | Females | Total |       |
| Single . . .    | 1,289                | 1,315   | 2,604 | 647   |
| Married . . .   | 589                  | 603     | 1,192 | 296   |
| Widowed . . .   | 64                   | 164     | 228   | 57    |
| Total . . .     | 1,942                | 2,082   | 4,024 | 1,000 |

| <i>Ireland</i> |       |       |       |       |
|----------------|-------|-------|-------|-------|
| Single . . .   | 1,614 | 1,528 | 3,142 | 667   |
| Married . . .  | 614   | 626   | 1,240 | 263   |
| Widowed . . .  | 92    | 232   | 324   | 69    |
| Total . . .    | 2,320 | 2,386 | 4,706 | 1,000 |

| <i>U. Kingdom</i> |        |        |        |       |
|-------------------|--------|--------|--------|-------|
| Single . . .      | 11,619 | 11,752 | 23,371 | 619   |
| Married . . .     | 6,055  | 6,146  | 12,201 | 323   |
| Widowed . . .     | 641    | 1,520  | 2,161  | 58    |
| Total . . .       | 18,315 | 19,418 | 37,733 | 1,000 |

The ratio of married persons in Ireland is the lowest in Europe, being 11 per cent. less than in Scotland, and 22 per cent. less than in England.

If we compare the adult population (over 15) with the numbers married we find :—

| <i>England</i>    |            |           |          |
|-------------------|------------|-----------|----------|
|                   | Population | Married   | Per cent |
| Males . . . . .   | 8,980,000  | 4,852,000 | 54.0     |
| Females . . . . . | 9,849,000  | 4,917,000 | 50.0     |
| Total . . . . .   | 18,829,000 | 9,769,000 | 52.0     |

| <i>Scotland</i>   |           |           |      |
|-------------------|-----------|-----------|------|
| Males . . . . .   | 1,218,000 | 589,000   | 49.1 |
| Females . . . . . | 1,376,000 | 603,000   | 44.0 |
| Total . . . . .   | 2,594,000 | 1,192,000 | 46.0 |

| <i>Ireland</i>    |           |           |      |
|-------------------|-----------|-----------|------|
| Males . . . . .   | 1,541,000 | 614,000   | 39.9 |
| Females . . . . . | 1,635,000 | 626,000   | 38.3 |
| Total . . . . .   | 3,176,000 | 1,240,000 | 39.0 |

| <i>U. Kingdom</i> |            |            |      |
|-------------------|------------|------------|------|
| Males . . . . .   | 11,739,000 | 6,055,000  | 51.5 |
| Females . . . . . | 12,860,000 | 6,146,000  | 47.7 |
| Total . . . . .   | 24,599,000 | 12,201,000 | 49.6 |

The following table shows the number of women between 15 and 45 in the three kingdoms, and how many married :—

|                      | Number    | Married   | Per cent. |
|----------------------|-----------|-----------|-----------|
| England . . . . .    | 6,892,000 | 3,244,000 | 47.1      |
| Scotland . . . . .   | 936,000   | 392,000   | 41.9      |
| Ireland . . . . .    | 1,068,000 | 358,000   | 33.6      |
| U. Kingdom . . . . . | 8,896,000 | 3,994,000 | 44.9      |

As the marriage ratio is so low in Ireland, the birth-rate is also extremely depressed, being 24 per cent. less than in England (see *Vital Statistics*, page 815).

The mean age of persons marrying in England and Wales showed as follows :—

|                     | 1885-88 | 1892-95 |
|---------------------|---------|---------|
| Bachelors . . . . . | 26.2    | 26.5    |
| Widowers . . . . .  | 43.7    | 44.4    |
| All men . . . . .   | 28.2    | 28.5    |
| Spinsters . . . . . | 24.7    | 25.0    |
| Widows . . . . .    | 40.2    | 40.5    |
| All women . . . . . | 25.9    | 26.2    |

The mean age in the second period is 1 per cent. higher than in the first. Marriages of minors are decreasing in ratio, viz :—

|                    | 1871-80 |       | 1886-95 |       |
|--------------------|---------|-------|---------|-------|
|                    | Men     | Women | Men     | Women |
| Under 21 . . . . . | 80      | 220   | 60      | 191   |
| Over 21 . . . . .  | 920     | 780   | 940     | 809   |
| Total . . . . .    | 1,000   | 1,000 | 1,000   | 1,000 |

The following table shows the probability of the husband's age in England for any given age of a woman at marriage :—

| Wife Aged       | Husband's Average |
|-----------------|-------------------|
| 15-20 . . . . . | 23.1              |
| 20-25 . . . . . | 25.1              |
| 25-30 . . . . . | 28.6              |
| 30-35 . . . . . | 33.8              |
| 35-40 . . . . . | 39.2              |

The religion of persons married, judging by the churches in which marriages took place, showed the following ratios, for England and Wales :—

|                             | 1856-65 | 1866-75 | 1876-85 | 1886-95 |
|-----------------------------|---------|---------|---------|---------|
| Church of England . . . . . | 860     | 761     | 720     | 697     |
| Roman Catholic . . . . .    | 46      | 42      | 43      | 42      |
| Various . . . . .           | 94      | 197     | 237     | 261     |
| Total . . . . .             | 1,000   | 1,000   | 1,000   | 1,000   |

#### GERMANY

The census of 1890 showed as follows :—

|                    | Number (ooo omitted) |         |        | Ratio |
|--------------------|----------------------|---------|--------|-------|
|                    | Males                | Females | Total  |       |
| Single . . . . .   | 15,058               | 14,592  | 29,650 | 60.0  |
| Married . . . . .  | 8,372                | 8,399   | 16,771 | 34.0  |
| Widowed . . . . .  | 775                  | 2,158   | 2,933  | 5.9   |
| Divorced . . . . . | 25                   | 50      | 75     | 0.1   |
| Total . . . . .    | 24,230               | 25,199  | 49,429 | 100.0 |

A comparison of the adult population over 15 with the number married shows :—

|                   | Population | Married    | Per Cent. |
|-------------------|------------|------------|-----------|
| Males . . . . .   | 15,517,000 | 8,372,000  | 54.0      |
| Females . . . . . | 16,511,000 | 8,399,000  | 51.0      |
| Total . . . . .   | 32,028,000 | 16,771,000 | 52.4      |

The married ratio is much higher than in the United Kingdom.

## FRANCE

The census of 1891 gave the following results :—

|                | Number (ooo omitted) |         |        | Ratio |
|----------------|----------------------|---------|--------|-------|
|                | Males                | Females | Total  |       |
| Single . . .   | 10,243               | 9,464   | 19,707 | 51.7  |
| Married . . .  | 7,640                | 7,657   | 15,297 | 40.1  |
| Widowed . . .  | 1,033                | 2,061   | 3,094  | 8.1   |
| Divorced . . . | 17                   | 20      | 37     | 0.1   |
| Total . . .    | 18,933               | 19,202  | 38,135 | 100.0 |

Comparing the adult population over 15 with the number married, we find :—

|               | Population | Married    | Per Cent. |
|---------------|------------|------------|-----------|
| Males . . .   | 13,807,000 | 7,640,000  | 55.4      |
| Females . . . | 14,101,000 | 7,657,000  | 54.3      |
| Total . . .   | 27,908,000 | 15,294,000 | 54.8      |

The married ratio is even higher here than in Germany, and yet the birth-rate is 40 per cent. less (see *Vital Statistics*, page 815).

## AUSTRIA

The census of 1890 showed as follows :—

|                | Number (ooo omitted) |         |        | Ratio |
|----------------|----------------------|---------|--------|-------|
|                | Males                | Females | Total  |       |
| Single . . .   | 7,342                | 7,180   | 14,522 | 60.8  |
| Married . . .  | 4,004                | 4,034   | 8,038  | 33.6  |
| Widowed . . .  | 336                  | 982     | 1,318  | 5.5   |
| Divorced . . . | 7                    | 10      | 17     | 0.1   |
| Total . . .    | 11,689               | 12,206  | 23,895 | 100.0 |

Comparing the adult population over 15, we find the married ratio thus :—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 7,594,000  | 4,004,000 | 52.7      |
| Females . . . | 8,071,000  | 4,034,000 | 50.0      |
| Total . . .   | 15,665,000 | 8,038,000 | 51.3      |

The married ratio is lower than in France or Germany, but the birth-rate is higher.

## HUNGARY

According to the census of 1890 we find as follows :—

|                | Number (ooo omitted) |         |        | Ratio |
|----------------|----------------------|---------|--------|-------|
|                | Males                | Females | Total  |       |
| Single . . .   | 4,882                | 4,377   | 9,259  | 52.9  |
| Married . . .  | 3,528                | 3,576   | 7,104  | 40.8  |
| Widowed . . .  | 253                  | 835     | 1,088  | 6.2   |
| Divorced . . . | 5                    | 8       | 13     | 0.1   |
| Total . . .    | 8,668                | 8,796   | 17,464 | 100.0 |

Comparing the adult population with the married, we find :—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 5,502,000  | 3,528,000 | 64.1      |
| Females . . . | 5,604,000  | 3,576,000 | 63.8      |
| Total . . .   | 11,106,000 | 7,104,000 | 64.0      |

The married ratio is 25 per cent. higher than in Austria, and is the highest in Europe except Bulgaria.

## ITALY

The census of 1880 showed as follows :—

|               | Number (ooo omitted) |         |        | Ratio |
|---------------|----------------------|---------|--------|-------|
|               | Males                | Females | Total  |       |
| Single . . .  | 8,544                | 7,661   | 16,205 | 56.9  |
| Married . . . | 5,150                | 5,211   | 10,361 | 36.5  |
| Widowed . . . | 571                  | 1,322   | 1,893  | 6.6   |
| Total . . .   | 14,265               | 14,194  | 28,459 | 100.0 |

## SWITZERLAND

The census of 1888 resulted as follows :—

|                | Number (ooo omitted) |         |       | Ratio |
|----------------|----------------------|---------|-------|-------|
|                | Males                | Females | Total |       |
| Single . . .   | 891                  | 892     | 1,783 | 61.1  |
| Married . . .  | 466                  | 470     | 936   | 32.1  |
| Widowed . . .  | 57                   | 131     | 188   | 6.4   |
| Divorced . . . | 4                    | 8       | 12    | 0.4   |
| Total . . .    | 1,418                | 1,501   | 2,919 | 100.0 |

Taking the adult population to compare with the married, we find :—

|               | Population | Married | Per Cent. |
|---------------|------------|---------|-----------|
| Males . . .   | 946,000    | 466,000 | 49.3      |
| Females . . . | 1,029,000  | 470,000 | 45.6      |
| Total . . .   | 1,975,000  | 936,000 | 47.4      |

The married ratio is low, especially for women. Observations during fifteen years show that of 100 marriages, the husband dies first in 56, the wife in 44 cases.

## SPAIN

According to the census of December 1887 we find :—

|               | Number (ooo omitted) |         |        | Ratio |
|---------------|----------------------|---------|--------|-------|
|               | Males                | Females | Total  |       |
| Single . . .  | 4,864                | 4,725   | 9,589  | 51.6  |
| Married . . . | 3,357                | 3,387   | 6,744  | 38.4  |
| Widowed . . . | 391                  | 842     | 1,233  | 7.0   |
| Total . . .   | 8,612                | 8,954   | 17,566 | 100.0 |



Comparing adult population with the number married, we find:—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 5,710,000  | 3,357,000 | 58.8      |
| Females . . . | 6,085,000  | 3,387,000 | 55.6      |
| Total . . .   | 11,795,000 | 6,744,000 | 57.2      |

The married ratio is 10 per cent. higher than in Germany, and yet the birth-rate is less.

## SWEDEN

The census of 1890 resulted as follows:—

|                | Number (000 omitted) |         |       | Ratio |
|----------------|----------------------|---------|-------|-------|
|                | Males                | Females | Total |       |
| Single . . .   | 1,432                | 1,461   | 2,893 | 60.4  |
| Married . . .  | 795                  | 805     | 1,600 | 33.4  |
| Widowed . . .  | 89                   | 200     | 289   | 6.1   |
| Divorced . . . | 1                    | 3       | 4     | 0.1   |
| Total . . .    | 2,317                | 2,469   | 4,786 | 100.0 |

Comparing the adult population with the number married, we find:—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 1,508,000  | 795,000   | 52.7      |
| Females . . . | 1,679,000  | 805,000   | 47.9      |
| Total . . .   | 3,187,000  | 1,600,000 | 50.2      |

The married ratio is lower than in Germany or England. It is ascertained in Sweden that 12 per cent. of marriages are barren.

## NORWAY

According to the census of 1890 we find:—

|               | Number (000 omitted) |         |       | Ratio |
|---------------|----------------------|---------|-------|-------|
|               | Males                | Females | Total |       |
| Single . . .  | 598                  | 630     | 1,228 | 61.7  |
| Married . . . | 315                  | 326     | 641   | 32.2  |
| Widowed . . . | 38                   | 81      | 119   | 6.1   |
| Total . . .   | 951                  | 1,037   | 1,988 | 100.0 |

The above number of married compares with adult population thus:—

|               | Population | Married | Per Cent. |
|---------------|------------|---------|-----------|
| Males . . .   | 592,000    | 315,000 | 53.2      |
| Females . . . | 688,000    | 326,000 | 47.4      |
| Total . . .   | 1,280,000  | 641,000 | 50.1      |

The married ratio is higher for males, but lower for females, than in Sweden.

## DENMARK

The census of 1890 resulted as follows:—

|                | Number (000 omitted) |         |       | Ratio |
|----------------|----------------------|---------|-------|-------|
|                | Males                | Females | Total |       |
| Single . . .   | 648                  | 648     | 1,296 | 59.4  |
| Married . . .  | 376                  | 376     | 752   | 34.5  |
| Widowed . . .  | 40                   | 91      | 131   | 6.0   |
| Divorced . . . | 1                    | 2       | 3     | 0.1   |
| Total . . .    | 1,065                | 1,117   | 2,182 | 100.0 |

Comparing adult population with the number married, we find:—

|               | Population | Married | Per Cent. |
|---------------|------------|---------|-----------|
| Males . . .   | 682,000    | 376,000 | 55.0      |
| Females . . . | 744,000    | 376,000 | 50.5      |
| Total . . .   | 1,426,000  | 752,000 | 52.8      |

The married ratio is almost the same as in Germany.

## SCANDINAVIA

If we group together the three northern kingdoms we find:—

|                | Number (000 omitted) |         |       | Ratio |
|----------------|----------------------|---------|-------|-------|
|                | Males                | Females | Total |       |
| Single . . .   | 2,678                | 2,739   | 5,417 | 60.5  |
| Married . . .  | 1,486                | 1,507   | 2,993 | 33.4  |
| Widowed . . .  | 167                  | 372     | 539   | 6.0   |
| Divorced . . . | 2                    | 5       | 7     | 0.1   |
| Total . . .    | 4,333                | 4,623   | 8,956 | 100.0 |

The adult population shows the married ratio thus:—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 2,782,000  | 1,486,000 | 53.4      |
| Females . . . | 3,111,000  | 1,507,000 | 48.4      |
| Total . . .   | 5,893,000  | 2,993,000 | 50.7      |

The married rate of the three kingdoms collectively is 3 per cent. lower than in Germany, but the birth-rate is 20 per cent. lower.

## HOLLAND

The census of 1889 resulted as follows:—

|                | Number (000 omitted) |         |       | Ratio |
|----------------|----------------------|---------|-------|-------|
|                | Males                | Females | Total |       |
| Single . . .   | 1,407                | 1,375   | 2,782 | 61.6  |
| Married . . .  | 738                  | 739     | 1,477 | 32.8  |
| Widowed . . .  | 81                   | 166     | 247   | 5.5   |
| Divorced . . . | 2                    | 2       | 4     | 0.1   |
| Total . . .    | 2,228                | 2,282   | 4,510 | 100.0 |

Comparing the adult population with the number married, we find :—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 1,499,000  | 738,000   | 51.6      |
| Females . . . | 1,491,000  | 739,000   | 49.6      |
| Total . . .   | 2,990,000  | 1,477,000 | 50.6      |

This is just the same married rate as in Scandinavia, but the birth-rate is 14 per cent. higher in Holland than in the northern kingdoms.

## BELGIUM

According to the census of December 1890 we find :—

|                | Number (000 omitted) |         |       | Ratio |
|----------------|----------------------|---------|-------|-------|
|                | Males                | Females | Total |       |
| Single . . .   | 1,936                | 1,845   | 3,781 | 62.2  |
| Married . . .  | 967                  | 965     | 1,932 | 31.9  |
| Widowed . . .  | 122                  | 230     | 352   | 5.8   |
| Divorced . . . | 2                    | 2       | 4     | 0.1   |
| Total . . .    | 3,027                | 3,042   | 6,069 | 100.0 |

The adult population compares with the number married thus :—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 2,015,000  | 967,000   | 48.0      |
| Females . . . | 2,039,000  | 965,000   | 47.4      |
| Total . . .   | 4,054,000  | 1,932,000 | 47.7      |

The married rate is almost the same as in Switzerland, and much below the average of European countries.

## FINLAND

The census of 1890 showed as follows :—

|               | Number (000 omitted) |         |       | Ratio |
|---------------|----------------------|---------|-------|-------|
|               | Males                | Females | Total |       |
| Single . . .  | 734                  | 711     | 1,445 | 60.7  |
| Married . . . | 401                  | 402     | 803   | 33.7  |
| Widowed . . . | 36                   | 96      | 132   | 5.6   |
| Total . . .   | 1,171                | 1,209   | 2,380 | 100.0 |

The adult population compares with the number married as follows :—

|               | Population | Married | Per Cent. |
|---------------|------------|---------|-----------|
| Males . . .   | 741,000    | 401,000 | 54.2      |
| Females . . . | 783,000    | 402,000 | 51.3      |
| Total . . .   | 1,524,000  | 803,000 | 52.6      |

The married ratio is almost the same as in Denmark, but the birth-rate is 6 per cent. higher than in that kingdom.

## BULGARIA

According to the census of 1888 the results were :—

|                | Number (000 omitted) |         |       | Ratio |
|----------------|----------------------|---------|-------|-------|
|                | Males                | Females | Total |       |
| Single . . .   | 897                  | 792     | 1,689 | 53.5  |
| Married . . .  | 664                  | 660     | 1,324 | 42.0  |
| Widowed . . .  | 43                   | 96      | 139   | 4.4   |
| Divorced . . . | 1                    | 1       | 2     | 0.1   |
| Total . . .    | 1,605                | 1,549   | 3,154 | 100.0 |

Comparing adult population with the number married, we find :—

|               | Population | Married   | Per Cent. |
|---------------|------------|-----------|-----------|
| Males . . .   | 949,000    | 661,000   | 69.7      |
| Females . . . | 913,000    | 660,000   | 72.6      |
| Total . . .   | 1,862,000  | 1,324,000 | 71.2      |

The ratio of married is 40 per cent. higher than in Austria, and yet the Austrian birth-rate is higher than the Bulgarian.

## CANADA

The census of 1891 gave results as follows :—

|               | Number (000 omitted) |         |       | Ratio |
|---------------|----------------------|---------|-------|-------|
|               | Males                | Females | Total |       |
| Single . . .  | 1,601                | 1,452   | 3,053 | 63.2  |
| Married . . . | 796                  | 798     | 1,588 | 32.8  |
| Widowed . . . | 63                   | 129     | 192   | 4.0   |
| Total . . .   | 2,460                | 2,373   | 4,833 | 100.0 |

The adult population, male and female, over 15 years of age, was 3,093,000, from which it appears that the married ratio was 51½ per cent., as compared with 52 per cent. in England.

## AUSTRALIA

According to the census of 1891 the results were :—

|               | Number (000 omitted) |         |       | Ratio |
|---------------|----------------------|---------|-------|-------|
|               | Males                | Females | Total |       |
| Single . . .  | 1,417                | 1,109   | 2,526 | 66.5  |
| Married . . . | 565                  | 564     | 1,129 | 29.6  |
| Widowed . . . | 55                   | 91      | 146   | 3.9   |
| Total . . .   | 2,037                | 1,764   | 3,801 | 100.0 |

The ratios of adult population married in the several colonies were :—

|                    | Adult Pop. | Married   | Per Cent. |
|--------------------|------------|-----------|-----------|
| N. S. Wales . . .  | 701,000    | 332,000   | 47.4      |
| Victoria . . .     | 745,000    | 345,000   | 46.3      |
| N. Zealand . . .   | 377,000    | 182,000   | 48.3      |
| Queensland . . .   | 247,000    | 115,000   | 46.6      |
| S. Australia . . . | 194,000    | 97,000    | 50.0      |
| Tasmania . . .     | 90,000     | 44,000    | 48.9      |
| W. Australia . . . | 33,000     | 14,000    | 42.4      |
| Total . . .        | 2,387,000  | 1,129,000 | 47.3      |

The ratio of married people is 5 per cent. less than in the United Kingdom, and the birth-rate is 7 per cent. lower.

## MEDICINE

See Part I., page 387 ; also *Drugs*, page 691.

## METALS

The production of metals at various dates was estimated as follows :—

| Date           | Tons       |            |         |         |         |        | Total Value, £ |
|----------------|------------|------------|---------|---------|---------|--------|----------------|
|                | Iron       | Steel      | Lead    | Copper  | Zinc    | Tin    |                |
| 1806 . . . . . | 550,000    | 10,000     | 24,000  | 6,000   | 2,000   | 3,000  | 7,400,000      |
| 1838 . . . . . | 2,450,000  | 20,000     | 130,000 | 22,000  | 9,000   | 5,000  | 19,200,000     |
| 1850 . . . . . | 4,420,000  | 70,000     | 170,000 | 52,000  | 58,000  | 6,000  | 38,500,000     |
| 1870 . . . . . | 11,910,000 | 540,000    | 400,000 | 94,000  | 130,000 | 16,000 | 72,300,000     |
| 1885 . . . . . | 19,340,000 | 6,200,000  | 420,000 | 230,000 | 280,000 | 35,000 | 96,700,000     |
| 1895 . . . . . | 28,800,000 | 14,600,000 | 680,000 | 490,000 | 460,000 | 40,000 | 175,200,000    |

The prices of the above metals at the dates in question were as follows :—

| Date           | £ per Ton |       |      |        |      |     |
|----------------|-----------|-------|------|--------|------|-----|
|                | Iron      | Steel | Lead | Copper | Zinc | Tin |
| 1806 . . . . . | 8.0       | ...   | 35   | 190    | 25   | 120 |
| 1838 . . . . . | 5.1       | ...   | 22   | 90     | 17   | 90  |
| 1850 . . . . . | 5.7       | 60.0  | 17   | 86     | 21   | 78  |
| 1870 . . . . . | 3.0       | 31.5  | 20   | 75     | 19   | 125 |
| 1885 . . . . . | 2.2       | 5.1   | 11   | 48     | 13   | 95  |
| 1895 . . . . . | 2.4       | 4.6   | 11   | 46     | 14   | 64  |

See *Iron, Lead, Copper, &c.*, under their special headings. In the former table the item of steel reduplicates the value of the iron used in its production.

## METEOROLOGY

*Barometer.*—The highest reading on record is 31.63 at Barnaul, in Siberia, on December 16, 1877. It was observed the same day that the thermometer stood at 54.4 below zero, Fahr. The lowest reading of the barometer is 27.33 at Perth, Scotland, on Jan. 26, 1884.

*Thermometer.*—Six experiments were made simultaneously in balloons on November 17, 1896, with the following results, at different places, viz. :—

| Place          | Height, Feet | Fahrenheit | Place          | Height, Feet | Fahrenheit |
|----------------|--------------|------------|----------------|--------------|------------|
| Warsaw . . .   | 6,600        | -4         | Berlin . . .   | 19,700       | -14        |
| Munich . . .   | 11,500       | +20        | Strasbourg . . | 25,300       | -22        |
| St. Petersburg | 16,400       | -11        | Paris . . .    | 49,200       | -76        |

The condition of mining in 1876 and 1896 was approximately as follows :—

|                     | Miners               |           |      |      | Value, Millions £ |      | Tons per Miner |      | £ per Miner |      |
|---------------------|----------------------|-----------|------|------|-------------------|------|----------------|------|-------------|------|
|                     | Millions Tons Raised |           |      |      |                   |      |                |      |             |      |
|                     | 1876                 | 1896      | 1876 | 1896 | 1876              | 1896 | 1876           | 1896 | 1876        | 1896 |
| Great Britain . . . | 610,000              | 840,000   | 147  | 251  | 58                | 69   | 241            | 299  | 95          | 82   |
| France . . . . .    | 207,000              | 270,000   | 27   | 41   | 15                | 21   | 131            | 152  | 72          | 77   |
| Germany . . . . .   | 223,000              | 404,000   | 56   | 130  | 15                | 39   | 250            | 322  | 67          | 96   |
| Russia . . . . .    | 300,000              | 460,000   | 28   | 44   | 10                | 14   | 95             | 95   | 33          | 30   |
| Austria . . . . .   | 126,000              | 170,000   | 16   | 37   | 7                 | 13   | 56             | 77   | 55          | 77   |
| Italy . . . . .     | 36,000               | 63,000    | 2    | 4    | 2                 | 3    | 55             | 63   | 55          | 50   |
| Spain . . . . .     | 44,000               | 63,000    | 6    | 12   | 2                 | 4    | 135            | 190  | 45          | 60   |
| Sweden . . . . .    | 27,000               | 26,000    | 2    | 2    | 2                 | 2    | 70             | 70   | 75          | 75   |
| Belgium . . . . .   | 111,000              | 150,000   | 18   | 23   | 7                 | 10   | 160            | 152  | 60          | 65   |
| United States . . . | 230,000              | 526,000   | 77   | 233  | 70                | 101  | 330            | 444  | 300         | 190  |
| Canada . . . . .    | 6,000                | 18,000    | 1    | 4    | 1                 | 3    | 160            | 220  | 170         | 220  |
| Australia . . . . . | 90,000               | 110,000   | 8    | 10   | 11                | 14   | 90             | 90   | 120         | 127  |
| South Africa . . .  | 30,000               | 100,000   | ...  | 4    | 2                 | 14   | ...            | 400  | 70          | 140  |
| Total . . . . .     | 2,040,000            | 3,200,000 | 388  | 795  | 202               | 307  | 190            | 248  | 99          | 96   |

On September 16, 1898, Mr. Spencer ascended from the Crystal Palace to 27,000 feet, and found temperature minus 45 Fahr.

The greatest cold was until recently (see p. 397) believed to be a quotation at Yakutsk, Siberia, of minus 73 Fahr. in 1829, but Professor Hildebrandson, of Upsala, asserts that there has been a quotation of minus 68 Centigrade, equal to minus 90 Fahr., at Werchojansk in Siberia. The greatest cold records in Great Britain are :—

| Year           | Place               | Fahrenheit    |
|----------------|---------------------|---------------|
| 1796 . . . . . | London              | 16 below zero |
| 1879 . . . . . | Blackadder, Berwick | 18 " "        |
| 1895 . . . . . | Alford, Aberdeen    | 16 " "        |

The greatest heat recorded was 133 Fahr. in the shade at Mourzuk, India, but Professor Wrede's observation in Central Arabia is 57½ Centigrade, equal to 135½ Fahr. in the shade, while the heat in the sun was 194 Fahr.

At Liverpool in 1863 there was a hurricane which indicated 43 lbs. pressure per square foot, equal to 90 miles an hour.

See *Meteorology*, in Part I., pp. 388-398.

## MINING

The progress of this industry since 1860 is shown approximately as follows :—

| Year           | Hands Employed | Millions Tons Raised | Value, Millions £ | Tons per Miner |
|----------------|----------------|----------------------|-------------------|----------------|
| 1860 . . . . . | 1,016,000      | 183                  | 76                | 180            |
| 1876 . . . . . | 2,040,000      | 388                  | 202               | 190            |
| 1896 . . . . . | 3,200,000      | 795                  | 307               | 248            |

Each miner on an average raises 5 tons of mineral weekly, worth about 36 shillings. Wages are usually three-fourths of the value of output.

## UNITED KINGDOM

The weight of mineral has almost doubled since 1870, viz. :—

|                    | Tons        |             |
|--------------------|-------------|-------------|
|                    | 1870        | 1896        |
| Coal . . . . .     | 110,400,000 | 195,400,000 |
| Sundries . . . . . | 36,700,000  | 55,300,000  |
| Total . . . . .    | 147,100,000 | 250,700,000 |

The value rose from £46,100,000 in 1870, to £69,100,000 in 1896, including not only minerals but also the product of quarries, the figures for 1896 showing thus :—

|                    | Tons        | £ Sterling |
|--------------------|-------------|------------|
| Coal . . . . .     | 195,400,000 | 57,200,000 |
| Ores . . . . .     | 13,800,000  | 3,800,000  |
| Stone, &c. . . . . | 41,500,000  | 8,100,000  |
| Total . . . . .    | 250,700,000 | 69,100,000 |

Official returns in the *Statistical Abstract* give not the ores, but the metals obtained, and their value, while they exclude the product of quarries: thus they compare the figures for 1896 with 1886 as follows :—

|                   | Tons        |             | Value, £   |            |
|-------------------|-------------|-------------|------------|------------|
|                   | 1886        | 1896        | 1886       | 1896       |
| Coal . . . . .    | 157,500,000 | 195,400,000 | 38,100,000 | 57,200,000 |
| Iron . . . . .    | 7,010,000   | 8,660,000   | 15,900,000 | 20,700,000 |
| Lead, &c. . . . . | 60,000      | 40,000      | 1,800,000  | 800,000    |
| Total . . . . .   | 164,570,000 | 204,100,000 | 55,800,000 | 78,700,000 |

(This is a deceptive mode of estimating *mineral* products, since it even includes the value of pig iron produced from Spanish and Swedish ores.)

The real mining product and number of hands are shown thus :—

|                    | Hands   | Value, £   | £ per Hand |
|--------------------|---------|------------|------------|
| Minerals . . . . . | 726,000 | 61,000,000 | 84         |
| Quarries . . . . . | 113,000 | 8,100,000  | 72         |
| Total . . . . .    | 839,000 | 69,100,000 | 82         |

Royalties paid to the owners of coal and iron mines amount to £4,900,000 yearly, or 8 per cent. of the gross product. Loss of life averages one man killed for every million tons raised, whereas before 1870 the average was three killed per million tons. The total number of persons of this class was in 1896 as follows: under ground, 576,000; above ground, 150,000; in quarries, 114,000; total 840,000. Deaths of miners in the years 1851-55 averaged 43 per 10,000 yearly, and in 1891-95 the average had fallen to 15 per 10,000; this means a saving of 2000 lives yearly.

## FRANCE

The weight of mineral increased nearly 50 per cent. in ten years, viz. :—

|                    | Tons       |            | Value, £   |            |
|--------------------|------------|------------|------------|------------|
|                    | 1885       | 1896       | 1885       | 1896       |
| Coal . . . . .     | 19,500,000 | 28,000,000 | 9,200,000  | 12,300,000 |
| Iron ore . . . . . | 2,300,000  | 3,700,000  | 360,000    | 470,000    |
| Lead . . . . .     | 10,000     | 20,000     | 100,000    | 90,000     |
| Zinc . . . . .     | 170,000    | 320,000    | 129,000    | 300,000    |
| Salt . . . . .     | 640,000    | 870,000    | 460,000    | 480,000    |
| Peat . . . . .     | 190,000    | 130,000    | 80,000     | 70,000     |
| Total . . . . .    | 22,810,000 | 33,040,000 | 10,320,000 | 13,710,000 |

The quarries, moreover, produce  $8\frac{1}{2}$  million tons of stone and slate, valued at £6,800,000, which, added to the foregoing, makes a total output of  $20\frac{1}{2}$  millions sterling. There are 160,000 miners and 110,000 hands employed in quarries: the product of the former averages £86, of the latter £62, each.

## GERMANY

Since the formation of the Empire mining industry has more than trebled :—

|                | Tons        | Value, £   |
|----------------|-------------|------------|
| 1870 . . . . . | 39,000,000  | 12,400,000 |
| 1880 . . . . . | 68,000,000  | 17,700,000 |
| 1888 . . . . . | 95,000,000  | 23,800,000 |
| 1896 . . . . . | 131,000,000 | 39,300,000 |

This is exclusive of stone and other quarries, of which there are no returns, but of which the product may reach 10 million tons. The principal mining products were :—

|                      | 1876       | 1886       | 1896        |
|----------------------|------------|------------|-------------|
| Coal, tons . . . . . | 49,500,000 | 73,700,000 | 112,400,000 |
| Iron ore, . . . . .  | 4,700,000  | 8,500,000  | 14,200,000  |
| Zinc . . . . .       | 530,000    | 710,000    | 730,000     |
| Copper . . . . .     | 310,000    | 500,000    | 720,000     |
| Lead . . . . .       | 120,000    | 160,000    | 160,000     |
| Salt, . . . . .      | 750,000    | 1,390,000  | 2,540,000   |
| Total . . . . .      | 55,910,000 | 84,960,000 | 130,750,000 |

One-fourth of the coal is lignite or brown-coal. The best collieries are in Prussia, which produces 80 per cent. of the German total. About one-tenth of the coal raised is exported, home consumption reaching 100 million tons, or 2 tons per inhabitant. The ironstone of Silesia and Westphalia is inferior, giving only 36 per cent. of iron. The copper ore of Prussia and Saxony is likewise very poor, yielding only  $3\frac{1}{2}$  per cent. of bar copper, as compared with 18 per cent. obtained from American ore. The zinc mines of Prussia are very valuable, the ore giving 21 per cent. of metallic zinc, and producing 150,000 tons of metal, of which one-half is exported. The annual production of silver averages 400 tons, value £1,700,000, and of gold  $3\frac{1}{2}$  tons, value £500,000. In 1895 the total number of miners was 400,000, and the weight of mineral raised was 325 tons per man, against 180 tons in 1870. The number of miners killed or injured in ten years ending 1894 was in the ratio of 22 in 10,000 yearly.

## RUSSIA

Mining is chiefly confined to Siberia, where convict labour is used. The ores are very poor, for it takes 600,000 tons of quartz to produce 1 ton of gold, each ton

of quartz when crushed yielding only 5 shillings worth of gold. Production increases, viz. :—

|                   | Tons Gold<br>Yearly | Value, £  |
|-------------------|---------------------|-----------|
| 1871-80 . . . . . | 38                  | 5,300,000 |
| 1881-88 . . . . . | 35                  | 4,900,000 |
| 1890-95 . . . . . | 42                  | 5,900,000 |

The total weight of mineral raised shows as follows:—

|                   | Tons       |            |            |
|-------------------|------------|------------|------------|
|                   | 1888       | 1892       | 1895       |
| Quartz . . . . .  | 23,000,000 | 25,800,000 | 24,700,000 |
| Coal . . . . .    | 4,500,000  | 6,800,000  | 8,900,000  |
| Naphtha . . . . . | 1,900,000  | 4,500,000  | 6,900,000  |
| Salt . . . . .    | 1,200,000  | 1,400,000  | 1,500,000  |
| Ores . . . . .    | 900,000    | 1,200,000  | 1,700,000  |
| Total . . . . .   | 31,500,000 | 39,700,000 | 43,700,000 |

The value of all mineral products rose from 10 millions sterling in 1888 to 14 millions in 1895, the latter sum being equal to £31 per man: but for convict labour, it would not be possible to carry on mining for so poor a return. The total number of miners, convicts and free, is 460,000, the largest number in any country of the world except Great Britain and the United States. The weight of mineral raised per miner is only 93 tons, as compared with 285 tons in Great Britain.

## AUSTRIA

In 1860 the total mining industry of Austria-Hungary was 4 million tons, value £1,500,000. Since then it has grown ninefold, the output now exceeding 37 million tons, viz. :—

|                           | 1888       | 1895       |
|---------------------------|------------|------------|
| Coal, tons . . . . .      | 23,700,000 | 33,200,000 |
| Iron ore, " . . . . .     | 2,200,000  | 2,400,000  |
| Naphtha, " . . . . .      | 400,000    | 900,000    |
| Lead ores, &c., " . . . . | 300,000    | 300,000    |
| Salt, " . . . . .         | 400,000    | 500,000    |
| Total .. . . .            | 27,000,000 | 37,300,000 |

The shares that correspond to Austria and Hungary are shown as follows:—

|                    | Austria    |           | Hungary   |           |
|--------------------|------------|-----------|-----------|-----------|
|                    | Tons       | Value, £  | Tons      | Value, £  |
| Coal . . . . .     | 28,100,000 | 5,700,000 | 5,100,000 | 1,400,000 |
| Iron . . . . .     | 1,400,000  | 2,500,000 | 1,000,000 | 1,000,000 |
| Sundries . . . . . | 1,300,000  | 1,300,000 | 400,000   | 800,000   |
| Total . . . . .    | 30,800,000 | 9,500,000 | 6,500,000 | 3,200,000 |

Two-thirds of the coal is lignite, of which 8 million tons are exported yearly. The value of mineral products, excluding naphtha, has been as follows:—

| Year           | Austria, £ | Hungary, £ | Total, £   |
|----------------|------------|------------|------------|
| 1880 . . . . . | 4,700,000  | 1,500,000  | 6,200,000  |
| 1890 . . . . . | 7,700,000  | 2,400,000  | 10,100,000 |
| 1895 . . . . . | 8,800,000  | 3,200,000  | 12,000,000 |

There are 130,000 miners in Austria, and 40,000 in Hungary: the product averages £73 per hand in the former, £80 in the latter, country.

## ITALY

Mining is not remunerative, the average product per man being the lowest in the world except Russia. In 1895 the industry showed as follows:—

|                    | Hands  | Tons      | Value, £  | £ per Man |
|--------------------|--------|-----------|-----------|-----------|
| Sulphur . . . . .  | 22,000 | 2,400,000 | 600,000   | 27        |
| Ores, &c. . . . .  | 20,000 | 800,000   | 1,000,000 | 50        |
| Quarries . . . . . | 20,000 | 600,000   | 1,200,000 | 60        |
| Total . . . . .    | 62,000 | 3,800,000 | 2,800,000 | 45        |

## SPAIN

This branch of industry has grown tenfold since 1863, viz. :—

|                          | 1863      | 1890       | 1896       |
|--------------------------|-----------|------------|------------|
| Iron ore, tons . . . . . | 170,000   | 5,700,000  | 6,800,000  |
| Copper " " . . . . .     | 140,000   | 2,500,000  | 2,800,000  |
| Lead, &c. " " . . . . .  | 200,000   | 680,000    | 700,000    |
| Salt, " " . . . . .      | 400,000   | ...        | 350,000    |
| Coal, " " . . . . .      | 320,000   | 1,280,000  | 1,830,000  |
| Total .. . . .           | 1,230,000 | 10,160,000 | 12,480,000 |

There are 63,000 miners, and the output is valued at £4,000,000, which gives an average of £63 per miner.

## BELGIUM

Mining has increased 50 per cent. since 1870, viz. :—

|                       | 1870       | 1895       |
|-----------------------|------------|------------|
| Coal, tons . . . . .  | 13,700,000 | 20,500,000 |
| Sundries, " . . . . . | 1,900,000  | 2,700,000  |
| Total .. . . .        | 15,600,000 | 23,200,000 |

The output of coal is valued at £7,700,000, and the total mineral product at £10,000,000, including quarries, which give occupation to 32,000 hands, and the product of which reaches £1,500,000 yearly. Mines and quarries have altogether 150,000 workmen, the product averaging £67 each.

## SWEDEN

The returns of mining for 1895 compare with 1885 thus:—

|                          | 1885      | 1895      |
|--------------------------|-----------|-----------|
| Iron ore, tons . . . . . | 870,000   | 1,900,000 |
| Other ores, " . . . . .  | 90,000    | 100,000   |
| Coal, " . . . . .        | 170,000   | 220,000   |
| Total .. . . .           | 1,130,000 | 2,220,000 |

The total output is valued at £1,800,000, equal to £70 for each hand employed.

## CANADA

Mining products in 1896 compare with 1886 thus:—

|                   | Tons (short) |           | Value, £  |           |
|-------------------|--------------|-----------|-----------|-----------|
|                   | 1886         | 1896      | 1886      | 1896      |
| Coal . . . . .    | 2,400,000    | 3,700,000 | 1,060,000 | 1,450,000 |
| Ores, &c. . . . . | 270,000      | 840,000   | 420,000   | 1,700,000 |
| Naphtha . . . . . | 130,000      | 160,000   | 120,000   | 250,000   |
| Total . . . . .   | 2,800,000    | 4,700,000 | 1,600,000 | 3,400,000 |

Official returns bring up the total value to £4,500,000, but this perhaps includes metals.

## UNITED STATES

The weight of minerals raised in 1896 was four times as much as in 1870, viz:—

|                   | 1870       | 1896        |
|-------------------|------------|-------------|
| Coal, tons . . .  | 33,000,000 | 171,400,000 |
| Iron ore, " . . . | 3,200,000  | 11,000,000  |
| Quartz, &c. " . . | 20,200,000 | 50,600,000  |
| Total " . . .     | 56,400,000 | 233,000,000 |

The official value in 1870 was £66,600,000, and in 1896 rose to £129,000,000, an increase of 95 per cent., but the figures are not correct, silver being valued at 64 pence (instead of 28 pence) the ounce, and the value of pig iron substituted for that of iron ore. The real value of mineral products was as follows:—

|               | 1870<br>£  | 1890<br>£   | 1896<br>£   |
|---------------|------------|-------------|-------------|
| Coal . . .    | 20,600,000 | 36,800,000  | 40,800,000  |
| Iron ore . .  | 2,700,000  | 10,400,000  | 6,200,000   |
| Copper " . .  | 800,000    | 3,200,000   | 5,100,000   |
| Lead " . . .  | 800,000    | 1,300,000   | 1,100,000   |
| Petroleum . . | 10,000,000 | 7,300,000   | 12,200,000  |
| Gold . . .    | 10,200,000 | 6,900,000   | 11,000,000  |
| Silver . . .  | 3,200,000  | 11,000,000  | 7,000,000   |
| Sundries . .  | 11,000,000 | 29,800,000  | 17,800,000  |
| Total . . .   | 59,300,000 | 106,700,000 | 101,200,000 |

The official value of mining products in 1896 was £129,200,000, or 28 per cent. over the real value, being made up thus:—

|                | Official, £ | Real, £     |
|----------------|-------------|-------------|
| Coal . . .     | 40,800,000  | 40,800,000  |
| Iron ore . .   | 18,800,000  | 6,200,000   |
| Other ores . . | 14,000,000  | 7,400,000   |
| Petroleum . .  | 12,200,000  | 12,200,000  |
| Gold . . .     | 11,000,000  | 11,000,000  |
| Silver . . .   | 15,800,000  | 7,000,000   |
| Stone . . .    | 7,900,000   | 7,900,000   |
| Sundries . .   | 8,700,000   | 8,700,000   |
| Total . . .    | 129,200,000 | 101,200,000 |

The States which produce coal and iron are the following:—

|                    | Tons        |           |
|--------------------|-------------|-----------|
|                    | Coal        | Pig Iron  |
| Pennsylvania . . . | 92,800,000  | 4,000,000 |
| Illinois . . .     | 17,700,000  | 900,000   |
| Ohio . . .         | 11,500,000  | 1,200,000 |
| Virginia . . .     | 12,600,000  | 500,000   |
| Alabama . . .      | 5,100,000   | 900,000   |
| Various . . .      | 31,700,000  | 1,100,000 |
| The Union . . .    | 171,400,000 | 8,600,000 |

The extraction of iron, copper, and lead ore has been as follows:—

|                    | 1870      | 1889       | 1896       |
|--------------------|-----------|------------|------------|
| Iron ore, tons . . | 3,200,000 | 13,300,000 | 11,000,000 |
| Copper " . . .     | 80,000    | 600,000    | 1,200,000  |
| Lead " . . .       | 100,000   | 250,000    | 250,000    |
| Zinc " . . .       | ...       | 250,000    | 400,000    |
| Total " . . .      | 3,380,000 | 14,400,000 | 12,850,000 |

Iron ore gives 40 per cent., copper 17, lead 70, and zinc 20 per cent. of metal. The yield of petroleum increases year by year, at present reaching 61 million barrels, or a little over 12 million tons; about 60,000 wells have been sunk since 1859, of which 6000 are working, the annual yield in barrels of 42 gallons showing thus:—

| Barrels        | 1860-83   | 1881-83    | 1896       |
|----------------|-----------|------------|------------|
| Raised . . .   | 7,800,000 | 33,800,000 | 61,000,000 |
| Exported . . . | 3,600,000 | 13,200,000 | 23,000,000 |
| Home use . . . | 4,200,000 | 20,600,000 | 38,000,000 |

Home consumption averages 23 gallons, or a little over half a barrel, per inhabitant.

The extraction of gold quartz and silver ore is estimated according to the yield of those metals, a ton of the former giving usually half an ounce, and of the latter 40 ounces, of pure metal. Thus the weight of ores may be set down as follows:—

| Year       | Tons        |            | Ounces    |            |
|------------|-------------|------------|-----------|------------|
|            | Gold Quartz | Silver Ore | Gold      | Silver     |
| 1850 . . . | 4,800,000   | ...        | 2,400,000 | ...        |
| 1860 . . . | 4,400,000   | ...        | 2,200,000 | ...        |
| 1870 . . . | 4,800,000   | 300,000    | 2,400,000 | 13,000,000 |
| 1880 . . . | 3,500,000   | 750,000    | 1,750,000 | 30,000,000 |
| 1890 . . . | 3,200,000   | 1,400,000  | 1,590,000 | 55,000,000 |
| 1896 . . . | 5,000,000   | 1,500,000  | 2,570,000 | 59,000,000 |

A detailed statement of the yield of precious metals since 1850 is given at page 738. The following table shows the auriferous and argentiferous States in 1890 and 1896:—

|                  | Gold, Ounces |           | Silver, Ounces |            |
|------------------|--------------|-----------|----------------|------------|
|                  | 1890         | 1896      | 1890           | 1896       |
| California . . . | 630,000      | 650,000   | 900,000        | 600,000    |
| Colorado . . .   | 210,000      | 740,000   | 18,700,000     | 22,500,000 |
| Montana . . .    | 160,000      | 210,000   | 15,700,000     | 16,600,000 |
| Dakota . . .     | 160,000      | 250,000   | 100,000        | 200,000    |
| Utah . . .       | 30,000       | 90,000    | 7,900,000      | 8,800,000  |
| Idaho . . .      | 90,000       | 110,000   | 3,600,000      | 5,100,000  |
| Arizona . . .    | 50,000       | 130,000   | 1,000,000      | 1,800,000  |
| Nevada . . .     | 140,000      | 120,000   | 4,300,000      | 1,000,000  |
| Alaska . . .     | 40,000       | 100,000   | ...            | 100,000    |
| N. Mexico . . .  | 40,000       | 20,000    | 1,200,000      | 700,000    |
| Washington . .   | 10,000       | 20,000    | 100,000        | 300,000    |
| Various . . .    | 30,000       | 130,000   | 1,000,000      | 1,100,000  |
| The Union . . .  | 1,590,000    | 2,570,000 | 54,500,000     | 58,800,000 |

The mining for the precious metals from 1849 to 1897 may be summed up thus:—

|              | Tons Ore    | Tons Metal | Value, £    |
|--------------|-------------|------------|-------------|
| Gold . . .   | 216,000,000 | 3,080      | 431,000,000 |
| Silver . . . | 29,000,000  | 33,700     | 231,000,000 |
| Total . . .  | 245,000,000 | 36,780     | 662,000,000 |

The number of persons engaged in mining rose from 234,000 in 1880 to 505,000 in 1890.

## SOUTH AFRICA

The Kimberley diamond-fields were discovered in 1871, the Transvaal gold-fields in 1887, the quantities and value exported yearly showing as follows :—

| Years         | Diamonds  |           | Gold      |           |
|---------------|-----------|-----------|-----------|-----------|
|               | Carats    | Value, £  | Ounces    | Value, £  |
| 1881-85 . . . | ...       | 3,240,000 | 10,000    | 40,000    |
| 1886-90 . . . | 3,200,000 | 4,060,000 | 250,000   | 920,000   |
| 1891-94 . . . | 2,900,000 | 3,750,000 | 1,450,000 | 5,050,000 |
| 1895 . . .    | 3,600,000 | 4,800,000 | 2,380,000 | 8,200,000 |

In 1897 the Transvaal gold-fields produced £11,100,000. The copper-mines of Cape Colony yield about £300,000 per annum. The total mining output of South Africa is about 16 millions sterling yearly. The Kimberley diamond-fields have produced in 27 years about 62 million carats of diamonds, worth 84 millions sterling: the Transvaal gold-fields in 10 years have yielded 15,500,000 ounces, worth 52 millions sterling.

## AUSTRALIA

Official returns of mining products since 1850 are :—

|              | Yearly Product, £ |            |            | Total, £    |
|--------------|-------------------|------------|------------|-------------|
|              | 1850-88           | 1889-95    | 1896       |             |
| Gold . . .   | 8,600,000         | 7,200,000  | 9,000,000  | 388,500,000 |
| Silver . . . | 100,000           | 2,800,000  | 2,100,000  | 25,300,000  |
| Copper . . . | 700,000           | 200,000    | 400,000    | 27,700,000  |
| Tin, &c. . . | 500,000           | 400,000    | 400,000    | 21,400,000  |
| Coal . . .   | 700,000           | 1,800,000  | 1,800,000  | 40,300,000  |
| Total . . .  | 10,600,000        | 12,400,000 | 13,700,000 | 503,200,000 |

The total value for forty-six years was made up thus :—

|                       | Value, £ (000 omitted) |        |          |         |
|-----------------------|------------------------|--------|----------|---------|
|                       | Gold                   | Silver | Sundries | Total   |
| New South Wales . . . | 43,400                 | 22,400 | 44,600   | 110,400 |
| Victoria . . . . .    | 244,100                | 800    | 1,700    | 246,600 |
| New Zealand . . . .   | 52,400                 | 200    | 5,900    | 58,500  |
| Queensland . . . . .  | 39,200                 | 700    | 8,500    | 48,400  |
| South Australia . . . | 1,900                  | 100    | 21,500   | 23,500  |
| Tasmania . . . . .    | 3,400                  | 1,100  | 6,800    | 11,300  |
| West Australia . . .  | 4,100                  | ...    | 400      | 4,500   |
| Total . . . . .       | 388,500                | 25,300 | 89,400   | 503,200 |

The value of mining products in 1896 was as follows :—

|                       | £ Sterling (000 omitted) |        |       |          |        |
|-----------------------|--------------------------|--------|-------|----------|--------|
|                       | Gold                     | Silver | Coal  | Sundries | Total  |
| New South Wales . . . | 1,070                    | 1,790  | 1,130 | 360      | 4,350  |
| Victoria . . . . .    | 3,220                    | 10     | 110   | ...      | 3,340  |
| New Zealand . . . .   | 1,040                    | 10     | 430   | ...      | 1,480  |
| Queensland . . . . .  | 2,240                    | 30     | 150   | 110      | 2,530  |
| South Australia . . . | 100                      | ...    | ...   | 220      | 320    |
| Tasmania . . . . .    | 240                      | 220    | 20    | 160      | 640    |
| West Australia . . .  | 1,070                    | ...    | ...   | ...      | 1,070  |
| Total . . . . .       | 8,980                    | 2,060  | 1,840 | 850      | 13,730 |

In 1891 the number of miners was 94,000, at present it may be estimated at 110,000; the average product being £114 per annum for gold-miners, and £155 for colliers.

## OTHER COUNTRIES

India and China produce each about 400,000 ounces of gold yearly; Spanish America 800,000 ounces of gold and 2400 tons of silver. The aggregate value of these items is 14 millions sterling, which is not included in the general table of mining values already given at page 773.

## MISSIONS

The Amer. Stat. Ass. (1893) publishes the following statement as to the number of Christians in Asia and Africa :—

|                       | India     | China     | Siberia   | Japan  | Syria, &c. | Africa    | Total      |
|-----------------------|-----------|-----------|-----------|--------|------------|-----------|------------|
| Roman Catholics . . . | 1,199,000 | 1,116,000 | 70,000    | 30,000 | 663,000    | 2,660,000 | 5,738,000  |
| Protestants . . . . . | 534,000   | 88,000    | 20,000    | ...    | 20,000     | 1,740,000 | 2,402,000  |
| Greeks, &c. . . . .   | ...       | ...       | 7,000,000 | ...    | 3,660,000  | 3,000,000 | 13,660,000 |
| Total . . . . .       | 1,733,000 | 1,204,000 | 7,090,000 | 30,000 | 4,343,000  | 7,400,000 | 21,800,000 |

The item Greeks, &c., includes Copts, who number 3 millions in Africa.

## MONEY

The following table, from the United States Mint Report, shows the money now in use :—

|                    | £ Sterling (000 omitted) |         |                  |         | Gold Ratio |
|--------------------|--------------------------|---------|------------------|---------|------------|
|                    | Gold                     | Silver  | Un-covered Paper | Total   |            |
| G. Britain . . .   | 122,000                  | 25,000  | 23,300           | 170,300 | 71.8       |
| France . . . . .   | 160,600                  | 102,400 | 3,900            | 266,900 | 60.0       |
| Germany . . . . .  | 140,400                  | 43,000  | 26,200           | 209,600 | 66.8       |
| Russia . . . . .   | 101,600                  | 9,000   | 97,000           | 207,600 | 49.0       |
| Austria . . . . .  | 34,800                   | 13,500  | 42,500           | 90,800  | 38.3       |
| Italy . . . . .    | 20,900                   | 8,100   | 35,000           | 64,000  | 32.7       |
| Spain . . . . .    | 8,000                    | 10,300  | 21,400           | 39,700  | 20.2       |
| Portugal . . . . . | 1,000                    | 1,500   | 12,600           | 15,100  | 6.7        |
| Scandinavia . . .  | 6,800                    | 2,500   | 1,700            | 11,000  | 61.8       |
| Holland . . . . .  | 5,600                    | 11,700  | 6,700            | 24,000  | 23.3       |
| Belgium . . . . .  | 10,400                   | 11,900  | 15,100           | 37,400  | 27.7       |

|                     | £ Sterling (000 omitted) |         |                  |           | Gold Ratio |
|---------------------|--------------------------|---------|------------------|-----------|------------|
|                     | Gold                     | Silver  | Un-covered Paper | Total     |            |
| Switzerland . . .   | 3,300                    | 400     | 3,000            | 6,700     | 49.0       |
| Roumania . . . . .  | 8,000                    | 2,200   | 2,400            | 12,600    | 63.6       |
| Servia . . . . .    | 300                      | 300     | 600              | 1,200     | 25.0       |
| Bulgaria . . . . .  | 200                      | 1,400   | ...              | 1,600     | 12.5       |
| Greece . . . . .    | 100                      | 300     | 3,000            | 3,400     | 3.0        |
| Turkey . . . . .    | 10,400                   | 8,300   | ...              | 18,700    | 55.6       |
| Europe . . . . .    | 634,400                  | 251,800 | 204,400          | 1,180,600 | 53.8       |
| U. States . . . . . | 139,800                  | 131,300 | 88,300           | 359,400   | 38.8       |
| Mexico . . . . .    | 1,000                    | 20,000  | 800              | 21,800    | 4.5        |
| Canada . . . . .    | 3,300                    | 1,200   | 7,300            | 11,800    | 28.0       |
| Australia . . . . . | 27,000                   | 1,400   | ...              | 28,400    | 95.0       |
| The East . . . . .  | 54,700                   | 423,200 | 8,000            | 487,200   | 11.5       |
| Various . . . . .   | 5,800                    | 41,400  | 800              | 48,000    | 12.1       |
| The World . . . . . | 866,000                  | 870,300 | 399,600          | 2,137,200 | 40.6       |

The following table shows, according to Mr. Fred. Atkinson, the increase of gold money during the period since 1851:—

|                     | Millions £ Sterling |       |          | Weight, Mill. Oz. |       |
|---------------------|---------------------|-------|----------|-------------------|-------|
|                     | 1851                | 1896  | Increase | 1851              | 1896  |
| U. Kingdom . . .    | 41.5                | 122.0 | 80.5     | 10.8              | 31.9  |
| France . . . . .    | 3.0                 | 160.6 | 157.6    | 0.8               | 41.8  |
| Germany . . . . .   | 3.0                 | 140.4 | 137.4    | 0.8               | 36.5  |
| Russia . . . . .    | 30.8                | 101.6 | 70.8     | 8.0               | 26.4  |
| Austria . . . . .   | 2.0                 | 34.8  | 32.8     | 0.5               | 9.0   |
| Italy . . . . .     | 2.0                 | 20.9  | 18.9     | 0.5               | 5.4   |
| Spain . . . . .     | 18.0                | 8.0   | ...      | 4.7               | 2.1   |
| Portugal . . . . .  | 3.0                 | 1.0   | ...      | 0.8               | 0.2   |
| Scandinavia . . . . | 2.0                 | 6.8   | 4.8      | 0.5               | 1.8   |
| Holland . . . . .   | 14.0                | 5.6   | ...      | 3.6               | 1.4   |
| Belgium . . . . .   | 1.0                 | 10.4  | 9.4      | 0.2               | 2.7   |
| Switzerland . . . . | 1.0                 | 3.3   | 2.3      | 0.2               | 0.8   |
| Turkey, &c. . . . . | 4.5                 | 19.0  | 14.5     | 1.2               | 5.0   |
| Europe . . . . .    | 125.8               | 634.4 | 508.6    | 32.6              | 165.0 |
| United States . . . | 15.0                | 139.8 | 124.8    | 3.9               | 36.4  |
| Japan . . . . .     | 20.0                | 16.0  | ...      | 5.2               | 4.2   |
| India, &c. . . . .  | 19.2                | 75.8  | 56.6     | 5.0               | 19.7  |
| The World . . . . . | 180.0               | 866.0 | 686.0    | 46.7              | 225.3 |

The increase of silver money in the same interval was as follows:—

|                      | Millions £ Sterling |       |          | Weight Millions Oz. |       |
|----------------------|---------------------|-------|----------|---------------------|-------|
|                      | 1851                | 1896  | Increase | 1851                | 1896  |
| United Kingdom . .   | 14.0                | 25.4  | 11.4     | 52                  | 85    |
| France . . . . .     | 100.0               | 102.5 | 2.5      | 362                 | 371   |
| Germany . . . . .    | 35.0                | 43.1  | 8.1      | 127                 | 140   |
| Russia . . . . .     | 21.2                | 9.1   | ...      | 78                  | 28    |
| Austria . . . . .    | 7.0                 | 13.5  | 6.5      | 26                  | 46    |
| Italy . . . . .      | 5.0                 | 8.1   | 3.1      | 18                  | 28    |
| Spain . . . . .      | 6.0                 | 10.3  | 4.3      | 22                  | 35    |
| Portugal . . . . .   | 3.0                 | 1.5   | ...      | 11                  | 5     |
| Scandinavia . . . .  | 9.0                 | 2.6   | ...      | 33                  | 9     |
| Holland . . . . .    | 12.0                | 11.7  | ...      | 44                  | 43    |
| Belgium . . . . .    | 3.0                 | 11.9  | 8.9      | 11                  | 43    |
| Switzerland . . . .  | 3.0                 | 0.4   | ...      | 11                  | 1     |
| Turkey, &c. . . . .  | 6.0                 | 12.6  | 6.6      | 22                  | 46    |
| Europe . . . . .     | 224.2               | 252.7 | 28.5     | 817                 | 880   |
| United States . . .  | 25.8                | 131.7 | 105.9    | 94                  | 470   |
| Japan . . . . .      | 3.0                 | 9.1   | 6.1      | 11                  | 35    |
| Other Countries . .  | 49.0                | 392.5 | 343.5    | 179                 | 1,395 |
| *The World . . . . . | 302.0               | 786.0 | 484.0    | 1,101               | 2,780 |

The item of Other Countries for 1896 includes the following:—

|                     | £ Sterling, Nom. | Ounces        |
|---------------------|------------------|---------------|
| India . . . . .     | 232,300,000      | 799,000,000   |
| China . . . . .     | 70,000,000       | 264,000,000   |
| Singapore . . . . . | 40,000,000       | 151,000,000   |
| Ceylon . . . . .    | 15,000,000       | 52,000,000    |
| Mexico . . . . .    | 20,200,000       | 76,000,000    |
| South America . . . | 9,800,000        | 36,000,000    |
| Cuba, &c. . . . .   | 5,200,000        | 17,000,000    |
| Total . . . . .     | 392,500,000      | 1,395,000,000 |

The following table compares the amount of money in

various countries with the industries of same, and also with population:—

|                     | Millions £ |       | Money Ratio to Industries Per Cent. | Shillings per Head |
|---------------------|------------|-------|-------------------------------------|--------------------|
|                     | Industries | Money |                                     |                    |
| United Kingdom . .  | 1,360      | 170   | 12.5                                | 85                 |
| France . . . . .    | 1,169      | 267   | 22.8                                | 140                |
| Germany . . . . .   | 1,288      | 210   | 16.3                                | 80                 |
| Russia . . . . .    | 1,073      | 208   | 19.4                                | 38                 |
| Austria . . . . .   | 744        | 91    | 12.2                                | 44                 |
| Italy . . . . .     | 433        | 64    | 14.8                                | 42                 |
| Spain . . . . .     | 296        | 40    | 13.4                                | 46                 |
| Portugal . . . . .  | 61         | 15    | 24.5                                | 02                 |
| Scandinavia . . . . | 203        | 11    | 5.4                                 | 24                 |
| Holland . . . . .   | 94         | 24    | 25.5                                | 100                |
| Belgium . . . . .   | 187        | 37    | 19.8                                | 118                |
| Switzerland . . . . | 68         | 7     | 10.3                                | 46                 |
| Danub. States . . . | 154        | 16    | 10.4                                | 28                 |
| Greece . . . . .    | 28         | 3     | 10.7                                | 27                 |
| Europe . . . . .    | 7,158      | 1,163 | 16.2                                | 63                 |
| United States . . . | 3,316      | 359   | 10.8                                | 102                |
| Canada . . . . .    | 204        | 12    | 5.9                                 | 48                 |
| Australia . . . . . | 198        | 28    | 14.2                                | 132                |
| Total . . . . .     | 10,876     | 1,562 | 14.3                                | 70                 |

The above table comprises only gold, silver, and *uncovered* notes.

The coinage of all nations since 1851 has been as follows:—

|                     | Gold, Mill. £ |      |       |        | Weight Tons | Silver, Mill. £ |      |         |       | Weight Tons |
|---------------------|---------------|------|-------|--------|-------------|-----------------|------|---------|-------|-------------|
|                     | 1851          | 1880 | 1896  | Total  |             | 1851            | 1880 | 1896    | Total |             |
| U. King. . . . .    | 166           | 74   | 240   | 1,770  | 16          | 17              | 33   | 3,630   |       |             |
| France . . . . .    | 292           | 16   | 308   | 2,200  | 51          | 1               | 52   | 5,720   |       |             |
| Germany . . . . .   | 87            | 63   | 150   | 1,070  | 22          | 3               | 25   | 2,750   |       |             |
| Russia . . . . .    | 110           | 52   | 162   | 1,160  | 28          | 6               | 34   | 3,740   |       |             |
| Austria . . . . .   | 17            | 34   | 51    | 360    | 45          | 12              | 57   | 6,270   |       |             |
| Italy . . . . .     | 10            | 7    | 17    | 120    | 23          | 3               | 26   | 2,860   |       |             |
| Spain & P. . . . .  | 30            | 3    | 33    | 230    | 12          | ...             | 12   | 1,320   |       |             |
| Belgium . . . . .   | 23            | ...  | 23    | 163    | 18          | ...             | 18   | 1,980   |       |             |
| Various . . . . .   | 15            | 11   | 26    | 187    | 33          | ...             | 33   | 3,630   |       |             |
| Europe . . . . .    | 750           | 260  | 1,010 | 7,200  | 248         | 42              | 290  | 31,000  |       |             |
| U. States . . . . . | 217           | 129  | 346   | 2,470  | 49          | 79              | 128  | 14,080  |       |             |
| Australia . . . . . | 62            | 86   | 148   | 1,060  | ...         | ...             | ...  | ...     |       |             |
| India, &c. . . . .  | 21            | 15   | 36    | 330    | 293         | 229             | 522  | 57,420  |       |             |
| The World . . . . . | 1,050         | 490  | 1,540 | 11,060 | 590         | 350             | 940  | 103,400 |       |             |

It is supposed that the gold coin in use has been so far reminted that the actual amount used for coinage has been between 40 and 50 per cent. of the nominal weight. say 5400 tons, in the last fifty years. Thus in 1885 Spallart estimated the existing amount of gold coin in the world at 5925 tons, and since that date the amount minted by all nations has been 360 millions sterling, or 2600 tons. Assuming that 60 per cent. of this was new metal, the actual weight of gold coin now in use would be 6500 tons, as stated above, leaving 2660 tons uncoined. Allowing for recoinage, the amount of new silver minted since 1850 appears to be 52,000 tons, or half the nominal weight shown above. This would make the total weight of existing silver money in the world to be 97,000 tons. Spallart's estimate in 1885 was 88,100 tons, since which date the United States alone have coined 9000 tons, while other countries have done little more than remint old silver.



Gold and silver money were alike legal tender in England till 1664, when gold was demonetised, and silver only legal. In 1717 both were again made legal, till 1775, when gold was adopted, and only small debts, under £25, could be discharged in silver. Forced currency, Bank of England notes, prevailed from 1797 till 1816, when the gold standard was established, silver being legal only up to 40 shillings. In coining gold the British Government has a profit of a halfpenny in £10, or about £200 per million. In 1830 the shilling coin had nearly 11½ pence (11.3) of silver, the profit accruing to the Mint being 6 per cent., or £60,000 per million. In 1898 the shilling has only 5 pence of silver, and the profit to Government is £600,000 per million. The Mint price of gold is £3, 17s. 10½d., or 934½ pence per ounce, as fixed in 1717.

The total amount of hard money in the world, taking silver throughout at its nominal value, shows as follows:—

|                           | Millions £ Stg. |         | Shills. per Inhab. |      |
|---------------------------|-----------------|---------|--------------------|------|
|                           | 1851            | 1896    | 1851               | 1896 |
| United Kingdom . . .      | 55.5            | 147.4   | 40                 | 74   |
| France . . . . .          | 103.0           | 263.1   | 57                 | 138  |
| Germany . . . . .         | 38.0            | 183.5   | 21                 | 70   |
| Russia . . . . .          | 52.0            | 110.7   | 17                 | 20   |
| Austria . . . . .         | 9.0             | 48.3    | 6                  | 23   |
| Italy . . . . .           | 7.0             | 29.0    | 7                  | 19   |
| Spain . . . . .           | 24.0            | 18.3    | 32                 | 20   |
| Portugal . . . . .        | 6.0             | 2.5     | 35                 | 10   |
| Scandinavia . . . . .     | 11.0            | 9.4     | 34                 | 20   |
| Holland . . . . .         | 26.0            | 17.3    | 170                | 72   |
| Belgium . . . . .         | 4.0             | 22.3    | 20                 | 70   |
| Switzerland . . . . .     | 4.0             | 3.7     | 34                 | 25   |
| Turkey, &c. . . . .       | 10.5            | 31.6    | 12                 | 34   |
| Europe . . . . .          | 350.0           | 887.1   | 26                 | 49   |
| United States . . . . .   | 40.8            | 271.5   | 35                 | 76   |
| Japan . . . . .           | 23.0            | 25.1    | 15                 | 13   |
| Other Countries . . . . . | 68.2            | 468.3   | ...                | ...  |
| The World . . . . .       | 482.0           | 1,652.0 | ...                | ...  |
| Gold . . . . .            | 180.0           | 866.0   | ...                | ...  |
| Silver . . . . .          | 302.0           | 786.0   | ...                | ...  |

The following table shows the amount of hard money coined by nations between 1851 and 1896, inclusive, and the actual increase of money in use, from which may be deduced the amount recoined or consumed:—

|                     | Millions £ Sterling |                |               |        |                |               |
|---------------------|---------------------|----------------|---------------|--------|----------------|---------------|
|                     | Gold                |                |               | Silver |                |               |
|                     | Coined              | Money Increase | Recoined, &c. | Coined | Money Increase | Recoined, &c. |
| U. Kingdom . . .    | 240                 | 80             | 160           | 33     | 11             | 22            |
| France . . . . .    | 308                 | 158            | 150           | 52     | 3              | 49            |
| Germany . . . . .   | 150                 | 137            | 13            | 25     | 8              | 17            |
| Russia . . . . .    | 162                 | 71             | 91            | 34     | ...            | 34            |
| Austria . . . . .   | 51                  | 33             | 18            | 57     | 7              | 50            |
| Italy, &c. . . . .  | 99                  | 29             | 70            | 89     | ...            | 89            |
| Europe . . . . .    | 1,010               | 508            | 502           | 290    | 29             | 261           |
| U. States . . . . . | 346                 | 125            | 221           | 128    | 106            | 22            |
| Australia . . . . . | 148                 | 25             | 122           | ...    | ...            | ...           |
| India, &c. . . . .  | 36                  | 27             | 9             | 522    | 349            | 173           |
| The World . . . . . | 1,540               | 686            | 854           | 940    | 484            | 456           |

The output of the British Mint since 1891 has been as follows:—

|                   | £ Sterling (ooo omitted) |        |        |        |
|-------------------|--------------------------|--------|--------|--------|
|                   | Gold                     | Silver | Bronze | Total  |
| 1891 . . . . .    | 6,720                    | 1,000  | 90     | 7,810  |
| 1892 . . . . .    | 13,910                   | 850    | 60     | 14,820 |
| 1893 . . . . .    | 9,270                    | 1,010  | 50     | 10,330 |
| 1894 . . . . .    | 5,670                    | 940    | 30     | 6,640  |
| 1895 . . . . .    | 3,810                    | 1,200  | 40     | 5,050  |
| 1896 . . . . .    | 4,810                    | 1,230  | 120    | 6,160  |
| 1897 . . . . .    | 1,820                    | 720    | ...    | 2,540  |
| 7 years . . . . . | 46,010                   | 6,950  | 390    | 53,350 |

The Treasury report for 1898 shows that light gold coin withdrawn from circulation since 1891 amounted to £34,200,000: the loss on 100 sovereigns was 246 pence, or 1.02 per cent., and on 100 half-sovereigns 216 pence, or 1.80 per cent. The loss to the Treasury in making the conversion was £540,000, being £16 per thousand, or 4 pence in the £. In the same period the Treasury withdrew from circulation old silver money to the value of £1,900,000. It appears that of the gold money withdrawn only £2,420,000 was pre-Victorian, while £31,800,000 was composed of sovereigns and half-sovereigns issued since 1837, and which had lost weight.

The activity of money, or rapidity of circulation, varies exceedingly in countries: in some it is found that money does its work over 100 times a year. Returns for five years ending December 1894 show that the number of payments effected yearly by the money employed in banks was as follows:—

#### Bank of

|                   |     |                   |     |                    |    |
|-------------------|-----|-------------------|-----|--------------------|----|
| Germany . . . . . | 167 | Belgium . . . . . | 133 | Portugal . . . . . | 25 |
| France . . . . .  | 127 | Italy . . . . .   | 30  | Spain . . . . .    | 14 |

The latest banking statement of the relative use of coin, notes, and cheques in the United Kingdom showed the following ratios:—

|                   | London | Dublin | Edinburgh | Rural |
|-------------------|--------|--------|-----------|-------|
| Coin . . . . .    | 7      | 16     | 5         | 152   |
| Notes . . . . .   | 21     | 85     | 127       | 119   |
| Cheques . . . . . | 972    | 899    | 868       | 729   |
|                   | 1,000  | 1,000  | 1,000     | 1,000 |

The ratios in the Bank of France at various dates were:—

|                   | 1841  | 1861  | 1881  | 1896  |
|-------------------|-------|-------|-------|-------|
| Coin . . . . .    | 94    | 110   | 53    | 21    |
| Notes . . . . .   | 373   | 342   | 293   | 238   |
| Cheques . . . . . | 533   | 548   | 674   | 741   |
|                   | 1,000 | 1,000 | 1,000 | 1,000 |

In Belgium the banking census puts notes and cheques together, viz.:—

|                 | 1871  | 1881  | 1891  | 1896  |
|-----------------|-------|-------|-------|-------|
| Coin . . . . .  | 76    | 63    | 49    | 37    |
| Paper . . . . . | 924   | 937   | 951   | 963   |
|                 | 1,000 | 1,000 | 1,000 | 1,000 |

The money of the United States in 1897 compared with previous dates as follows:—

|                    | Millions £ Sterling |       |       |
|--------------------|---------------------|-------|-------|
|                    | 1880                | 1887  | 1897  |
| Gold* . . . .      | 73.2                | 136.1 | 144.8 |
| Silver . . . .     | 29.8                | 73.4  | 131.4 |
| Greenbacks . . . . | 79.6                | 129.6 | 195.0 |
| Bank-notes . . . . | 71.8                | 58.1  | 47.8  |
| Total . . . .      | 254.4               | 397.2 | 519.0 |

The money of 1897 was made up thus:—

|                             | Millions £ Sterling |                |       |
|-----------------------------|---------------------|----------------|-------|
|                             | In Treasury         | In Circulation | Total |
| Gold . . . .                | 37.1                | 107.7          | 144.8 |
| Silver . . . .              | 108.4               | 23.0           | 131.4 |
| Certificates . . . .        | 4.2                 | 94.8           | 99.0  |
| United States notes . . . . | 27.4                | 68.6           | 96.0  |
| Bank-notes . . . .          | 1.0                 | 46.8           | 47.8  |
| Total . . . .               | 178.1               | 340.9          | 519.0 |

The following table compares the money of 1887 and 1897 thus:—

|                           | Hard Money, Millions £ |       |                |       |       |       |
|---------------------------|------------------------|-------|----------------|-------|-------|-------|
|                           | In Treasury            |       | In Circulation |       | Total |       |
|                           | 1887                   | 1897  | 1887           | 1897  | 1887  | 1897  |
| Gold . . . .              | 57.8                   | 37.1  | 78.3           | 107.7 | 136.1 | 144.8 |
| Silver . . . .            | 51.8                   | 108.4 | 21.6           | 23.0  | 73.4  | 131.4 |
| Total . . . .             | 109.6                  | 145.5 | 99.9           | 130.7 | 209.5 | 276.2 |
|                           | Paper Money            |       |                |       |       |       |
|                           | In Treasury            |       | In Circulation |       | Total |       |
|                           | 1887                   | 1897  | 1887           | 1897  | 1887  | 1897  |
| U. S. notes . . . .       | 6.0                    | 27.4  | 66.2           | 68.6  | 72.2  | 96.0  |
| Gold certificates . . . . | 6.3                    | 0.3   | 19.0           | 7.8   | 25.3  | 8.1   |
| Silver do. . . .          | 0.7                    | 3.9   | 31.4           | 87.0  | 32.1  | 90.9  |
| Bank-notes . . . .        | 0.5                    | 1.0   | 57.6           | 46.8  | 58.1  | 47.8  |
| Total paper . . . .       | 13.5                   | 32.6  | 174.2          | 210.2 | 187.7 | 242.8 |
| Grand total . . . .       | 123.1                  | 178.1 | 274.1          | 340.9 | 397.2 | 519.0 |

The total reduced to ratios shows as follows:—

|                     | 1887        |                |       | 1897        |                |       |
|---------------------|-------------|----------------|-------|-------------|----------------|-------|
|                     | In Treasury | In Circulation | Total | In Treasury | In Circulation | Total |
| Gold . . . .        | 14.5        | 19.7           | 34.2  | 7.1         | 20.8           | 27.9  |
| Silver . . . .      | 13.1        | 5.4            | 18.5  | 20.9        | 4.4            | 25.3  |
| U. S. notes . . . . | 3.3         | 29.4           | 32.7  | 6.1         | 31.5           | 37.6  |
| Bank-notes . . . .  | 0.1         | 14.5           | 14.6  | 0.2         | 9.0            | 9.2   |
| Total . . . .       | 31.0        | 69.0           | 100.0 | 34.3        | 65.7           | 100.0 |

\* To be read thus: Gold, £73,200,000.

The amount of money compared with population was as follows:—

|              | Millions £ Sterling |       |       | £ per Inhab. |
|--------------|---------------------|-------|-------|--------------|
|              | Metal               | Paper | Total |              |
| 1880 . . . . | 103                 | 151   | 254   | 5.1          |
| 1887 . . . . | 209                 | 188   | 397   | 6.7          |
| 1897 . . . . | 276                 | 243   | 519   | 7.1          |

In the United States it is shown by Prof. Fisher that the amount of cheques used in 1891 reached 159 milliards of dollars, equal to 33,000 millions of pounds sterling, or 80 times the sum of all money (coin and notes) then existing in that country.

See *Clearing-Houses*, page 77, and page 642.

*Gold and Silver Money*.—Guthrie's table of the coins in use in 1774 was as follows:—

|                  | Gold Coin | Value, Shillings | Silver Coin | Value, Pence |
|------------------|-----------|------------------|-------------|--------------|
| English . . . .  | Guinea    | 21               | Shilling    | 12           |
| Scotch . . . .   | "         | 24½              | "           | 10           |
| Irish . . . .    | "         | 22½              | Taken       | 10           |
| France . . . .   | Louis     | 20               | Livre       | 10           |
| Poland . . . .   | Ducat     | 9                | Florin      | 14           |
| Denmark . . . .  | "         | 8                | Crown       | 36           |
| Portugal . . . . | Moidore   | 27               | Cruzado     | 32           |
| " . . . .        | Milree    | 6                | Testoon     | 6            |
| Spain . . . .    | Ducat     | 5                | Dollar      | 43           |
| Germany . . . .  | Thaler    | 3½               | Florin      | 14           |
| Flanders . . . . | Ducat     | 9½               | "           | 18           |
| Holland . . . .  | Dollar    | 4½               | Guilder     | 21           |
| Russia . . . .   | Rouble    | 4½               | ro-kopec    | 5            |
| Italy . . . .    | Scudo     | 4½               | Florin      | 0            |
| Turkey . . . .   | Sequin    | 7½               | Piastre     | 48           |
| India . . . .    | Doubloon  | 63               | Rupce       | 30           |

In France the livre contained the value of 20 sous, and there was also an ecu of 60 sous. In Holland the guilder was worth 21 copper stivers, each one penny, and in Flanders the florin had 18 stivers. In Germany the florin had 36 groschen, of which 2½ made one penny English. In Austria the thaler, as in Germany, was worth 42 pence, but there was also a gulden worth 30 pence or 60 kreutzers. In Denmark the crown had 60 skillings, 20 of which were worth 12 pence. The Russian rouble had 100 kopecks or half-pence. The Spanish dollar had 8 reals, worth 5½ pence each.

## MORTGAGES

### ITALY

Rural mortgages rose from 198 millions sterling in 1880 to 250 millions in 1892, showing an average increase of £4,700,000 per annum.

### PRUSSIA

The average increase of rural mortgages in 1886 to 1889 was £5,700,000 per annum: from 1887 to 1895 it was £8,800,000 per annum. The increase of mortgages in Prussia from 1886 to 1895 was 311 millions sterling, or 34½ millions per annum. Berlin had new mortgages in 1895 for £28,800,000.

### SWEDEN

Rural mortgages in 1886 amounted to £51,000,000, or 25 per cent. of the value of farms in the kingdom: the average increase during 10 years was £1,400,000 per annum.

### EGYPT

In 1894 rural mortgages amounted to £20,500,000.

## RUSSIA

In 1895 there were mortgages amounting to £169,600,000 on 124 million acres, or 27 shillings per acre.

## VARIOUS COUNTRIES

Rural mortgages in 1887, according to Sbrojavacca, were approximately as follows:—

|                   | Millions £ | Per Cent. of Property |
|-------------------|------------|-----------------------|
| France . . . . .  | 402        | 13                    |
| Italy . . . . .   | 196        | 14                    |
| Holland . . . . . | 60         | 20                    |
| Austria . . . . . | 450        | 25                    |
| Germany . . . . . | 750        | 30                    |
| Ireland . . . . . | 160        | 40                    |

Mortgages registered in the United States from 1880 to 1890, were as follows:—

|                 | Number    | Millions £ | Average, £ |
|-----------------|-----------|------------|------------|
| Urban . . . . . | 4,771,000 | 1,498      | 315        |
| Rural . . . . . | 4,747,000 | 1,020      | 214        |
| Total . . . . . | 9,518,000 | 2,518      | 265        |

The total amount of existing mortgages on January 1, 1890, was only half the foregoing, viz.:—

|                 | Number    | Millions £ | Average, £ |
|-----------------|-----------|------------|------------|
| Urban . . . . . | 2,475,000 | 792        | 320        |
| Rural . . . . . | 2,303,000 | 460        | 200        |
| Total . . . . . | 4,778,000 | 1,252      | 262        |

The following table shows the amount of urban and rural mortgages, the value of city property and farms, and the ratio of mortgages to such property:—

| States          | Millions £ Sterling |       |          |       | Mortgage Ratio |       |
|-----------------|---------------------|-------|----------|-------|----------------|-------|
|                 | Mortgages           |       | Property |       |                |       |
|                 | Urban               | Rural | Urban    | Rural | Urban          | Rural |
| New England .   | 87                  | 21    | 705      | 122   | 12.3           | 17.3  |
| Middle . . . .  | 448                 | 90    | 1,962    | 549   | 22.8           | 16.4  |
| Southern . . .  | 29                  | 55    | 597      | 610   | 4.8            | 9.0   |
| Prairie . . . . | 183                 | 249   | 1,675    | 1,770 | 11.0           | 14.1  |
| Pacific . . . . | 45                  | 45    | 615      | 272   | 7.3            | 16.6  |
| The Union . .   | 792                 | 460   | 5,554    | 3,323 | 7.1            | 13.8  |

| States          | Millions £ Stg. |            | Interest, £ Yearly | Average Rate | Interest Shills. per Inhab. |
|-----------------|-----------------|------------|--------------------|--------------|-----------------------------|
|                 | Mortgages       | Properties |                    |              |                             |
| N. England .    | 108             | 827        | 6,100,000          | 5.6          | 26                          |
| Middle . . . .  | 538             | 2,511      | 29,950,000         | 5.6          | 42                          |
| South . . . .   | 84              | 1,207      | 6,700,000          | 8.0          | 7                           |
| Prairie . . . . | 32              | 3,445      | 32,400,000         | 7.5          | 29                          |
| Pacific . . . . | 90              | 887        | 7,500,000          | 8.3          | 50                          |
| The Union . .   | 1,252           | 8,877      | 82,650,000         | 6.6          | 27                          |

Rural mortgages covered 274 million acres, being an average of 119 to each mortgage: the amount was 460 millions sterling, an average of 33 shillings per acre mortgaged, and the annual interest was £33,800,000, equal to 30 pence per acre.

See *Mortgages*, in Part I., page 413.

## N

## NAMES

The following names occur among 1210 members in five Parliaments of the fourteenth, fifteenth, and sixteenth centuries:—

|                  | Date |      |      | In Five Parliaments |
|------------------|------|------|------|---------------------|
|                  | 1314 | 1450 | 1529 |                     |
| John . . . . .   | 50   | 77   | 76   | 338                 |
| William . . . .  | 34   | 52   | 47   | 188                 |
| Thomas . . . .   | 15   | 55   | 43   | 169                 |
| Robert . . . .   | 20   | 17   | 16   | 95                  |
| Richard . . . .  | 10   | 20   | 23   | 91                  |
| Henry . . . . .  | 10   | 6    | 13   | 39                  |
| Walter . . . .   | 11   | 4    | 1    | 26                  |
| Roger . . . . .  | 5    | 3    | 4    | 26                  |
| Edward . . . .   | 0    | 2    | 15   | 20                  |
| Nicholas . . . . | 7    | 1    | 0    | 18                  |
| Ralph . . . . .  | 2    | 1    | 1    | 15                  |
| Hugh . . . . .   | 3    | 4    | 3    | 14                  |
| Various . . . .  | 40   | 24   | 61   | 171                 |
| Total . . . . .  | 207  | 266  | 303  | 1,210               |

In the aggregate of the five Parliaments the following names occur the number of times expressed:—

|                 | Times |                 | Times |                 | Times |
|-----------------|-------|-----------------|-------|-----------------|-------|
| Simon . . . . . | 12    | George . . . .  | 10    | Adam . . . . .  | 8     |
| Milo . . . . .  | 10    | Geoffrey . . .  | 9     | Peter . . . . . | 8     |
| Edmund . . . .  | 10    | Gilbert . . . . | 8     | Reginald . . .  | 7     |

|                 | Times |                  | Times |                 | Times |
|-----------------|-------|------------------|-------|-----------------|-------|
| Giles . . . . . | 6     | Elias . . . . .  | 4     | Otto . . . . .  | 2     |
| James . . . . . | 5     | Philip . . . . . | 4     | Matthew . . .   | 2     |
| Alexander . . . | 5     | Stephen . . . .  | 4     | Ivo . . . . .   | 2     |
| Gerard . . . .  | 5     | Anthony . . . .  | 3     | Francis . . . . | 2     |
| Lawrence . . .  | 5     | Bartholomew .    | 3     | Everard . . . . | 2     |
| Humfrey . . . . | 5     | Christopher . .  | 3     | Bernard . . . . | 2     |
| Andrew . . . .  | 4     | Vincent . . . .  | 3     | Charles . . . . | 1     |

There is no entry of two Christian names for one person except Thomas Maria Wingfield, for Huntingdon, in 1552. Joseph does not occur in any of the five Parliaments, nor Wilfred. The following names occur once: Michael, Paul, Maurice, Jaspar, Gervase, Cuthbert, Alan, Arnold; and in the Parliament of 1554 we find once Arthur, Kenelm, Mark, Luke, Dominic, Ambrose, and a few others.

Clark's index of the Oxford Register from 1571 to 1622 contains 30,000 names, and the following Christian names occur, in this order:—

|                 | Times |                  | Times |                  | Times |
|-----------------|-------|------------------|-------|------------------|-------|
| John . . . . .  | 3,826 | Nicholas . . . . | 326   | Humphrey . . .   | 168   |
| Thomas . . . .  | 2,777 | Edmund . . . .   | 298   | Charles . . . .  | 139   |
| William . . . . | 2,546 | Anthony . . . .  | 262   | Philip . . . . . | 137   |
| Richard . . . . | 1,691 | Hugh . . . . .   | 257   | David . . . . .  | 120   |
| Robert . . . .  | 1,222 | Christopher . .  | 243   | Matthew . . . .  | 116   |
| Edward . . . .  | 957   | Samuel . . . .   | 227   | Michael . . . .  | 103   |
| Henry . . . . . | 908   | Walter . . . .   | 207   | Alexander . . .  | 98    |
| George . . . .  | 647   | Roger . . . . .  | 195   | Arthur . . . . . | 98    |
| Francis . . . . | 447   | Ralph . . . . .  | 182   | Laurence . . . . | 90    |
| James . . . . . | 424   | Peter . . . . .  | 175   | Giles . . . . .  | 88    |

See *Names*, in Part I., page 414.

## NAVY

A return of the British Admiralty in May 1898 gave the strength of the principal navies as follows:—

|                     | Battle-ships | Cruisers | Torpedo-boats, &c. | Total |
|---------------------|--------------|----------|--------------------|-------|
| Great Britain . . . | 64           | 161      | 247                | 472   |
| France . . .        | 35           | 75       | 287                | 397   |
| Russia . . .        | 22           | 22       | 244                | 288   |
| Germany . . .       | 22           | 41       | 137                | 200   |
| Italy . . .         | 17           | 24       | 162                | 203   |
| United States . . . | 13           | 27       | 71                 | 111   |
| Japan . . .         | 6            | 32       | 68                 | 106   |

The steam power of the navies in 1898 was:—

|                         |                       |                         |
|-------------------------|-----------------------|-------------------------|
| British . . . 1,560,000 | Russian . . . 450,000 | Italian . . . 300,000   |
| French . . . 730,000    | German . . . 300,000  | U. States . . . 290,000 |

The British navy may be valued as follows:—

|                        | Number | £          |
|------------------------|--------|------------|
| Battle-ships . . . . . | 64     | 35,200,000 |
| Cruisers . . . . .     | 161    | 24,200,000 |
| Sundry . . . . .       | 247    | 13,600,000 |
| Armament . . . . .     | ...    | 19,000,000 |
| Total value . . . . .  |        | 92,000,000 |

According to another classification there are 90 superior fighting ships, averaging 10,000 horse-power and a speed of 20 knots an hour, 180 second-class cruisers, 250 gunboats and transports, and 150 torpedo vessels, making a total of 670 vessels.

For naval expenditure in 1897, see *Military Expenditure*, page 638.

The age of men in the British navy (1897) is as follows:—

| Age               | Number | Ratio |
|-------------------|--------|-------|
| 15-25 . . . . .   | 44,010 | 60.6  |
| 25-35 . . . . .   | 20,610 | 28.4  |
| Over 35 . . . . . | 8,000  | 11.0  |
| Total . . . . .   | 72,620 | 100.0 |

The following statement of the navies of the world in 1890 is from *Chambers's Encyclopedia*.

|                     | Battle-ships | Inferior | Total | Men     | Guns  | Displacement in Tons |
|---------------------|--------------|----------|-------|---------|-------|----------------------|
| Great Britain . . . | 64           | 595      | 659   | 94,600  | 3,631 | 430                  |
| France . . .        | 53           | 404      | 457   | 70,600  | 1,735 | 252                  |
| Germany . . .       | 34           | 183      | 217   | 16,500  | 608   | 135                  |
| Russia . . .        | 36           | 322      | 358   | 31,000  | 710   | 124                  |
| Austria . . .       | 15           | 153      | 168   | 9,000   | 309   | 49                   |
| Italy . . .         | 22           | 245      | 267   | 23,000  | 611   | 78                   |
| Spain . . .         | 7            | 129      | 136   | 16,700  | 305   | 48                   |
| Portugal . . .      | 1            | 63       | 64    | 3,500   | 98    | ...                  |
| Sweden . . .        | 20           | 142      | 162   | 7,900   | 154   | 39                   |
| Denmark . . .       | 9            | 67       | 76    | 1,400   | 202   | 22                   |
| Holland . . .       | 24           | 116      | 140   | 10,000  | 256   | 39                   |
| Greece . . .        | 5            | 70       | 75    | 1,100   | 82    | 8                    |
| Turkey . . .        | 18           | 387      | 405   | 23,000  | 382   | 54                   |
| Europe . . .        | 308          | 2,876    | 3,184 | 308,300 | 9,083 | 1,278                |
| United States . . . | 21           | 74       | 95    | ...     | 284   | 26                   |
| Brazil . . .        | 10           | 56       | 66    | ...     | 134   | 28                   |
| Argentina . . .     | 4            | 45       | 49    | ...     | 35    | 12                   |
| Chile . . .         | 4            | 34       | 38    | ...     | 95    | 18                   |
| Japan . . .         | 6            | 76       | 82    | ...     | 212   | 17                   |
| China . . .         | 6            | 83       | 89    | ...     | 133   | 25                   |
| Total . . .         | 359          | 3,244    | 3,603 | ...     | 9,976 | 1,404                |

## O

## OATS

The area and product of this crop are shown as follows:—

|                        | Acres       | Tons       | Bush. per Acre | Per Inhab. |
|------------------------|-------------|------------|----------------|------------|
| U. Kingdom . . .       | 4,200,000   | 4,200,000  | 40             | 4          |
| France . . .           | 9,700,000   | 5,400,000  | 23             | 6          |
| Germany . . .          | 10,000,000  | 4,400,000  | 18             | 3          |
| Russia . . .           | 36,400,000  | 14,800,000 | 16             | 6          |
| Austria . . .          | 7,500,000   | 4,300,000  | 23             | 4          |
| Italy . . .            | 1,170,000   | 450,000    | 15             | ...        |
| Spain & Portugal . . . | 750,000     | 300,000    | 16             | 1          |
| Danubian States . . .  | 1,220,000   | 450,000    | 15             | 2          |
| Swed. & Norway . . .   | 2,300,000   | 1,800,000  | 32             | 10         |
| Denmark . . .          | 1,050,000   | 880,000    | 34             | 16         |
| Holland . . .          | 310,000     | 360,000    | 45             | 3          |
| Belgium . . .          | 650,000     | 660,000    | 41             | 4          |
| Europe . . .           | 75,250,000  | 38,000,000 | 20             | 4          |
| United States . . .    | 27,400,000  | 17,800,000 | 26             | 10         |
| Canada . . .           | 4,100,000   | 2,600,000  | 26             | 20         |
| Australia . . .        | 700,000     | 450,000    | 25             | 4          |
| Total . . .            | 107,450,000 | 58,850,000 | 22             | 5          |

See *Agriculture*, page 613, and *Food*, page 714.

## OCCUPATIONS

In most countries the number of persons following gainful occupations is 45 per cent. of total, or 60 per cent. of those over 10 years. The census returns of 1890-91 show:—

|                     | Pop. over 10 years old | Number of Earners | Percentage    |         |
|---------------------|------------------------|-------------------|---------------|---------|
|                     |                        |                   | Agri-cultural | Various |
| England . . .       | 22,054,000             | 12,900,000        | 10.4          | 86.6    |
| Scotland . . .      | 3,046,000              | 1,780,000         | 14.0          | 86.0    |
| Ireland . . .       | 3,726,000              | 2,140,000         | 43.7          | 56.3    |
| U. Kingdom . . .    | 28,826,000             | 16,820,000        | 15.0          | 85.0    |
| France . . .        | 31,457,000             | 17,290,000        | 41.6          | 58.4    |
| Germany . . .       | 40,290,000             | 22,910,000        | 35.6          | 64.4    |
| Austria . . .       | 18,191,000             | 13,570,000        | 50.7          | 49.3    |
| Hungary . . .       | 12,882,000             | 7,390,000         | 60.5          | 39.5    |
| Italy . . .         | 22,551,000             | 16,110,000        | 38.0          | 62.0    |
| Spain . . .         | 13,539,000             | 7,010,000         | 69.2          | 30.8    |
| Sweden . . .        | 3,679,000              | 2,580,000         | 50.2          | 49.8    |
| Norway . . .        | 1,494,000              | 1,210,000         | 27.3          | 72.7    |
| Denmark . . .       | 1,652,000              | 680,000           | 32.0          | 68.0    |
| Belgium . . .       | 4,708,000              | 2,070,000         | 31.4          | 68.6    |
| Switzerland . . .   | 2,284,000              | 1,360,000         | 36.8          | 63.2    |
| Greece . . .        | 1,620,000              | 720,000           | 61.1          | 38.9    |
| United States . . . | 47,413,000             | 22,736,000        | 39.6          | 60.4    |
| Australia . . .     | 2,800,000              | 1,620,000         | 23.6          | 76.4    |
| Canada . . .        | 3,638,000              | 1,611,000         | 45.6          | 54.4    |

## OCCUPATIONS

783

## OCCUPATIONS

The total for Europe (excluding Russia and the Danubian States, for which there are no returns) will be found as follows:—

|                      | Number      | Ratio |
|----------------------|-------------|-------|
| Agriculture . . . .  | 47,960,000  | 43.0  |
| Manufactures . . . . | 30,430,000  | 33.0  |
| Commerce, &c. . . .  | 29,640,000  | 24.0  |
| Total . . . . .      | 111,030,000 | 100.0 |

## UNITED KINGDOM

The census of 1891 showed the three kingdoms as follows:—

|                     | Number (ooo omitted) |       |       |          |        |         |
|---------------------|----------------------|-------|-------|----------|--------|---------|
|                     | Eng.                 | Scot. | Ire.  | U. King. | Males  | Females |
| Agriculture . . . . | 1,340                | 250   | 940   | 2,530    | 2,350  | 180     |
| Manufacture . . . . | 7,330                | 1,030 | 660   | 9,020    | 6,640  | 2,380   |
| Commerce . . . . .  | 1,400                | 180   | 80    | 1,660    | 1,615  | 45      |
| Various . . . . .   | 2,830                | 315   | 465   | 3,610    | 1,000  | 2,610   |
| Total . . . . .     | 12,900               | 1,775 | 2,145 | 16,820   | 11,605 | 5,215   |

In the above table Agriculture includes fishing, and Manufactures mining. Details show thus:—

|                        | Number (ooo omitted) |          |         |          |
|------------------------|----------------------|----------|---------|----------|
|                        | England              | Scotland | Ireland | U. King. |
| Civil Service . . . .  | 144                  | 18       | 30      | 192      |
| Army . . . . .         | 126                  | 8        | 31      | 165      |
| Teachers . . . . .     | 201                  | 21       | 21      | 243      |
| Students . . . . .     | 147                  | 29       | 96      | 272      |
| Professions . . . . .  | 308                  | 35       | 30      | 373      |
| Professional class . . | 926                  | 111      | 208     | 1,245    |
| Farmers . . . . .      | 224                  | 54       | 417     | 695      |
| Labourers . . . . .    | 1,088                | 166      | 513     | 1,767    |
| Agricultural . . . .   | 1,312                | 220      | 930     | 2,462    |
| Textile operatives . . | 1,128                | 207      | 103     | 1,438    |
| Hardware . . . . .     | 626                  | 106      | 29      | 761      |
| Carriers . . . . .     | 984                  | 122      | 66      | 1,172    |
| Builders . . . . .     | 681                  | 87       | 47      | 815      |
| Tailors . . . . .      | 1,100                | 123      | 153     | 1,376    |
| Mines and quarries . . | 772                  | 117      | 11      | 900      |
| Domestics . . . . .    | 1,900                | 203      | 238     | 2,341    |
| Hucksters . . . . .    | 416                  | 59       | 29      | 504      |
| Various . . . . .      | 3,055                | 425      | 309     | 3,789    |
| Total . . . . .        | 12,900               | 1,780    | 2,150   | 16,830   |

For previous dates see *Occupations*, page 423.

## FRANCE

The number of workers by the census of 1891 compares with that of 1881 as follows:—

|                      | Number     |            | Ratio |       |
|----------------------|------------|------------|-------|-------|
|                      | 1881       | 1891       | 1881  | 1891  |
| Agriculture . . . .  | 6,460,000  | 7,220,000  | 40.2  | 41.8  |
| Manufactures . . . . | 4,440,000  | 4,720,000  | 27.4  | 27.3  |
| Commerce . . . . .   | 1,160,000  | 1,980,000  | 7.2   | 11.4  |
| Various . . . . .    | 4,050,000  | 3,370,000  | 25.2  | 19.5  |
| Total . . . . .      | 16,110,000 | 17,290,000 | 100.0 | 100.0 |

The census of 1891 gave the following classification:—

|                       | Principals | Assistants | Total      |
|-----------------------|------------|------------|------------|
| Agriculture . . . .   | 3,570,000  | 3,650,000  | 7,220,000  |
| Manufactures . . . .  | 1,020,000  | 3,700,000  | 4,720,000  |
| Commerce . . . . .    | 880,000    | 1,100,000  | 1,980,000  |
| Transport . . . . .   | 60,000     | 410,000    | 470,000    |
| Professions . . . . . | 420,000    | 240,000    | 660,000    |
| Various . . . . .     | 1,720,000  | 520,000    | 2,240,000  |
| Total . . . . .       | 7,670,000  | 9,620,000  | 17,290,000 |

## GERMANY

The number of persons subsisting by various pursuits shows thus:—

|                      | Number     |            | Ratio |       |
|----------------------|------------|------------|-------|-------|
|                      | 1882       | 1895       | 1882  | 1895  |
| Agriculture . . . .  | 18,840,000 | 18,070,000 | 41.7  | 34.9  |
| Manufactures . . . . | 16,060,000 | 20,250,000 | 35.5  | 39.1  |
| Commerce . . . . .   | 4,530,000  | 5,970,000  | 10.0  | 11.6  |
| Professions, &c. . . | 3,550,000  | 4,150,000  | 7.9   | 8.0   |
| No occupation . . .  | 2,240,000  | 3,330,000  | 4.9   | 6.4   |
| Total . . . . .      | 45,220,000 | 51,770,000 | 100.0 | 100.0 |

The census of 1895 classifies pursuits in the principal States thus:—

|                      | Number (ooo omitted) |        |         |        |
|----------------------|----------------------|--------|---------|--------|
|                      | Agricul.             | Manuf. | Various | Total  |
| Prussia . . . . .    | 11,110               | 12,200 | 8,180   | 31,490 |
| Bavaria . . . . .    | 2,600                | 1,790  | 1,390   | 5,780  |
| Saxony . . . . .     | 540                  | 2,180  | 1,030   | 3,750  |
| Wurtemberg . . . .   | 920                  | 720    | 430     | 2,070  |
| Baden . . . . .      | 720                  | 600    | 400     | 1,720  |
| Alsace . . . . .     | 600                  | 610    | 410     | 1,620  |
| Hesse . . . . .      | 370                  | 390    | 270     | 1,030  |
| Brunswick . . . . .  | 120                  | 200    | 120     | 440    |
| Oldenburg . . . . .  | 170                  | 120    | 80      | 370    |
| Small States . . . . | 920                  | 1,440  | 1,140   | 3,500  |
| Total . . . . .      | 18,070               | 20,250 | 13,450  | 51,770 |

The census of 1895 shows that 45 per cent. of the population are workers, 55 per cent. dependents, including children, viz.:—

|                      | Workers    | Dependents | Total      |
|----------------------|------------|------------|------------|
| Agriculture . . . .  | 8,160,000  | 9,910,000  | 18,070,000 |
| Manufactures . . . . | 7,710,000  | 10,700,000 | 18,410,000 |
| Mining . . . . .     | 570,000    | 1,280,000  | 1,850,000  |
| Commerce . . . . .   | 1,210,000  | 1,730,000  | 2,940,000  |
| Transport . . . . .  | 620,000    | 1,380,000  | 2,000,000  |
| Professions, &c. . . | 4,640,000  | 3,860,000  | 8,500,000  |
| Total . . . . .      | 22,910,000 | 28,860,000 | 51,770,000 |

## AUSTRIA

The census of Austria Proper for 1890 compares with 1880 thus:—

|                      | Number     |            | Ratio |       |
|----------------------|------------|------------|-------|-------|
|                      | 1880       | 1890       | 1880  | 1890  |
| Agriculture . . . .  | 6,490,000  | 6,890,000  | 57.0  | 50.7  |
| Manufactures . . . . | 2,310,000  | 2,880,000  | 20.3  | 21.2  |
| Commerce . . . . .   | 510,000    | 810,000    | 4.4   | 6.0   |
| Various . . . . .    | 2,090,000  | 2,990,000  | 18.3  | 22.1  |
| Total . . . . .      | 11,400,000 | 13,570,000 | 100.0 | 100.0 |

## HUNGARY

The census of 1890 compares with that of 1880 thus:—

|                 | Number    |           | Ratio |       |
|-----------------|-----------|-----------|-------|-------|
|                 | 1880      | 1890      | 1880  | 1890  |
| Agriculture . . | 4,520,000 | 4,480,000 | 62.0  | 60.5  |
| Various . . .   | 2,770,000 | 2,910,000 | 38.0  | 39.5  |
| Total . .       | 7,290,000 | 7,390,000 | 100.0 | 100.0 |

## ITALY

The latest census is that of 1881, which see at page 430.

## SPAIN

The census of 1887 compares with that of 1877 as follows:—

|                  | Number    |           | Ratio |       |
|------------------|-----------|-----------|-------|-------|
|                  | 1877      | 1887      | 1877  | 1887  |
| Agriculture . .  | 2,720,000 | 4,850,000 | 47.3  | 69.2  |
| Manufactures . . | 1,170,000 | 1,070,000 | 20.3  | 15.3  |
| Commerce . . .   | 210,000   | 310,000   | 3.7   | 4.4   |
| Various . . .    | 1,640,000 | 780,000   | 28.7  | 11.1  |
| Total . .        | 5,740,000 | 7,010,000 | 100.0 | 100.0 |

The mode of taking the census was changed; the population increased only 5 per cent. from 1877 to 1887, while the number of persons occupied rose 22 per cent.

## SWEDEN

The number subsisting by various pursuits was:—

|                  | Number    |           | Ratio |       |
|------------------|-----------|-----------|-------|-------|
|                  | 1880      | 1890      | 1880  | 1890  |
| Agriculture . .  | 2,340,000 | 2,410,000 | 51.2  | 50.2  |
| Manufactures . . | 580,000   | 850,000   | 12.8  | 17.7  |
| Commerce . . .   | 220,000   | 310,000   | 4.8   | 6.5   |
| Various . . .    | 1,430,000 | 1,220,000 | 31.2  | 25.6  |
| Total . .        | 4,570,000 | 4,790,000 | 100.0 | 100.0 |

## NORWAY

The census of 1891 compares with that of 1875 thus:—

|                  | Number    |           | Ratio |       |
|------------------|-----------|-----------|-------|-------|
|                  | 1875      | 1891      | 1875  | 1891  |
| Agriculture . .  | 380,000   | 330,000   | 35.4  | 27.3  |
| Manufactures . . | 220,000   | 180,000   | 20.5  | 14.9  |
| Commerce . . .   | 160,000   | 110,000   | 15.0  | 9.1   |
| Various . . .    | 310,000   | 590,000   | 29.1  | 48.7  |
| Total . .        | 1,070,000 | 1,210,000 | 100.0 | 100.0 |

## DENMARK

The number subsisting by various pursuits was:—

|                  | Number    |           | Ratio |       |
|------------------|-----------|-----------|-------|-------|
|                  | 1880      | 1890      | 1880  | 1890  |
| Agriculture . .  | 930,000   | 880,000   | 47.0  | 40.5  |
| Manufactures . . | 460,000   | 530,000   | 23.2  | 24.4  |
| Commerce . . .   | 130,000   | 190,000   | 6.6   | 8.8   |
| Various . . .    | 460,000   | 570,000   | 23.2  | 26.3  |
| Total . .        | 1,980,000 | 2,170,000 | 100.0 | 100.0 |

## BELGIUM

The census of 1890 compares with that of 1880 thus:—

|                  | Hands     |           | Ratio |       |
|------------------|-----------|-----------|-------|-------|
|                  | 1880      | 1890      | 1880  | 1890  |
| Agriculture . .  | 980,000   | 650,000   | 35.6  | 31.4  |
| Manufactures . . | 950,000   | 770,000   | 34.6  | 37.2  |
| Commerce . . .   | 240,000   | 330,000   | 8.7   | 16.0  |
| Various . . .    | 580,000   | 320,000   | 21.1  | 15.4  |
| Total . .        | 2,750,000 | 2,070,000 | 100.0 | 100.0 |

The new classification in 1890 renders comparison fallacious.

## SWITZERLAND

The census of 1888 compares with that of 1870 as follows:—

|                  | Hands     |           | Ratio |       |
|------------------|-----------|-----------|-------|-------|
|                  | 1870      | 1888      | 1870  | 1888  |
| Agriculture . .  | 540,000   | 500,000   | 41.4  | 36.8  |
| Manufactures . . | 490,000   | 560,000   | 37.4  | 41.2  |
| Commerce . . .   | 50,000    | 160,000   | 3.7   | 11.7  |
| Various . . .    | 240,000   | 140,000   | 17.5  | 10.3  |
| Total . .        | 1,320,000 | 1,360,000 | 100.0 | 100.0 |

## GREECE

The census of 1889 compares with that of 1861 thus:—

|                  | Number  |         | Ratio |       |
|------------------|---------|---------|-------|-------|
|                  | 1861    | 1889    | 1861  | 1889  |
| Agriculture . .  | 190,000 | 440,000 | 56.6  | 61.1  |
| Manufactures . . | 50,000  | 90,000  | 15.8  | 12.5  |
| Commerce, &c. .  | 90,000  | 190,000 | 27.6  | 26.4  |
| Total . .        | 330,000 | 720,000 | 100.0 | 100.0 |

## UNITED STATES

The census of 1890 showed that one-half of the population over 10 years of age had some gainful occupation, viz.:—

|                | Males      | Females    | Total      |
|----------------|------------|------------|------------|
| Employed . . . | 18,821,000 | 3,915,000  | 22,736,000 |
| Unemployed . . | 5,532,000  | 19,146,000 | 24,678,000 |
| Total . .      | 24,353,000 | 23,061,000 | 47,414,000 |

The occupations of the American people in 1880 and 1890 stood thus:—

|                  | Number     |            | Ratio |       |
|------------------|------------|------------|-------|-------|
|                  | 1880       | 1890       | 1880  | 1890  |
| Agriculture . .  | 7,670,000  | 9,010,000  | 44.1  | 39.6  |
| Manufactures . . | 3,840,000  | 5,090,000  | 22.1  | 22.3  |
| Commerce, &c. .  | 5,880,000  | 8,630,000  | 33.8  | 38.1  |
| Total . .        | 17,390,000 | 22,730,000 | 100.0 | 100.0 |

In the above official classification Agriculture includes also fishing and mining. In the subjoined table for 1890

the same occurs, and Commerce includes also transport:—

|                  | Males      | Females   | Total      |
|------------------|------------|-----------|------------|
| Agriculture . .  | 8,330,000  | 680,000   | 9,010,000  |
| Manufactures . . | 4,060,000  | 1,030,000 | 5,090,000  |
| Commerce . . .   | 3,100,000  | 230,000   | 3,330,000  |
| Domestics . . .  | 2,690,000  | 1,670,000 | 4,360,000  |
| Professions . .  | 630,000    | 310,000   | 940,000    |
| Total . . .      | 18,810,000 | 3,920,000 | 22,730,000 |

Deducting fishermen and miners, the number of persons actually engaged in agriculture in 1890 was 8,320,000.

#### New England States

|                  | Occupations |           | Ratios |       |
|------------------|-------------|-----------|--------|-------|
|                  | 1880        | 1890      | 1880   | 1890  |
| Agriculture . .  | 301,000     | 328,000   | 19.2   | 16.4  |
| Manufactures . . | 709,000     | 885,000   | 45.0   | 44.1  |
| Trade, &c. . .   | 562,000     | 793,000   | 35.8   | 39.5  |
| Total . . .      | 1,572,000   | 2,006,000 | 100.0  | 100.0 |

#### Middle States

|                  |           |           |       |       |
|------------------|-----------|-----------|-------|-------|
| Agriculture . .  | 847,000   | 1,064,000 | 20.3  | 19.3  |
| Manufactures . . | 1,425,000 | 1,824,000 | 34.0  | 33.0  |
| Trade, &c. . .   | 1,912,000 | 2,637,000 | 45.7  | 47.7  |
| Total . . .      | 4,184,000 | 5,525,000 | 100.0 | 100.0 |

#### Southern States

|                  |           |           |       |       |
|------------------|-----------|-----------|-------|-------|
| Agriculture . .  | 3,626,000 | 3,935,000 | 69.0  | 63.5  |
| Manufactures . . | 392,000   | 591,000   | 7.4   | 9.5   |
| Trade, &c. . .   | 1,236,000 | 1,669,000 | 23.6  | 27.0  |
| Total . . .      | 5,254,000 | 6,195,000 | 100.0 | 100.0 |

#### Western States

|                  |           |           |       |       |
|------------------|-----------|-----------|-------|-------|
| Agriculture . .  | 2,897,000 | 3,686,000 | 45.4  | 41.0  |
| Manufactures . . | 1,311,000 | 1,791,000 | 20.6  | 19.9  |
| Trade, &c. . .   | 2,174,000 | 3,533,000 | 34.0  | 39.1  |
| Total . . .      | 6,382,000 | 9,010,000 | 100.0 | 100.0 |

The relative strength of the principal sections and occupations in 1890 was as follows:—

|                  | N. Eng. | Middle | South | West | Total |
|------------------|---------|--------|-------|------|-------|
| Agriculture . .  | 14      | 47     | 173   | 162  | 396   |
| Manufactures . . | 39      | 80     | 26    | 78   | 223   |
| Various . . .    | 35      | 116    | 74    | 156  | 381   |
| Total . . .      | 88      | 243    | 273   | 396  | 1,000 |

Thus it appears that the Western States represented almost 40 per cent. of the working population of the Union, the Southern about 27, the Middle or Atlantic States 24, and New England 9 per cent.

#### CANADA

The number of earners by census returns were:—

|                       | 1880      | 1890      | Increase |
|-----------------------|-----------|-----------|----------|
| Agriculture . . .     | 655,000   | 735,000   | 80,000   |
| Wood-cutters, &c. .   | 39,000    | 55,000    | 16,000   |
| Manufactures . . .    | 257,000   | 320,000   | 63,000   |
| Trade and transport . | 108,000   | 186,000   | 78,000   |
| Domestics . . .       | 75,000    | 246,000   | 171,000  |
| Professions . . .     | 53,000    | 69,000    | 16,000   |
| Total . . .           | 1,187,000 | 1,611,000 | 424,000  |

#### AUSTRALIA

The census of 1890 was not carried out in South Australia so as to specify occupations. The other colonies are shown as follows, it being premised that Agriculture includes both pastoral and tillage pursuits, and that persons unclassified are included in the column of Trade:—

|                 | N. S. Wales | Victoria | New Zealand | Queensland | Tasmania | West Australia |
|-----------------|-------------|----------|-------------|------------|----------|----------------|
| Agriculture . . | 101,000     | 101,000  | 69,000      | 54,000     | 18,000   | 7,000          |
| Mining . . .    | 31,000      | 25,000   | 17,000      | 12,000     | 4,000    | 1,000          |
| Manufact. . .   | 71,000      | 96,000   | 43,000      | 22,000     | 7,000    | 4,000          |
| Building . . .  | 38,000      | 34,000   | 13,000      | 11,000     | 5,000    | 1,000          |
| Trade . . .     | 111,000     | 133,000  | 57,000      | 41,000     | 14,000   | 5,000          |
| Transport . .   | 31,000      | 32,000   | 16,000      | 13,000     | 3,000    | 3,000          |
| Professions . . | 24,000      | 23,000   | 13,000      | 7,000      | 3,000    | 1,000          |
| Domestics . .   | 58,000      | 58,000   | 25,000      | 20,000     | 7,000    | 3,000          |
| Total . . .     | 465,000     | 502,000  | 253,000     | 180,000    | 61,000   | 25,000         |

The population of South Australia being one-twelfth of the total, we may allow a corresponding percentage for that colony in the several occupations: the total for Australasia will stand as follows:—

|                       | Number    | Ratio |
|-----------------------|-----------|-------|
| Agriculture . . .     | 382,000   | 23.6  |
| Mining . . .          | 98,000    | 6.1   |
| Manufactures . . .    | 265,000   | 16.4  |
| Building . . .        | 111,000   | 6.9   |
| Trade and transport . | 501,000   | 30.8  |
| Professions, &c. . .  | 263,000   | 16.2  |
| Total . . .           | 1,620,000 | 100.0 |

#### OIL

The production of petroleum in 1896 was as follows, in barrels of 42 gallons:—

|                   | Raised     | Exported   | Home Use   |
|-------------------|------------|------------|------------|
| United States . . | 61,000,000 | 23,000,000 | 38,000,000 |
| Russia . . .      | 36,000,000 | 5,500,000  | 30,500,000 |
| Austria . . .     | 4,700,000  | ...        | 4,700,000  |

The consumption of petroleum in the United Kingdom in 1885-87 averaged 74 million gallons yearly, and in 1895-97 no less than 184 million gallons, or 4½ per inhabitant yearly.

For further particulars see *Mining*, page 776.

With respect to olive-oil, big trees give 2 bushels of olives, which is equivalent to 3 gallons of oil. An ordinary olive-grove gives 25 gallons of oil per acre. France has 270,000 acres under olives, producing 105,000 tons of fruit, equal to 7 million gallons of oil, besides 150,000 acres under colza, producing 5 million gallons of oil. Italy in 1896 had 2,500,000 acres under olives, which produced 44 million gallons of oil, or 18 gallons per acre.

See *Oil*, page 434.

#### ORDERS

*Chambers's Encyclopædia* states that 124,000 Franciscan friars perished in attending the sick during the great plague of 1346 (see *Plagues*, page 201).

Helyot says that in 1710 there were 7000 Franciscan convents with 120,000 friars, and 900 nunneries of the same Order, with 30,000 nuns. See *Orders*, page 434.

## P

## PAPER

The latest estimates of paper manufacture are:—

|                           | Mills | Tons Paper |
|---------------------------|-------|------------|
| United Kingdom . . . . .  | 300   | 400,000    |
| France . . . . .          | 490   | 350,000    |
| Germany . . . . .         | 1,080 | 180,000    |
| Russia . . . . .          | 50    | 110,000    |
| Austria . . . . .         | 740   | 80,000     |
| Italy . . . . .           | 230   | 50,000     |
| Spain . . . . .           | 100   | 20,000     |
| Portugal . . . . .        | 16    | 8,000      |
| Scandinavia . . . . .     | 144   | 120,000    |
| Holland . . . . .         | 65    | 10,000     |
| Belgium . . . . .         | 40    | 25,000     |
| Switzerland . . . . .     | 35    | 12,000     |
| Europe . . . . .          | 3,290 | 1,365,000  |
| United States . . . . .   | 1,005 | 1,200,000  |
| Spanish America . . . . . | 85    | 55,000     |
| Total . . . . .           | 4,380 | 2,620,000  |

In 1850 the total production was estimated at 220,000 tons, or one-twelfth of what it is at present. In that year the mills of the United Kingdom produced 62,000 tons. The output in the United States rose from 200,000 tons in 1872 to 1,200,000 tons in 1890, and is now probably 1,500,000 tons. Esparto grass is much used for making paper, the mills of Europe in 1889 consuming 300,000 tons, of which two-thirds were grown in Barbary, one-third in Spain. Wood pulp is also in great demand for this industry, the exports of same from Sweden and Norway showing as follows:—

| From             | Tons Exported |         |
|------------------|---------------|---------|
|                  | 1886          | 1896    |
| Sweden . . . . . | 16,000        | 152,000 |
| Norway . . . . . | 97,000        | 248,000 |
| Total . . . . .  | 113,000       | 400,000 |

The value of paper turned out yearly by the mills of the world is about 80 millions sterling; the mills employ about 200,000 men and 400,000 women.

In 1897 Great Britain exported 46,000 tons of paper, valued at £1,350,000, against 38,000 tons in 1887, valued at £1,330,000.

## PARKS

In the following table the parks of London include those of the suburbs, such as Richmond, Hampton Court, Epping Forest, &c.:—

|                      | Park, Acres | Inhab. to an Acre of Park |
|----------------------|-------------|---------------------------|
| London . . . . .     | 19,000      | 230                       |
| Birmingham . . . . . | 350         | 1,380                     |
| Liverpool . . . . .  | 1,060       | 580                       |
| Leeds . . . . .      | 600         | 610                       |
| Sheffield . . . . .  | 290         | 1,120                     |
| Hull . . . . .       | 130         | 1,550                     |
| Brighton . . . . .   | 340         | 300                       |
| Nottingham . . . . . | 290         | 710                       |
| York . . . . .       | 800         | 90                        |
| Cheltenham . . . . . | 1,590       | 30                        |

For parks of Continental capitals, see page 438.

## PASSENGERS

In 1897 there were 283,000 passengers from Europe landed at New York, of whom 91,000 were cabin, 192,000 steerage, by ten lines of transatlantic steamers. The largest number was carried by the North German Lloyd, namely, 55,600; the next on the list being the Cunard, with 32,400.

The passenger traffic of London by omnibus, rail, &c., rose from 82 million persons in 1864 to 407 millions in 1890.

The tramways of the United Kingdom in 1898 carried 858 million passengers, or almost 2½ millions daily. The steam ferry-boats on the Seine at Paris carried last year 25,400,000 persons, say 70,000 daily. The railways of the world carry yearly about 3380 million passengers, equal to 9 millions daily.

See *Passengers*, page 438; *Railways*, page 795; *Tramways*, page 814; and *Travellers*, page 573.

## PAUPERS

The following table shows approximately the amount spent in various countries to relieve the indigent:—

|                          | £ Yearly   | Pence per Inhabitant |
|--------------------------|------------|----------------------|
| United Kingdom . . . . . | 11,800,000 | 73                   |
| France . . . . .         | 7,400,000  | 46                   |
| Austria Proper . . . . . | 710,000    | 8                    |
| Italy . . . . .          | 2,600,000  | 20                   |
| Holland . . . . .        | 500,000    | 25                   |
| United States . . . . .  | 500,000    | 2                    |
| Australia . . . . .      | 800,000    | 48                   |

## UNITED KINGDOM

The numbers and ratios of paupers in the three kingdoms have been as follows:—

|                      | Numbers |           |           | Per 1000 Pop. |      |
|----------------------|---------|-----------|-----------|---------------|------|
|                      | 1877    | 1887      | 1897      | 1877          | 1897 |
| England . . . . .    | 728,000 | 817,000   | 824,000   | 30            | 27   |
| Scotland . . . . .   | 96,000  | 100,000   | 101,000   | 27            | 24   |
| Ireland . . . . .    | 78,000  | 113,000   | 99,000    | 15            | 22   |
| U. Kingdom . . . . . | 902,000 | 1,030,000 | 1,024,000 | 27            | 26   |

Expenditure for relief of paupers has been as follows:—

|                    | Amount, £  |            | £ per Pauper |      | Pence per Inhabitant |      |
|--------------------|------------|------------|--------------|------|----------------------|------|
|                    | 1884       | 1894       | 1884         | 1894 | 1884                 | 1894 |
| England . . . . .  | 8,400,000  | 9,700,000  | 10.8         | 11.8 | 75                   | 78   |
| Scotland . . . . . | 870,000    | 960,000    | 9.0          | 10.1 | 55                   | 56   |
| Ireland . . . . .  | 1,220,000  | 1,130,000  | 11.2         | 10.9 | 59                   | 61   |
| U. King. . . . .   | 10,490,000 | 11,790,000 | 10.7         | 11.7 | 70                   | 73   |

Booth shows that 38 per cent. of all persons over 65 years of age in England are paupers: his scheme of State pensions of £13 a year for all persons over 65 would cost the Treasury £17,000,000 for England, or £23,500,000 for the United Kingdom, per annum.



## FRANCE

Levasseur shows that pauperism is declining in Paris, viz. :—

*Paupers per 1000 Inhabitants*

|                  |                 |                 |
|------------------|-----------------|-----------------|
| 1813 . . . . 165 | 1847 . . . . 79 | 1872 . . . . 54 |
| 1829 . . . . 79  | 1861 . . . . 53 | 1887 . . . . 41 |

The annual cost of maintenance of paupers in France, and the sources from which the necessary funds are derived, appear as follows :—

| For                    | £                | From                   | £                |
|------------------------|------------------|------------------------|------------------|
| Ordinary poor . . .    | 5,350,000        | Endowments . . .       | 3,020,000        |
| Insane . . . . .       | 620,000          | The State . . . .      | 300,000          |
| Orphans . . . . .      | 680,000          | City of Paris . . .    | 1,700,000        |
| Asylums . . . . .      | 710,000          | Local boards . . .     | 2,340,000        |
| <b>Total . . . . .</b> | <b>7,360,000</b> | <b>Total . . . . .</b> | <b>7,360,000</b> |

## PINS

The manufacture is said to be declining, viz. :—

|                        | Millions Weekly |            |
|------------------------|-----------------|------------|
|                        | 1887            | 1897       |
| Great Britain . . . .  | 280             | 310        |
| France . . . . .       | 120             | 180        |
| Germany, &c. . . . .   | 180             | 72         |
| <b>Total . . . . .</b> | <b>580</b>      | <b>562</b> |

In 1897 Birmingham produced 220 millions weekly, against 180 millions in 1887.

## POLICE

The police force in certain cities is as follows (1891):—

|                    | Number | Per 10,000 Pop. |                  | Number | Per 10,000 Pop. |
|--------------------|--------|-----------------|------------------|--------|-----------------|
| London . . . . .   | 16,000 | 30              | Rome . . . . .   | 520    | 12              |
| Berlin . . . . .   | 3,700  | 28              | Naples . . . . . | 670    | 13              |
| Hamburg . . . . .  | 1,300  | 22              | Turin . . . . .  | 600    | 17              |
| Bordeaux . . . . . | 400    | 15              | Genoa . . . . .  | 420    | 19              |

The above eight cities show an average of 20 policemen per 10,000 inhabitants, or 2 per thousand.

The police force of the United Kingdom was as follows :—

|                         | Number        |               |               | Per 10,000 Inhab. |           |           |
|-------------------------|---------------|---------------|---------------|-------------------|-----------|-----------|
|                         | 1876          | 1886          | 1896          | 1876              | 1886      | 1896      |
| England . . . . .       | 29,720        | 36,450        | 41,560        | 12                | 13        | 14        |
| Scotland . . . . .      | 3,170         | 3,820         | 4,600         | 9                 | 10        | 11        |
| Ireland . . . . .       | 12,370        | 13,960        | 13,140        | 23                | 28        | 29        |
| <b>U. King. . . . .</b> | <b>45,260</b> | <b>54,230</b> | <b>59,300</b> | <b>14</b>         | <b>15</b> | <b>15</b> |

The ratio of police to population is now much higher than twenty years ago, having risen 17 per cent. in England, 22 per cent. in Scotland, 27 per cent. in Ireland.

For *Police* expenditure in European capitals see page 441.

## POPULATION

The population of Europe has increased a little more than 10 per cent. in ten years, viz. :—

|                         | 1887               | 1897               | Increase          | Pop. per Sq. Mile |
|-------------------------|--------------------|--------------------|-------------------|-------------------|
| U. Kingdom . . . .      | 36,600,000         | 39,830,000         | 3,230,000         | 330               |
| France . . . . .        | 38,220,000         | 38,520,000         | 300,000           | 192               |
| Germany . . . . .       | 47,060,000         | 52,480,000         | 5,420,000         | 247               |
| Russia . . . . .        | 88,350,060         | 106,190,000        | 17,840,000        | 47                |
| Austria . . . . .       | 39,900,000         | 43,460,000         | 3,560,000         | 162               |
| Italy . . . . .         | 29,940,000         | 31,290,000         | 1,350,000         | 274               |
| Spain . . . . .         | 17,560,000         | 17,970,000         | 410,000           | 98                |
| Portugal . . . . .      | 4,710,000          | 5,050,000          | 340,000           | 136               |
| Sweden . . . . .        | 4,720,000          | 4,960,000          | 240,000           | 29                |
| Norway . . . . .        | 1,910,000          | 2,050,000          | 140,000           | 17                |
| Denmark . . . . .       | 2,090,000          | 2,310,000          | 220,000           | 154               |
| Holland . . . . .       | 4,390,000          | 4,930,000          | 540,000           | 234               |
| Belgium . . . . .       | 5,910,000          | 6,500,000          | 590,000           | 590               |
| Switzerland . . . .     | 2,920,000          | 3,040,000          | 120,000           | 190               |
| Greece . . . . .        | 2,190,000          | 2,430,000          | 240,000           | 97                |
| Roumania . . . . .      | 5,380,000          | 5,570,000          | 190,000           | 116               |
| Servia . . . . .        | 1,970,000          | 2,350,000          | 380,000           | 111               |
| Bulgaria . . . . .      | 3,150,000          | 3,310,000          | 160,000           | 85                |
| Turkey . . . . .        | 6,100,000          | 7,650,000          | 1,550,000         | 115               |
| <b>Europe . . . . .</b> | <b>343,070,000</b> | <b>379,890,000</b> | <b>36,820,000</b> | <b>96</b>         |

The population of Europe may be considered under two classes; urban, including all cities and towns over 10,000 souls; and rural, comprising all the rest, viz. :—

|                         | Urban             | Rural              | Total              | Urban Ratio per Cent. |
|-------------------------|-------------------|--------------------|--------------------|-----------------------|
| U. Kingdom . . . .      | 20,600,000        | 17,200,000         | 37,800,000         | 54                    |
| France . . . . .        | 9,200,000         | 29,200,000         | 38,400,000         | 24                    |
| Germany . . . . .       | 15,600,000        | 36,600,000         | 52,200,000         | 30                    |
| Russia . . . . .        | 10,900,000        | 94,900,000         | 105,800,000        | 10                    |
| Austria . . . . .       | 5,600,000         | 35,800,000         | 41,400,000         | 13                    |
| Italy . . . . .         | 5,300,000         | 25,400,000         | 30,700,000         | 17                    |
| Spain . . . . .         | 2,900,000         | 14,700,000         | 17,600,000         | 17                    |
| Portugal . . . . .      | 400,000           | 4,300,000          | 4,700,000          | 9                     |
| Scandinavia . . . .     | 1,500,000         | 7,500,000          | 9,000,000          | 17                    |
| Holland . . . . .       | 1,800,000         | 2,900,000          | 4,700,000          | 38                    |
| Belgium . . . . .       | 1,700,000         | 4,600,000          | 6,300,000          | 27                    |
| Switzerland . . . .     | 500,000           | 2,500,000          | 3,000,000          | 17                    |
| Danub. States . . .     | 900,000           | 10,500,000         | 11,400,000         | 8                     |
| Greece . . . . .        | 300,000           | 1,900,000          | 2,200,000          | 14                    |
| <b>Europe . . . . .</b> | <b>77,200,000</b> | <b>288,000,000</b> | <b>365,200,000</b> | <b>21</b>             |

In 1861 Europe had 148 cities of more than 50,000 souls, and in 1891 the number had risen to 255. These cities had grown much more rapidly than the rest of the population, viz. :—

|                           | 1861               | 1891               | Increase per Cent. |
|---------------------------|--------------------|--------------------|--------------------|
| Cities over 50,000 .      | 22,600,000         | 44,800,000         | 99                 |
| Towns and rural . .       | 200,200,000        | 308,600,000        | 54                 |
| <b>Total pop. . . . .</b> | <b>222,800,000</b> | <b>353,400,000</b> | <b>58</b>          |

In 1860 the United States had 16 cities of more than 50,000 souls, and in 1890 they had 56, the increase of population having been as follows :—

|                           | 1860              | 1890              | Increase per Cent. |
|---------------------------|-------------------|-------------------|--------------------|
| Cities over 50,000 .      | 3,100,000         | 11,700,000        | 280                |
| Towns and rural . .       | 28,300,000        | 50,900,000        | 80                 |
| <b>Total pop. . . . .</b> | <b>31,400,000</b> | <b>62,600,000</b> | <b>99</b>          |

The population of the principal cities of the world (except China) is as follows :—

|                           |           |                          |         |                        |           |                            |           |
|---------------------------|-----------|--------------------------|---------|------------------------|-----------|----------------------------|-----------|
| Aberdeen . . . . .        | 140,000   | Christiania . . . . .    | 150,000 | Lille . . . . .        | 220,000   | Preston . . . . .          | 110,000   |
| Adelaide . . . . .        | 140,000   | Cincinnati . . . . .     | 300,000 | Lisbon . . . . .       | 310,000   | Providence . . . . .       | 130,000   |
| Agra . . . . .            | 170,000   | Cleveland . . . . .      | 260,000 | Liverpool . . . . .    | 740,000   | Rangoon . . . . .          | 180,000   |
| Aix-la-Chapelle . . . . . | 110,000   | Cologne . . . . .        | 320,000 | London . . . . .       | 4,460,000 | Rheims . . . . .           | 110,000   |
| Aleppo . . . . .          | 120,000   | Colombo . . . . .        | 130,000 | Louisville . . . . .   | 160,000   | Riga . . . . .             | 180,000   |
| Alexandria . . . . .      | 210,000   | Constantinople . . . . . | 870,000 | Lucknow . . . . .      | 270,000   | Rio de Janeiro . . . . .   | 520,000   |
| Allahabad . . . . .       | 180,000   | Copenhagen . . . . .     | 310,000 | Lyons . . . . .        | 470,000   | Rochester . . . . .        | 130,000   |
| Altona . . . . .          | 150,000   | Crefeld . . . . .        | 110,000 | Madras . . . . .       | 450,000   | Rome . . . . .             | 460,000   |
| Amsterdam . . . . .       | 460,000   | Damascus . . . . .       | 200,000 | Madrid . . . . .       | 470,000   | Rosario . . . . .          | 110,000   |
| Antwerp . . . . .         | 260,000   | Danzig . . . . .         | 130,000 | Magdeburg . . . . .    | 210,000   | Rotterdam . . . . .        | 280,000   |
| Astrakhan . . . . .       | 110,000   | Delhi . . . . .          | 190,000 | Malaga . . . . .       | 130,000   | Roubair . . . . .          | 120,000   |
| Athens . . . . .          | 110,000   | Denver . . . . .         | 110,000 | Manchester . . . . .   | 740,000   | Rouen . . . . .            | 110,000   |
| Bagdad . . . . .          | 180,000   | Detroit . . . . .        | 210,000 | Mandalay . . . . .     | 190,000   | St. Etienne . . . . .      | 140,000   |
| Bahia . . . . .           | 200,000   | Dresden . . . . .        | 330,000 | Manilla . . . . .      | 150,000   | St. Louis . . . . .        | 450,000   |
| Baltimore . . . . .       | 440,000   | Dublin . . . . .         | 360,000 | Marseilles . . . . .   | 440,000   | St. Paul . . . . .         | 130,000   |
| Bangalore . . . . .       | 180,000   | Dundee . . . . .         | 160,000 | Meerut . . . . .       | 120,000   | St. Petersburg . . . . .   | 1,040,000 |
| Bangkok . . . . .         | 200,000   | Dusseldorf . . . . .     | 180,000 | Melbourne . . . . .    | 450,000   | Salonica . . . . .         | 150,000   |
| Barcelona . . . . .       | 270,000   | Edinburgh . . . . .      | 280,000 | Messina . . . . .      | 150,000   | San Francisco . . . . .    | 300,000   |
| Bareilly . . . . .        | 120,000   | Elberfeld . . . . .      | 140,000 | Mexico . . . . .       | 350,000   | San Paulo . . . . .        | 110,000   |
| Barmen . . . . .          | 130,000   | Fez . . . . .            | 140,000 | Milan . . . . .        | 440,000   | Santiago (Chile) . . . . . | 250,000   |
| Baroda . . . . .          | 120,000   | Florence . . . . .       | 200,000 | Milwaukee . . . . .    | 200,000   | Saratoff . . . . .         | 120,000   |
| Baku . . . . .            | 110,000   | Frankfort . . . . .      | 230,000 | Minneapolis . . . . .  | 160,000   | Seville . . . . .          | 140,000   |
| Belfast . . . . .         | 260,000   | Genoa . . . . .          | 220,000 | Montevideo . . . . .   | 250,000   | Sheffield . . . . .        | 350,000   |
| Benares . . . . .         | 220,000   | Ghent . . . . .          | 160,000 | Montreal . . . . .     | 250,000   | Smyrna . . . . .           | 200,000   |
| Berlin . . . . .          | 1,680,000 | Glasgow . . . . .        | 710,000 | Moscow . . . . .       | 830,000   | Stettin . . . . .          | 140,000   |
| Birmingham . . . . .      | 510,000   | Gothenberg . . . . .     | 110,000 | Munich . . . . .       | 410,000   | Stockholm . . . . .        | 270,000   |
| Blackburn . . . . .       | 130,000   | Gratz . . . . .          | 110,000 | Nagpore . . . . .      | 120,000   | Strasburg . . . . .        | 140,000   |
| Bologna . . . . .         | 150,000   | Hague . . . . .          | 190,000 | Nantes . . . . .       | 120,000   | Stuttgart . . . . .        | 160,000   |
| Bolton . . . . .          | 120,000   | Halle . . . . .          | 120,000 | Naples . . . . .       | 530,000   | Sunderland . . . . .       | 140,000   |
| Bombay . . . . .          | 820,000   | Hamburg . . . . .        | 630,000 | Newark . . . . .       | 180,000   | Surat . . . . .            | 110,000   |
| Bordeaux . . . . .        | 260,000   | Hanover . . . . .        | 210,000 | Newcastle . . . . .    | 210,000   | Sydney . . . . .           | 410,000   |
| Boston . . . . .          | 450,000   | Havana . . . . .         | 200,000 | New Orleans . . . . .  | 240,000   | Tabriz . . . . .           | 180,000   |
| Bradford . . . . .        | 230,000   | Havre . . . . .          | 120,000 | New York . . . . .     | 2,530,000 | Tashkend . . . . .         | 120,000   |
| Bremen . . . . .          | 140,000   | Hull . . . . .           | 220,000 | Norwich . . . . .      | 110,000   | Teheran . . . . .          | 210,000   |
| Breslau . . . . .         | 370,000   | Hyderabad . . . . .      | 420,000 | Nottingham . . . . .   | 230,000   | Tiflis . . . . .           | 150,000   |
| Brighton . . . . .        | 120,000   | Karkoff . . . . .        | 200,000 | Nuremberg . . . . .    | 160,000   | Tokio . . . . .            | 1,240,000 |
| Bristol . . . . .         | 230,000   | Kazan . . . . .          | 140,000 | Odessa . . . . .       | 330,000   | Toronto . . . . .          | 180,000   |
| Brunswick . . . . .       | 110,000   | Kichineff . . . . .      | 120,000 | Oldham . . . . .       | 140,000   | Toulouse . . . . .         | 150,000   |
| Brussels . . . . .        | 520,000   | Kieff . . . . .          | 190,000 | Omaha . . . . .        | 140,000   | Trieste . . . . .          | 160,000   |
| Bucharest . . . . .       | 230,000   | Kioto . . . . .          | 330,000 | Oporto . . . . .       | 140,000   | Tunis . . . . .            | 150,000   |
| Buda-Pesth . . . . .      | 590,000   | Kobe . . . . .           | 160,000 | Osaka . . . . .        | 490,000   | Turin . . . . .            | 350,000   |
| Buenos Ayres . . . . .    | 810,000   | Konigsberg . . . . .     | 170,000 | Palermo . . . . .      | 280,000   | Valencia . . . . .         | 170,000   |
| Buffalo . . . . .         | 260,000   | Lahore . . . . .         | 180,900 | Paris . . . . .        | 2,540,000 | Valparaiso . . . . .       | 150,000   |
| Cairo . . . . .           | 370,000   | Leeds . . . . .          | 410,000 | Patna . . . . .        | 170,000   | Venice . . . . .           | 150,000   |
| Calcutta . . . . .        | 980,000   | Leghorn . . . . .        | 110,000 | Pernambuco . . . . .   | 190,000   | Vienna . . . . .           | 1,360,000 |
| Cardiff . . . . .         | 160,000   | Leicester . . . . .      | 200,000 | Philadelphia . . . . . | 1,050,000 | Warsaw . . . . .           | 530,000   |
| Catania . . . . .         | 120,000   | Leipzig . . . . .        | 400,000 | Pittsburg . . . . .    | 240,000   | Washington . . . . .       | 230,000   |
| Cawnpore . . . . .        | 190,000   | Lemberg . . . . .        | 130,000 | Poona . . . . .        | 160,000   | Wilna . . . . .            | 110,000   |
| Chemnitz . . . . .        | 160,000   | Liège . . . . .          | 160,000 | Portsmouth . . . . .   | 180,000   | Yokohama . . . . .         | 180,000   |
| Chicago . . . . .         | 1,090,000 | Lima . . . . .           | 110,000 | Prague . . . . .       | 180,000   | Zurich . . . . .           | 130,000   |

In the preceding table Liverpool includes Birkenhead, Manchester Salford, and the city of New York includes Brooklyn and suburbs. There are 28 of the above cities in the United Kingdom, 24 in India, 8 in the Colonies, making in all 60 for the British Empire; there are 26 in Germany, 26 in the United States, 16 in Russia, 12 in France, 12 in Italy, and 58 in various countries.

The population of the British Colonies, exclusive of India, is shown as follows :—

|                        | 1881       | 1895       | Increase  |
|------------------------|------------|------------|-----------|
| Canada . . . . .       | 4,500,000  | 5,300,000  | 800,000   |
| Australia . . . . .    | 2,740,000  | 4,240,000  | 1,500,000 |
| South Africa . . . . . | 1,120,000  | 2,350,000  | 1,230,000 |
| West Indies . . . . .  | 1,470,000  | 1,750,000  | 280,000   |
| Ceylon . . . . .       | 2,760,000  | 3,240,000  | 480,000   |
| Various . . . . .      | 1,440,000  | 1,710,000  | 270,000   |
| Total . . . . .        | 14,030,000 | 18,590,000 | 4,560,000 |

In this table Canada includes Newfoundland, and the

West Indies Guiana. The gross increase of the Colonies in 14 years has been equal to 32 per cent. The population of India in 1891 was 221,200,000, showing an increase from 1881 of 23 millions, or 11½ per cent.

The population of Spanish America and Brazil by latest dates as follows :—

|                     | Pop.       | Per Sq. Mile |                     | Pop.       | Per Sq. Mile |
|---------------------|------------|--------------|---------------------|------------|--------------|
| Mexico . . . . .    | 12,570,000 | 16           | Chile . . . . .     | 2,960,000  | 10           |
| Cent. Amer. . . . . | 3,150,000  | 22           | Bolivia . . . . .   | 2,020,000  | 4            |
| Colombia . . . . .  | 3,880,000  | 8            | Paraguay . . . . .  | 430,000    | 4            |
| Venezuela . . . . . | 2,320,000  | 4            | Uruguay . . . . .   | 790,000    | 11           |
| Ecuador . . . . .   | 1,270,000  | 10           | Argentina . . . . . | 3,950,000  | 2            |
| Peru . . . . .      | 2,620,000  | 6            | Brazil . . . . .    | 16,330,000 | 5            |

The continent of South America has 36,600,000 inhabitants, being at the rate of 5 to the square mile.

Urban population increased as follows between 1881 and 1891: the column of Natural Increase shows the

surplus of births over deaths, that of Immigration the net influx from rural districts or from abroad :—

|                      | Natural Increase | Immigration | Total Increase | Per Cent. on Pop. of 1881 |
|----------------------|------------------|-------------|----------------|---------------------------|
| London . . . . .     | 517,000          | ...         | 395,000        | 10.3                      |
| Paris . . . . .      | 62,000           | 123,000     | 185,000        | 8.3                       |
| Berlin . . . . .     | 139,000          | 318,000     | 457,000        | 40.8                      |
| Vienna . . . . .     | 67,000           | 45,000      | 112,000        | 16.0                      |
| Rome . . . . .       | 28,000           | 108,000     | 136,000        | 45.3                      |
| Buda-Pesth . . . . . | 18,000           | 117,000     | 135,000        | 36.5                      |
| Hamburg . . . . .    | 50,000           | 108,000     | 158,000        | 38.7                      |
| Leipzig . . . . .    | 19,000           | 123,000     | 142,000        | 95.2                      |
| Dresden . . . . .    | 25,000           | 31,000      | 56,000         | 25.5                      |
| Breslau . . . . .    | 18,000           | 44,000      | 62,000         | 22.7                      |
| Naples . . . . .     | 14,000           | 10,000      | 24,000         | 4.8                       |
| Milan . . . . .      | 13,000           | 85,000      | 98,000         | 30.7                      |
| Turin . . . . .      | 16,000           | 62,000      | 78,000         | 31.0                      |
| Genoa . . . . .      | 6,000            | 26,000      | 32,000         | 17.7                      |
| Florence . . . . .   | 15,000           | 14,000      | 29,000         | 17.2                      |
| Palermo . . . . .    | 26,000           | 1,000       | 27,000         | 11.0                      |

While all other cities showed an influx of strangers during the decade ending 1891, London actually showed a loss of 122,000 persons by emigration.

The density of population of some principal cities is:—

|                    | Acres  | Per Acre |                        | Acres  | Per Acre |
|--------------------|--------|----------|------------------------|--------|----------|
| Berlin . . . . .   | 15,800 | 94       | Manchester             | 18,000 | 41       |
| Brussels . . . . . | 2,200  | 240      | Moscow . . . . .       | 26,000 | 32       |
| Dresden . . . . .  | 7,100  | 47       | Naples . . . . .       | 5,200  | 102      |
| Dublin . . . . .   | 5,100  | 70       | New York . . . . .     | 46,400 | 55       |
| Florence . . . . . | 6,800  | 30       | Paris . . . . .        | 19,500 | 130      |
| Genoa . . . . .    | 2,200  | 100      | Philadelphia . . . . . | 84,000 | 12       |
| Glasgow . . . . .  | 7,700  | 92       | Rome . . . . .         | 3,900  | 117      |
| Hamburg . . . . .  | 7,200  | 87       | Turin . . . . .        | 2,400  | 145      |
| London . . . . .   | 78,000 | 57       | Vienna . . . . .       | 13,800 | 99       |
| Madrid . . . . .   | 4,200  | 111      | Washington . . . . .   | 6,100  | 38       |

The above 20 cities show an average of 85 inhabitants per acre.

#### UNITED KINGDOM

The progress of population since 1871 has been thus :—

|                      | Number     |            | Per Sq. Mile |      |
|----------------------|------------|------------|--------------|------|
|                      | 1871       | 1896       | 1871         | 1896 |
| England . . . . .    | 22,857,000 | 31,400,000 | 391          | 536  |
| Scotland . . . . .   | 3,360,000  | 4,250,000  | 113          | 143  |
| Ireland . . . . .    | 5,412,000  | 4,540,000  | 166          | 139  |
| U. Kingdom . . . . . | 31,629,000 | 40,190,000 | 261          | 332  |

The population of the island of Great Britain has increased since 1871 at the rate of 350,000 yearly, or almost 1000 daily. In the same interval Ireland has lost 32,000 yearly, or 90 persons daily. The increase in Great Britain has been chiefly in urban population :—

| Urban Population  |            |           |            |
|-------------------|------------|-----------|------------|
| Year              | England    | Scotland  | G. Britain |
| 1871 . . . . .    | 12,911,000 | 1,952,000 | 14,863,000 |
| 1881 . . . . .    | 15,445,000 | 2,307,000 | 17,752,000 |
| 1891 . . . . .    | 17,826,000 | 2,631,000 | 20,457,000 |
| Increase from '71 | 4,915,000  | 679,000   | 5,594,000  |

| Rural Population  |            |           |            |
|-------------------|------------|-----------|------------|
| Year              | England    | Scotland  | G. Britain |
| 1871 . . . . .    | 9,946,000  | 1,408,000 | 11,354,000 |
| 1881 . . . . .    | 10,664,000 | 1,429,000 | 12,093,000 |
| 1891 . . . . .    | 11,175,000 | 1,395,000 | 12,570,000 |
| Increase from '71 | 1,229,000  | ...       | 1,216,000  |

The population of Ireland at census of 1891 comprised 3,860,000 rural and 845,000 urban, the latter being as 18 per cent. of the population. The several provinces showed thus :—

|                     | 1871      | 1891      | Loss    |
|---------------------|-----------|-----------|---------|
| Leinster . . . . .  | 1,336,000 | 1,188,000 | 148,000 |
| Ulster . . . . .    | 1,840,000 | 1,620,000 | 220,000 |
| Connaught . . . . . | 846,000   | 725,000   | 121,000 |
| Munster . . . . .   | 1,390,000 | 1,172,000 | 218,000 |
| Total . . . . .     | 5,412,000 | 4,705,000 | 707,000 |

#### UNITED STATES

Dividing the population into four great classes, we find as follows :—

|                            | 1860       | 1880       | Increase per Cent. |
|----------------------------|------------|------------|--------------------|
| White Americans . . . . .  | 17,727,000 | 34,476,000 | 95                 |
| Coloured persons . . . . . | 4,486,000  | 7,470,000  | 66                 |
| Foreigners . . . . .       | 4,139,000  | 9,250,000  | 123                |
| Children of do. . . . .    | 5,091,000  | 11,426,000 | 124                |
| Total . . . . .            | 31,443,000 | 62,622,000 | 99                 |

In the United States it is customary to count as urban population all towns that have more than 8000 souls, and the increase of such towns has been as follows :—

| Year           | Total Pop. | Urban      | Urban Ratio |
|----------------|------------|------------|-------------|
| 1860 . . . . . | 31,440,000 | 5,070,000  | 16.1        |
| 1870 . . . . . | 38,560,000 | 8,070,000  | 20.9        |
| 1880 . . . . . | 50,155,000 | 11,320,000 | 22.6        |
| 1890 . . . . . | 62,620,000 | 18,235,000 | 29.1        |

The increase of population in towns since 1860 has been 13,165,000, that is 260 per cent., while rural population has risen only 18,015,000, or 68 per cent.

Persons of working age, 15 to 60, according to the census of 1890 summed up nearly 36 millions, distributed thus :—

| States               | Number (000 omitted) |                |            |        |
|----------------------|----------------------|----------------|------------|--------|
|                      | Americans            | Ditto Coloured | Foreigners | Total  |
| N. England . . . . . | 1,887                | 21             | 952        | 2,860  |
| Middle . . . . .     | 5,755                | 265            | 2,396      | 8,416  |
| South . . . . .      | 6,205                | 3,125          | 336        | 9,666  |
| West . . . . .       | 10,790               | 223            | 4,036      | 15,049 |
| Union . . . . .      | 24,637               | 3,634          | 7,720      | 35,991 |

The increase of population in the last ten years was 14,020,000, viz. :—

|                |            |
|----------------|------------|
| 1887 . . . . . | 58,680,000 |
| 1897 . . . . . | 72,700,000 |

The increase was apparently made up of 10,740,000 surplus of births over deaths, being 18 per cent. on the population in 1887, and 3,280,000 net immigration, the total number of immigrants in the interval having been 4,390,000, of whom one-fourth are supposed to have gone away or died.

**POST-OFFICE**

The business has increased 60 per cent. in eight years, the following table showing the total number of letters, papers, &c., handled in the several countries :—

|                           | Millions |        | Per Inhab. |      |
|---------------------------|----------|--------|------------|------|
|                           | 1888     | 1896   | 1888       | 1896 |
| United Kingdom . . . . .  | 2,363    | 3,142  | 63         | 80   |
| France . . . . .          | 1,523    | 2,094  | 39         | 54   |
| Germany . . . . .         | 2,488    | 4,025  | 53         | 76   |
| Russia . . . . .          | 326      | 546    | 4          | 5    |
| Austria . . . . .         | 960      | 1,220  | 24         | 28   |
| Italy . . . . .           | 476      | 499    | 16         | 16   |
| Spain . . . . .           | 124      | 173    | 7          | 10   |
| Portugal . . . . .        | 40       | 55     | 9          | 11   |
| Sweden . . . . .          | 106      | 170    | 22         | 34   |
| Norway . . . . .          | 38       | 87     | 19         | 44   |
| Denmark . . . . .         | 50       | 144    | 25         | 65   |
| Holland . . . . .         | 180      | 268    | 40         | 55   |
| Belgium . . . . .         | 290      | 369    | 49         | 58   |
| Switzerland . . . . .     | 221      | 257    | 74         | 86   |
| Danubian States . . . . . | 40       | 84     | 4          | 8    |
| Greece . . . . .          | 12       | 17     | 5          | 7    |
| Europe . . . . .          | 9,237    | 13,150 | 25         | 36   |
| United States . . . . .   | 7,028    | 11,688 | 110        | 170  |
| Canada . . . . .          | 199      | 237    | 40         | 47   |
| Spanish America . . . . . | 230      | 455    | 5          | 8    |
| India . . . . .           | 274      | 424    | 1          | 2    |
| Japan . . . . .           | 137      | 506    | 4          | 12   |
| Egypt . . . . .           | 17       | 24     | 2          | 2    |
| Cape Colony . . . . .     | 12       | 28     | 11         | 15   |
| Australia . . . . .       | 294      | 414    | 82         | 99   |
| Various . . . . .         | 42       | 71     | ...        | ...  |
| The World . . . . .       | 17,470   | 27,010 | ...        | ...  |

The postal service of the United Kingdom has 145,000 employees, of whom 30,000 are women : there are 21,000 post-offices and 29,000 pillar-boxes in the U. Kingdom.

The business may be summed up thus, post-cards counting as letters :—

|                             | Millions |             |        |
|-----------------------------|----------|-------------|--------|
|                             | Letters  | Papers, &c. | Total  |
| England . . . . .           | 1,894    | 753         | 2,647  |
| Scotland . . . . .          | 203      | 99          | 302    |
| Ireland . . . . .           | 133      | 60          | 193    |
| United Kingdom . . . . .    | 2,230    | 912         | 3,142  |
| France . . . . .            | 1,006    | 1,088       | 2,094  |
| Germany . . . . .           | 1,905    | 2,120       | 4,025  |
| Russia . . . . .            | 311      | 235         | 546    |
| Austria . . . . .           | 902      | 318         | 1,220  |
| Italy . . . . .             | 247      | 252         | 499    |
| Spain . . . . .             | 104      | 69          | 173    |
| Portugal . . . . .          | 27       | 28          | 55     |
| Sweden and Norway . . . . . | 130      | 127         | 257    |
| Denmark . . . . .           | 75       | 69          | 144    |
| Holland . . . . .           | 128      | 140         | 268    |
| Belgium . . . . .           | 176      | 193         | 369    |
| Switzerland . . . . .       | 124      | 133         | 257    |
| Danubian States . . . . .   | 40       | 44          | 84     |
| Greece . . . . .            | 9        | 8           | 17     |
| Turkey . . . . .            | 11       | 3           | 14     |
| Europe . . . . .            | 7,425    | 5,739       | 13,164 |
| United States . . . . .     | 3,044    | 8,644       | 11,688 |
| Canada . . . . .            | 141      | 96          | 237    |
| Spanish America . . . . .   | 180      | 275         | 455    |
| India . . . . .             | 374      | 50          | 424    |
| Japan . . . . .             | 404      | 102         | 506    |
| Egypt . . . . .             | 15       | 9           | 24     |
| Cape Colony . . . . .       | 18       | 10          | 28     |
| Australia . . . . .         | 241      | 173         | 414    |
| Various . . . . .           | 52       | 19          | 71     |
| The World . . . . .         | 11,894   | 15,116      | 27,010 |

In 1896 there were 753 million money orders, &c., amounting in all to 3280 millions sterling.

Telegraphs.—The length of land-lines and number of messages sent yearly are :—

|                           | Miles of Line | Messages Millions | Messages     |          |
|---------------------------|---------------|-------------------|--------------|----------|
|                           |               |                   | Per 100 Pop. | Per Mile |
| United Kingdom . . . . .  | 41,400        | 79.4              | 198          | 1,913    |
| France . . . . .          | 58,300        | 44.8              | 118          | 790      |
| Germany . . . . .         | 84,400        | 38.4              | 74           | 455      |
| Russia . . . . .          | 82,400        | 14.5              | 14           | 175      |
| Austria . . . . .         | 46,100        | 20.7              | 48           | 450      |
| Italy . . . . .           | 24,700        | 9.1               | 29           | 370      |
| Spain . . . . .           | 23,600        | 6.0               | 34           | 255      |
| Portugal . . . . .        | 4,000         | 1.4               | 30           | 350      |
| Sweden . . . . .          | 8,300         | 2.2               | 45           | 265      |
| Norway . . . . .          | 6,300         | 1.9               | 95           | 302      |
| Denmark . . . . .         | 3,400         | 1.9               | 85           | 560      |
| Holland . . . . .         | 3,600         | 4.6               | 95           | 1,280    |
| Belgium . . . . .         | 4,000         | 8.7               | 140          | 2,175    |
| Switzerland . . . . .     | 4,400         | 3.7               | 120          | 840      |
| Danubian States . . . . . | 9,500         | 4.5               | 40           | 470      |
| Greece . . . . .          | 5,100         | 1.5               | 63           | 295      |
| Turkey . . . . .          | 21,800        | ...               | ...          | ...      |
| Europe . . . . .          | 431,300       | 243.3             | 64           | 570      |
| United States . . . . .   | 210,000       | 58.8              | 84           | 280      |
| Canada . . . . .          | 31,700        | 4.0               | 80           | 125      |
| West Indies . . . . .     | 5,400         | 1.0               | 24           | 185      |
| Spanish America . . . . . | 114,000       | 12.0              | 22           | 105      |
| India . . . . .           | 46,400        | 4.7               | 2            | 101      |
| Japan . . . . .           | 11,700        | 11.0              | 27           | 940      |
| Egypt . . . . .           | 2,300         | 2.4               | 25           | 1,050    |
| Algeria . . . . .         | 7,100         | 2.1               | 26           | 295      |
| Cape Colony . . . . .     | 6,400         | 2.2               | 140          | 344      |
| Australia . . . . .       | 50,900        | 10.8              | 270          | 210      |
| Various . . . . .         | 15,800        | 1.7               | ...          | 108      |
| The World . . . . .       | 933,000       | 354.0             | 30           | 380      |
| Cables . . . . .          | 168,000       | ...               | ...          | ...      |
| Total . . . . .           | 1,101,000     | ...               | ...          | ...      |

There are 1480 submarine cables, in all 168,000 miles long, of which 18,000 are State property, the rest belonging to Companies. The average cost of land-lines was, according to Mr. Charles Bright, £94 a mile, and of ocean cables £300 a mile: the construction of existing lines and cables represents an outlay of £138,000,000, of which cables stand for £50,000,000. In 1897 the number of messages was just a million daily, of which 20,000 were by cable. There are at present 12 cables working between Europe and America, besides 3 that are dead: the charge between London and New York was £1 a word in 1866, and it is now only a shilling.

The progress of telegraphy in eight years is shown thus :—

|                     | Miles of Line |         | Messages Millions |      |
|---------------------|---------------|---------|-------------------|------|
|                     | 1888          | 1896    | 1888              | 1896 |
| Europe . . . . .    | 368,000       | 431,300 | 170               | 243  |
| America . . . . .   | 292,000       | 361,100 | 72                | 76   |
| Asia . . . . .      | 50,200        | 68,900  | 8                 | 17   |
| Africa . . . . .    | 18,600        | 20,800  | 5                 | 7    |
| Australia . . . . . | 39,200        | 50,900  | 11                | 11   |
| The World . . . . . | 768,000       | 933,000 | 266               | 354  |

The Central Bureau at Berne controls the telegraphs of 47 countries, and reports the number of messages as almost 400 millions yearly.

The postal revenue of the principal States has been as follows :—

|                       | £ Sterling |            | Pence per Inhab. |      |
|-----------------------|------------|------------|------------------|------|
|                       | 1888       | 1896       | 1888             | 1896 |
| United Kingdom . . .  | 11,200,000 | 14,800,000 | 72               | 90   |
| France . . . . .      | 6,500,000  | 9,000,000  | 42               | 57   |
| Germany . . . . .     | 11,400,000 | 17,000,000 | 54               | 78   |
| Russia . . . . .      | 2,600,000  | 3,900,000  | 6                | 8    |
| Austria . . . . .     | 4,000,000  | 6,100,000  | 23               | 34   |
| Italy . . . . .       | 2,300,000  | 2,700,000  | 18               | 21   |
| Scandinavia . . . . . | 900,000    | 1,200,000  | 24               | 32   |
| Holland . . . . .     | 600,000    | 900,000    | 30               | 43   |
| Belgium . . . . .     | 700,000    | 800,000    | 28               | 30   |
| United States . . . . | 11,700,000 | 17,200,000 | 46               | 60   |
| Canada . . . . .      | 600,000    | 800,000    | 30               | 38   |
| Australia . . . . .   | 1,200,000  | 2,400,000  | 80               | 132  |
| India . . . . .       | 1,200,000  | 2,000,000  | 1                | 2    |
| Japan . . . . .       | 400,000    | 1,800,000  | 2                | 11   |
| Total . . . . .       | 55,300,000 | 80,600,000 | ...              | ...  |

In 1892 various governments paid the following subsidies for carrying mails :—

|                       | Miles Run  | £ Sterling | Pence per Mile |
|-----------------------|------------|------------|----------------|
| Great Britain . . . . | 4,700,000  | 1,000,000  | 52             |
| France . . . . .      | 3,400,000  | 1,040,000  | 74             |
| United States . . . . | 1,500,000  | 620,000    | 100            |
| Italy . . . . .       | 1,600,000  | 360,000    | 54             |
| Spain . . . . .       | 1,100,000  | 390,000    | 85             |
| Germany . . . . .     | 1,100,000  | 240,000    | 52             |
| Austria . . . . .     | 1,500,000  | 230,000    | 37             |
| Holland . . . . .     | 1,100,000  | 210,000    | 46             |
| Total . . . . .       | 16,000,000 | 4,090,000  | 62             |

## POTATOES

The area and production of this crop in 1897, compared with Spallart's average for 1880-84, are shown as follows :—

|                       | 1897       |             | 1880-84<br>Tons | Bush. per Head |      |
|-----------------------|------------|-------------|-----------------|----------------|------|
|                       | Acres      | Tons        |                 | 1880-84        | 1897 |
| G. Britain . . . . .  | 505,000    | 3,400,000   | 3,300,000       | 4.4            | 4.0  |
| Ireland . . . . .     | 675,000    | 2,700,000   | 3,600,000       | 28.0           | 24.0 |
| U. Kingdom . . . . .  | 1,180,000  | 6,100,000   | 6,900,000       | 8.0            | 6.0  |
| France . . . . .      | 3,900,000  | 12,900,000  | 11,300,000      | 12.0           | 13.5 |
| Germany . . . . .     | 7,500,000  | 31,800,000  | 21,900,000      | 19.0           | 24.0 |
| Russia . . . . .      | 7,600,000  | 20,700,000  | 12,100,000      | 5.0            | 7.0  |
| Austria . . . . .     | 4,100,000  | 12,400,000  | 9,600,000       | 10.0           | 11.5 |
| Italy . . . . .       | 500,000    | 700,000     | 700,000         | 1.0            | 1.0  |
| Spain & Port. . . . . | 900,000    | 1,900,000   | 1,900,000       | 4.0            | 3.8  |
| Scandinavia . . . . . | 600,000    | 2,500,000   | 2,600,000       | 13.0           | 11.0 |
| Holland . . . . .     | 400,000    | 2,200,000   | 1,500,000       | 14.0           | 18.0 |
| Belgium . . . . .     | 500,000    | 3,400,000   | 2,500,000       | 18.0           | 22.0 |
| Switzerland . . . . . | 400,000    | 1,200,000   | 1,300,000       | 17.0           | 16.0 |
| Roumania, &c. . . . . | 120,000    | 300,000     | 300,000         | 1.0            | 1.0  |
| Europe . . . . .      | 27,700,000 | 96,100,000  | 72,600,000      | 9.0            | 10.5 |
| U. States . . . . .   | 2,800,000  | 6,300,000   | 4,600,000       | 3.7            | 3.5  |
| Canada . . . . .      | 400,000    | 1,200,000   | 1,200,000       | 10.5           | 9.5  |
| Australia . . . . .   | 150,000    | 500,000     | 400,000         | 5.5            | 4.8  |
| The World . . . . .   | 31,050,000 | 104,100,000 | 78,800,000      | ...            | ...  |

Since 1884 the production of potatoes in Europe has increased 33 per cent., and almost every country on the Continent shows a greater consumption per inhabitant than fifteen years ago. On the other hand, the consumption in the United Kingdom is one-fourth less per head than it was in 1880-84, and a decline is likewise to be observed in the United States, as well as in Canada and Australia.

The United Kingdom pays more than a million sterling yearly for imported potatoes: in five years ending 1897 the average importation was 156,000 tons, value £1,040,000.

## PRESS

### UNITED KINGDOM

The average number of new books in the years 1896-97 compares with the same in 1888-89 as follows :—

|                           | Yearly Average |         | Increase |
|---------------------------|----------------|---------|----------|
|                           | 1888-89        | 1896-97 |          |
| Economy and trade . . .   | 111            | 389     | 278      |
| History and travels . . . | 557            | 774     | 217      |
| Theology . . . . .        | 687            | 549     | 0        |
| Medicine . . . . .        | 134            | 135     | 1        |
| Poetry . . . . .          | 148            | 291     | 143      |
| Fiction . . . . .         | 985            | 1,807   | 822      |
| Sundries . . . . .        | 2,205          | 1,794   | ...      |
| New books . . . . .       | 4,827          | 5,739   | 912      |

Works on economy and trade have trebled in eight years, those of poetry and fiction have doubled, while theology has declined, and medicine is stationary. This is exclusive of 1503 reprints yearly in the first period, and 1510 in the second. The aggregate of new books and reprints in the second period shows an increase of 919 works, equal to 19 per cent., which indicates great activity in literary labours.

Among the largest sales of books are noted: Webster's Spelling-book, 55 million copies; "Uncle Tom's Cabin," 1,500,000; Longfellow's Poems, 520,000; "Pickwick Papers," 900,000. Moore's Almanac, down to 1820, had a yearly sale of 500,000 copies. Cassel says that Messrs. Routledge sell 6 million books yearly. The printing-houses of London and Edinburgh turn out more than 50 million volumes per annum, of which one-fifth are exported. Between 1842 and 1888 Messrs. Mudie bought 6 million books for their lending libraries.

In 1893 Professor Strahan estimated the issue of newspapers in the United Kingdom at 170 million copies monthly, as compared with 10 millions in 1854 (when Gladstone abolished the tax on newspapers), and at present the circulation may be estimated thus :—

|                        | Papers Monthly |
|------------------------|----------------|
| England . . . . .      | 155,000,000    |
| Scotland . . . . .     | 17,000,000     |
| Ireland . . . . .      | 14,000,000     |
| United Kingdom . . . . | 186,000,000    |

The newspapers have a gross income of £16,000,000, of which about 9 millions go in wages to printers, 3 millions for paper, and the rest in salaries to editors, writers, reporters, &c., and dividends. The number of writers and reporters at various dates shows thus :—

| Year           | Editors, &c. | Reporters | Total | Per Million Pop. |
|----------------|--------------|-----------|-------|------------------|
| 1861 . . . . . | 1,528        | 636       | 2,164 | 74               |
| 1881 . . . . . | 3,434        | 2,677     | 6,111 | 175              |
| 1891 . . . . . | 5,111        | 2,374     | 7,485 | 199              |

According to Sell's Dictionary of Publications, London papers receive £4,000,000 a year from advertisements. Some of the London papers issue over 200,000 copies daily.

As regards the American Press there were 17,760 papers in the United States and Canada in 1890, with an ordinary impression of 41,524,000 copies, some daily,

others weekly, the aggregate issue making up about 240 million copies monthly; of which, according to Bromley, the press of New York stood for 57 millions. There were 132 newspapers whose daily issue exceeded, each, 50,000 copies.

See *Press*, in Part I., pages 464-467.

## PRICES

## UNITED KINGDOM

The prices of imported articles for the period from 1861 to 1897 have been as follows:—

|                        | 1861-70 | 1871-80 | 1881-90 | 1891  | 1892  | 1893  | 1894  | 1895  | 1896  | 1897  |
|------------------------|---------|---------|---------|-------|-------|-------|-------|-------|-------|-------|
| Bacon, ton, £          | 50.5    | 44.5    | 44.8    | 37.9  | 40.9  | 53.0  | 43.8  | 39.0  | 34.5  | 35.4  |
| Barley, „              | 8.7     | 8.3     | 6.4     | 6.8   | 6.0   | 5.1   | 4.5   | 4.7   | 5.1   | 4.9   |
| Beef, „                | 38.0    | 44.0    | 46.5    | 42.1  | 42.4  | 42.4  | 40.1  | 39.0  | 37.8  | 38.4  |
| Brandy, gallon, s.     | 6.5     | 7.9     | 9.1     | 9.0   | 9.0   | 8.8   | 8.5   | 9.2   | 9.2   | 8.9   |
| Butter, ton, £         | 101.0   | 110.0   | 105.0   | 109.0 | 110.0 | 110.0 | 105.0 | 101.0 | 101.0 | 99.0  |
| Cheese, „              | 55.5    | 55.5    | 49.6    | 47.0  | 49.0  | 50.0  | 48.0  | 44.0  | 44.0  | 45.0  |
| Chinchona, „           | ...     | ...     | 156.0   | 47.0  | 43.0  | 39.0  | 37.0  | 37.0  | 35.0  | 43.0  |
| Cigars, lb., s.        | 10.5    | 13.3    | 11.7    | 10.2  | 9.2   | 6.8   | 6.2   | 8.0   | 10.1  | 10.0  |
| Cochineal, cwt., £     | 16.2    | 12.6    | 7.4     | 6.0   | 6.2   | 6.1   | 5.9   | 6.6   | 6.4   | 6.2   |
| Cocoa, ton, £          | 54.0    | 71.5    | 73.1    | 71.4  | 72.0  | 73.7  | 71.8  | 67.9  | 61.7  | 62.2  |
| Coffee, „              | 63.5    | 88.0    | 75.2    | 94.6  | 93.0  | 96.4  | 96.4  | 97.6  | 99.8  | 94.8  |
| Copper ore, „          | 15.0    | 12.5    | 8.5     | 8.2   | 6.4   | 6.0   | 6.0   | 5.8   | 6.5   | 5.8   |
| Cotton, „              | 138.0   | 66.5    | 54.8    | 52.0  | 48.0  | 49.0  | 41.0  | 39.0  | 46.0  | 41.8  |
| Eggs (100 doz.), s.    | 61.6    | 80.0    | 68.9    | 66.0  | 68.2  | 70.0  | 63.7  | 63.0  | 63.2  | 62.1  |
| Fish, ton, £           | 21.5    | 28.3    | 27.9    | 25.9  | 23.9  | 24.3  | 23.2  | 24.3  | 25.3  | 26.6  |
| Flax, „                | 54.3    | 49.5    | 38.5    | 35.0  | 34.3  | 37.3  | 37.1  | 34.1  | 30.5  | 35.6  |
| Flour, „               | 14.7    | 17.3    | 13.1    | 12.2  | 11.1  | 9.6   | 8.4   | 8.4   | 8.7   | 10.3  |
| Glass, „               | 15.3    | 15.7    | 13.3    | 11.5  | 11.4  | 10.7  | 10.3  | 10.3  | 10.0  | 9.9   |
| Guano, „               | 12.0    | 10.5    | 8.4     | 5.9   | 6.8   | 5.2   | 5.1   | 7.9   | 5.2   | 5.4   |
| Hams, „                | 51.5    | 53.5    | 52.7    | 46.3  | 47.3  | 58.5  | 49.1  | 45.0  | 43.0  | 42.7  |
| Hemp, „                | 35.3    | 33.5    | 31.5    | 30.9  | 27.0  | 25.9  | 22.5  | 21.0  | 21.0  | 19.6  |
| Hides, „               | 62.0    | 68.0    | 58.0    | 48.0  | 46.0  | 46.0  | 43.0  | 44.0  | 46.0  | 46.0  |
| Indigo, cwt., £        | 33.6    | 26.6    | 22.8    | 20.5  | 19.0  | 20.7  | 19.2  | 16.8  | 17.1  | 17.8  |
| Jute, ton, £           | 19.0    | 16.5    | 13.3    | 12.2  | 15.2  | 13.2  | 13.6  | 11.1  | 12.2  | 11.7  |
| Lard, „                | 56.5    | 47.0    | 42.0    | 32.7  | 35.9  | 50.2  | 39.4  | 33.8  | 26.1  | 22.9  |
| Leather, „             | ...     | 166.0   | 153.0   | 137.0 | 132.0 | 130.0 | 124.0 | 127.0 | 122.0 | 120.0 |
| Linseed, „             | 14.0    | 13.4    | 10.3    | 10.4  | 9.8   | 10.2  | 9.5   | 8.5   | 7.8   | 7.8   |
| Maize, „               | 7.4     | 7.0     | 5.5     | 6.3   | 5.3   | 4.8   | 4.5   | 4.6   | 3.6   | 3.4   |
| Molasses, „            | 11.5    | 9.3     | 7.4     | 6.3   | 5.9   | 6.0   | 5.3   | 4.7   | 4.4   | 4.2   |
| Nitre, „               | 13.7    | 14.0    | 10.6    | 8.6   | 8.5   | 9.3   | 9.3   | 8.1   | 7.9   | 7.7   |
| Oats, „                | 8.0     | 7.8     | 6.1     | 6.6   | 6.4   | 6.2   | 5.2   | 4.8   | 4.8   | 5.0   |
| Oil, olive, gallon, d. | 55.0    | 43.0    | 36.0    | 38.5  | 35.3  | 36.0  | 32.8  | 33.4  | 30.9  | 31.8  |
| „ palm, ton, £         | 38.0    | 33.6    | 26.0    | 23.3  | 22.1  | 24.9  | 21.8  | 20.9  | 21.0  | 20.6  |
| Opium, cwt., £         | ...     | 105.0   | 74.5    | 61.0  | 52.0  | 56.2  | 56.0  | 56.6  | 57.1  | 53.2  |
| Oranges, ton, £        | 21.7    | 17.0    | 13.5    | 12.3  | 12.1  | 12.0  | 11.2  | 11.2  | 10.7  | 10.4  |
| Pepper, „              | 36.7    | 46.7    | 62.2    | 43.8  | 33.9  | 30.9  | 25.5  | 25.0  | 26.0  | 32.0  |
| Petroleum, gallon, d.  | 22.0    | 12.0    | 6.8     | 4.9   | 4.5   | 3.9   | 3.7   | 4.6   | 4.7   | 4.3   |
| Pork, ton, £           | 46.0    | 40.2    | 36.3    | 33.8  | 34.2  | 40.4  | 38.1  | 36.8  | 35.3  | 34.8  |
| Potatoes, ton, s.      | 91.0    | 110.0   | 133.5   | 150.0 | 126.0 | 128.0 | 152.0 | 125.0 | 162.0 | 122.0 |
| Rags, ton, £           | 19.0    | 16.3    | 12.7    | 9.7   | 9.3   | 9.6   | 9.2   | 9.2   | 9.8   | 9.9   |
| Raisins, „             | 30.0    | 35.2    | 33.9    | 33.8  | 30.2  | 27.0  | 24.8  | 25.0  | 28.0  | 30.0  |
| Rice, „                | 12.2    | 10.0    | 8.1     | 9.0   | 8.9   | 7.9   | 7.6   | 7.3   | 7.5   | 8.2   |
| Rum, gallon, d.        | 28.0    | 24.0    | 21.0    | 22.6  | 20.8  | 17.3  | 16.8  | 15.7  | 15.5  | 16.0  |
| Saltpetre, ton, £      | 26.7    | 22.4    | 18.6    | 18.0  | 17.4  | 17.6  | 18.4  | 18.7  | 16.4  | 15.0  |
| Seed clover, „         | 56.5    | 48.5    | 42.9    | 43.1  | 42.7  | 47.5  | 47.8  | 43.2  | 38.9  | 38.6  |
| Sheep, each, s.        | 39.5    | 44.5    | 40.8    | 38.5  | 31.8  | 28.3  | 33.2  | 33.5  | 29.5  | 30.1  |
| Sheepskins, each, d.   | 14.0    | 32.0    | 28.6    | 26.0  | 27.1  | 25.4  | 24.2  | 22.4  | 22.0  | 21.6  |
| Silk, lb., s.          | 26.7    | 18.7    | 14.7    | 13.5  | 13.1  | 12.9  | 13.1  | 12.6  | 12.5  | 12.3  |
| Sugar, raw, ton, £     | 26.3    | 22.7    | 16.0    | 13.0  | 13.1  | 14.3  | 11.7  | 9.7   | 10.6  | 9.3   |
| „ refined, „           | 33.0    | 31.7    | 21.1    | 17.4  | 18.0  | 19.4  | 17.0  | 14.5  | 14.8  | 13.4  |
| Sulphur, ton, s.       | 140.0   | 123.0   | 101.0   | 121.0 | 113.0 | 97.0  | 88.0  | 80.0  | 83.0  | 91.0  |
| Tallow, ton, £         | 45.2    | 40.5    | 31.1    | 25.9  | 25.4  | 27.7  | 25.5  | 23.7  | 21.3  | 19.2  |
| Tea, „                 | 176.0   | 147.5   | 109.0   | 100.0 | 94.0  | 91.0  | 89.0  | 90.0  | 88.5  | 87.4  |
| Tobacco, „             | 105.0   | 72.7    | 69.8    | 79.8  | 76.0  | 69.7  | 64.4  | 64.4  | 64.5  | 65.0  |
| Wheat, „               | 11.5    | 11.5    | 8.6     | 8.9   | 7.7   | 6.4   | 5.4   | 5.5   | 6.2   | 7.5   |
| Wine, gallon, d.       | 67.0    | 89.0    | 85.0    | 85.0  | 84.0  | 87.0  | 84.0  | 82.0  | 85.0  | 88.0  |
| Wood, load, s.         | 63.5    | 55.6    | 36.2    | 30.0  | 30.0  | 28.0  | 26.8  | 27.2  | 28.4  | 28.8  |
| „ staves, s.           | 167.0   | 136.5   | 86.8    | 90.6  | 87.2  | 77.8  | 82.0  | 82.2  | 94.8  | 89.8  |
| Wool, ton, £           | 165.0   | 132.5   | 102.0   | 87.4  | 81.5  | 81.4  | 79.3  | 75.6  | 78.4  | 74.4  |
| Yeast, „               | 41.5    | 50.5    | 54.3    | 53.4  | 52.0  | 52.0  | 51.4  | 51.0  | 49.6  | 48.4  |

The prices of British exports from 1871 to 1897 were as follows :—

|                          | 1871-80 | 1881-90 | 1891 | 1892 | 1893 | 1894 | 1895 | 1896 | 1897 |
|--------------------------|---------|---------|------|------|------|------|------|------|------|
| Alkali, ton, s.          | 175     | 118     | 150  | 144  | 127  | 109  | 100  | 103  | 103  |
| Bags, gross, s.          | 84      | 57      | 54   | 54   | 54   | 49   | 48   | 48   | 50   |
| Beer, barrel, s.         | 83      | 78      | 73   | 73   | 73   | 71   | 70   | 69   | 69   |
| Books, ton, £            | 211     | 183     | 160  | 155  | 154  | 145  | 136  | 133  | 128  |
| Boots, doz. pairs, s.    | 62      | 58      | 54   | 52   | 49   | 48   | 47   | 48   | 49   |
| Brass, ton, £            | 100     | 86      | 91   | 84   | 80   | 75   | 78   | 82   | 87   |
| Butter, "                | 124     | 124     | 116  | 117  | 117  | 115  | 110  | 110  | 104  |
| Carpet, doz. yards, s.   | 34      | 26      | 25   | 24   | 25   | 24   | 25   | 25   | 25   |
| Cement, ton, s.          | 52      | 43      | 40   | 37   | 34   | 33   | 32   | 33   | 33   |
| Cheese, ton, £           | 83      | 81      | 78   | 78   | 81   | 78   | 73   | 72   | 74   |
| Cloth, doz. yards, s.    | 37      | 38      | 40   | 39   | 40   | 39   | 36   | 36   | 30   |
| Coal, ton, d.            | 144     | 112     | 146  | 132  | 119  | 126  | 112  | 106  | 108  |
| Copper bar, ton, £       | 80      | 58      | 56   | 49   | 48   | 44   | 46   | 49   | 51   |
| Cordage, "               | 54      | 47      | 46   | 42   | 42   | 39   | 37   | 38   | 37   |
| Cottons, 100 yards, d.   | 304     | 237     | 218  | 199  | 198  | 186  | 177  | 191  | 185  |
| " printed, 100 yards, d. | 446     | 334     | 288  | 275  | 277  | 263  | 253  | 258  | 260  |
| Firearms, each, s.       | 27      | 30      | 29   | 35   | 30   | 31   | 37   | 49   | 45   |
| Flannel, doz. yards, d.  | 220     | 151     | 102  | 101  | 100  | 98   | 93   | 93   | 96   |
| Flour, ton, s.           | 324     | 234     | 242  | 218  | 181  | 157  | 154  | 165  | 198  |
| Glass flint, ton, £      | 54      | 46      | 44   | 48   | 52   | 47   | 46   | 46   | 47   |
| " bottles, ton, s.       | 210     | 190     | 188  | 191  | 191  | 190  | 191  | 189  | 188  |
| Gunpowder, ton, £        | 57      | 57      | 55   | 57   | 56   | 54   | 50   | 53   | 51   |
| Hats, doz., s.           | 26      | 20      | 19   | 19   | 19   | 18   | 18   | 19   | 20   |
| Herrings, barrel, s.     | 29      | 26      | 26   | 22   | 22   | 21   | 23   | 19   | 24   |
| Horses, each, £          | 64      | 60      | 47   | 50   | 40   | 27   | 26   | 23   | 24   |
| Iron bar, ton, s.        | 185     | 128     | 135  | 132  | 125  | 128  | 119  | 123  | 130  |
| " cast, "                | 324     | 243     | 251  | 263  | 262  | 252  | 252  | 249  | 250  |
| " galvanised, "          | 442     | 280     | 282  | 264  | 245  | 230  | 221  | 233  | 225  |
| " hoop, "                | 206     | 140     | 146  | 144  | 138  | 134  | 127  | 132  | 138  |
| " old, "                 | 98      | 64      | 64   | 62   | 56   | 53   | 52   | 53   | 54   |
| " plates, "              | 274     | 188     | 168  | 203  | 194  | 183  | 171  | 149  | 165  |
| " pig, "                 | 74      | 49      | 53   | 52   | 47   | 46   | 48   | 48   | 48   |
| " rail, "                | 185     | 110     | 101  | 88   | 83   | 79   | 77   | 89   | 92   |
| " wire, "                | 346     | 285     | 339  | 335  | 350  | 358  | 337  | 322  | 337  |
| Jute, 100 yards, d.      | 348     | 239     | 214  | 231  | 213  | 211  | 204  | 212  | 216  |
| Lead, ton, s.            | 410     | 284     | 283  | 244  | 226  | 220  | 237  | 254  | 267  |
| Leather, ton, £          | 164     | 179     | 183  | 190  | 189  | 181  | 179  | 185  | 176  |
| Linen, 100 yards, s.     | 61      | 52      | 45   | 44   | 45   | 43   | 39   | 42   | 41   |
| " printed, 100 yards, s. | 64      | 57      | 51   | 50   | 43   | 45   | 39   | 44   | 42   |
| Oil-seed, ton, s.        | 518     | 423     | 416  | 393  | 435  | 419  | 403  | 373  | 340  |
| Paper, ton, £            | 57      | 38      | 34   | 33   | 31   | 31   | 31   | 30   | 30   |
| Sailcloth, 100 yards, s. | 113     | 94      | 89   | 92   | 89   | 90   | 86   | 84   | 86   |
| Salt, ton, d.            | 156     | 162     | 213  | 198  | 190  | 188  | 177  | 171  | 168  |
| Silks, doz. yards, s.    | 39      | 41      | 28   | 26   | 25   | 24   | 24   | 23   | 23   |
| Soap, ton, s.            | 25      | 22      | 22   | 22   | 21   | 22   | 21   | 21   | 21   |
| Spirits, gallon, d.      | 49      | 77      | 80   | 84   | 86   | 90   | 92   | 92   | 95   |
| Steel bars, ton, s.      | 662     | 420     | 321  | 327  | 283  | 272  | 274  | 250  | 250  |
| Sugar, ton, s.           | 540     | 353     | 288  | 303  | 322  | 281  | 238  | 240  | 218  |
| Thread, doz. lbs., s.    | 40      | 37      | 43   | 43   | 42   | 41   | 32   | 30   | 30   |
| Tin, ton, £              | 100     | 100     | 95   | 96   | 90   | 74   | 68   | 64   | 65   |
| Tin plates, ton, s.      | 487     | 308     | 320  | 270  | 263  | 245  | 238  | 227  | 224  |
| Wheat, "                 | 237     | 176     | 188  | 167  | 139  | 139  | 151  | 165  | 165  |
| Wool, ton, £             | 175     | 108     | 94   | 85   | 88   | 85   | 88   | 88   | 86   |
| Yarn, cotton, ton, £     | 140     | 108     | 98   | 88   | 95   | 85   | 79   | 88   | 84   |
| " jute, "                | 35      | 25      | 23   | 25   | 23   | 24   | 23   | 23   | 23   |
| " linen, "               | 148     | 131     | 136  | 129  | 138  | 136  | 127  | 126  | 119  |
| " woollen, "             | 313     | 224     | 212  | 203  | 203  | 199  | 197  | 204  | 190  |
| Zinc, ton, s.            | 410     | 298     | 421  | 365  | 326  | 276  | 264  | 284  | 314  |

## ITALY

The prices of food were as follows :—

| Period  | Per Ton, Shillings |       |      | Per Ton, £ |      |     |
|---------|--------------------|-------|------|------------|------|-----|
|         | Wheat              | Maize | Rice | Beef       | Wine | Oil |
| 1866-75 | 275                | 148   | 275  | 52         | 17   | 45  |
| 1876-85 | 244                | 159   | 280  | 55         | 21   | 46  |
| 1886-90 | 187                | 125   | 254  | 57         | 21   | 44  |
| 1891    | 208                | 139   | 295  | 60         | 23   | 44  |
| 1892    | 202                | 132   | 265  | 60         | 16   | 45  |
| 1893    | 176                | 112   | 229  | 60         | 14   | 45  |
| 1894    | 158                | 104   | 219  | 60         | 15   | 44  |
| 1895    | 170                | 143   | 226  | 64         | 17   | 44  |
| 1896    | 185                | 121   | 238  | 68         | 19   | 36  |

## UNITED STATES

Prices have been as follows :—

|                   | 1874 to 1883 | 1884 to 1893 | 1894 | 1895 | 1896 | 1897 |
|-------------------|--------------|--------------|------|------|------|------|
| Bacon, ton, £     | 44           | 39           | 44   | 41   | 39   | 35   |
| Barley, ton, s.   | 115          | 86           | 74   | 56   | 54   | ...  |
| Beef, ton, £      | 36           | 28           | 27   | 27   | 26   | 24   |
| Buckwht., ton, s. | 118          | 96           | 92   | 75   | 65   | ...  |
| Butter, ton, £    | 93           | 77           | 81   | 76   | 71   | 67   |
| Cheese, "         | 53           | 43           | 45   | 42   | 39   | 42   |
| Coal, ton, d.     | 178          | 128          | 112  | 100  | 114  | 90   |
| Coffee, ton, £    | 73           | 69           | 77   | 73   | 57   | 46   |
| Cotton, "         | 56           | 45           | 36   | 27   | 38   | 34   |
| Cows, each, s.    | 110          | 103          | 91   | 92   | 94   | 96   |

|                     | 1874<br>to<br>1883 | 1884<br>to<br>1893 | 1894 | 1895 | 1896 | 1897 |
|---------------------|--------------------|--------------------|------|------|------|------|
| Eggs (120), d.      | 105                | 90                 | 84   | 84   | 74   | 69   |
| Flax, ton, £        | 60                 | 57                 | 64   | 59   | 48   | 43   |
| Flour, barrel, s.   | 25                 | 20                 | 17   | 14   | 15   | 16   |
| Glass, ton, £       | 290                | 230                | 187  | 187  | 187  | 196  |
| Hemp, ton, £        | 29                 | 31                 | 31   | 26   | 26   | 26   |
| Horses, each, s.    | 255                | 291                | 200  | 151  | 138  | 131  |
| Ind.-rub., ton, £   | 270                | 211                | 207  | 210  | 211  | 228  |
| Iron bar, ton, s.   | 231                | 181                | 125  | 134  | 131  | 122  |
| " nails, "          | 296                | 192                | 102  | 137  | 217  | 137  |
| " pig, "            | 100                | 75                 | 52   | 54   | 54   | 50   |
| " rails, "          | 183                | 129                | 100  | 101  | 116  | 81   |
| Lard, ton, £        | 49                 | 37                 | 42   | 36   | 31   | 24   |
| Leather, "          | 107                | 82                 | 70   | 78   | 84   | 80   |
| Maize, ton, s.      | 74                 | 63                 | 76   | 44   | 36   | 43   |
| Mules, each, s.     | 110                | 103                | 90   | 91   | 94   | 96   |
| Oats, ton, s.       | 61                 | 50                 | 54   | 33   | 31   | ...  |
| Petrol, bri., d.    | 273                | 160                | 88   | 103  | 143  | 132  |
| Pigs, each, s.      | 22                 | 20                 | 25   | 21   | 18   | 17   |
| Pork, ton, £        | 39                 | 33                 | 37   | 33   | 27   | 23   |
| Rye, ton, s.        | 116                | 91                 | 83   | 73   | 68   | ...  |
| Sheep, each, d.     | 120                | 113                | 99   | 79   | 85   | 91   |
| Silk, lb., d.       | 222                | 190                | 158  | 138  | 164  | 142  |
| Steel, ton, s.      | 239                | 129                | 100  | 101  | 116  | 81   |
| Sugar, ref., ton, £ | 47                 | 29                 | 21   | 22   | 23   | 22   |
| Tallow, "           | 34                 | 23                 | 22   | 20   | 16   | 16   |
| Tea, "              | 117                | 81                 | 71   | 64   | 64   | 62   |
| Tin, "              | 93                 | 98                 | 73   | 66   | 63   | 60   |
| Tobacco, "          | 42                 | 42                 | 40   | 41   | 40   | 37   |
| Wheat, ton, s.      | 164                | 121                | 81   | 84   | 121  | 129  |
| Wine, gallon, d.    | 30                 | 35                 | 35   | 35   | 34   | 47   |
| Wool, ton, £        | 126                | 109                | 121  | 93   | 103  | 103  |

The price-level of the United States has been as follows:—

|          |       |
|----------|-------|
| 1874-83. | 1,000 |
| 1884-93. | 796   |
| 1894-95. | 650   |
| 1896-97. | 638   |

This shows a fall of 36 per cent. since the decade ending 1883.

## PRICE-LEVEL

Sauerbeck's Index-numbers convey an accurate idea of the rise or fall of level of prices in England, viz.:—

| Period   | Food | Minerals | Textiles | Sundries | Gen. No. |
|----------|------|----------|----------|----------|----------|
| 1867-77. | 100  | 100      | 100      | 100      | 100      |
| 1878-88. | 83   | 73       | 71       | 80       | 79       |
| 1889.    | 75   | 75       | 70       | 68       | 72       |
| 1890.    | 73   | 80       | 66       | 69       | 72       |
| 1891.    | 77   | 76       | 59       | 69       | 72       |
| 1892.    | 73   | 71       | 57       | 67       | 68       |
| 1893.    | 72   | 68       | 59       | 68       | 68       |
| 1894.    | 66   | 64       | 53       | 64       | 63       |
| 1895.    | 64   | 62       | 52       | 65       | 62       |
| 1896.    | 62   | 63       | 54       | 63       | 61       |
| 1897.    | 65   | 66       | 51       | 62       | 62       |

The above may be inverted by taking 1897 as par, thus:—

| Period   | Food | Minerals | Textiles | Sundries | Gen. No. |
|----------|------|----------|----------|----------|----------|
| 1897.    | 100  | 100      | 100      | 100      | 100      |
| 1896.    | 95   | 95       | 106      | 102      | 98       |
| 1895.    | 98   | 94       | 102      | 105      | 100      |
| 1894.    | 102  | 97       | 104      | 103      | 102      |
| 1893.    | 111  | 103      | 116      | 110      | 110      |
| 1892.    | 112  | 108      | 112      | 108      | 110      |
| 1891.    | 118  | 115      | 116      | 111      | 116      |
| 1890.    | 112  | 121      | 130      | 111      | 116      |
| 1889.    | 115  | 114      | 138      | 110      | 116      |
| 1878-88. | 128  | 110      | 140      | 129      | 127      |
| 1867-77. | 154  | 151      | 196      | 161      | 161      |

It appears from the above that £100 now will buy as much merchandise as £127 in the period of eleven years ending 1888, or £161 in that ending 1877.

## PUBLIC WORKS

The amount outstanding of loans by the Treasury for public works in the United Kingdom in 1897 was £38,400,000, against £37,200,000 in 1887. See page 494.

## R

## RAILWAYS

The mileage and cost of construction of existing lines (1897) are as follows:—

|                | Length, Miles | Cost, Millions £ | £ per Mile | £ per Inhab. | Miles of Raily. to |              |
|----------------|---------------|------------------|------------|--------------|--------------------|--------------|
|                |               |                  |            |              | 1,000 Sq. Miles    | 100,000 Pop. |
| England . . .  | 14,710        | 843              | 57,300     | 27.2         | 253                | 47           |
| Scotland . . . | 3,390         | 147              | 43,300     | 34.2         | 113                | 80           |
| Ireland . . .  | 3,180         | 40               | 12,600     | 8.8          | 99                 | 71           |
| U. Kingdom . . | 21,280        | 1,030            | 48,400     | 25.8         | 177                | 53           |
| France . . .   | 26,020        | 661              | 27,600     | 17.2         | 130                | 67           |
| Germany . . .  | 28,880        | 574              | 19,900     | 11.0         | 135                | 55           |
| Russia . . .   | 27,270        | 403              | 14,800     | 3.6          | 12                 | 25           |
| Austria . . .  | 19,100        | 367              | 19,200     | 8.5          | 71                 | 44           |
| Italy . . .    | 9,580         | 201              | 20,800     | 6.4          | 84                 | 32           |
| Spain . . .    | 7,630         | 122              | 16,000     | 7.0          | 42                 | 42           |
| Portugal . . . | 1,450         | 23               | 16,000     | 4.8          | 40                 | 30           |
| Sweden . . .   | 6,150         | 35               | 5,700      | 7.2          | 36                 | 124          |
| Norway . . .   | 1,090         | 8                | 7,000      | 4.0          | 9                  | 50           |
| Denmark . . .  | 1,430         | 15               | 10,500     | 7.0          | 95                 | 65           |
| Holland . . .  | 1,700         | 38               | 22,500     | 7.7          | 80                 | 34           |
| Belgium . . .  | 2,840         | 76               | 26,700     | 12.2         | 260                | 45           |

|                  | Length, Miles | Cost, Millions £ | £ per Mile | £ per Inhab. | Miles of Raily. to |              |
|------------------|---------------|------------------|------------|--------------|--------------------|--------------|
|                  |               |                  |            |              | 1,000 Sq. Miles    | 100,000 Pop. |
| Switzerland . .  | 2,350         | 45               | 19,200     | 15.0         | 150                | 80           |
| Roumania . . .   | 1,830         | 30               | 16,000     | 5.2          | 38                 | 33           |
| Servia . . .     | 350           | 4                | 12,500     | 1.6          | 16                 | 26           |
| Bulgaria . . .   | 600           | 7                | 12,000     | 2.2          | 15                 | 18           |
| Greece . . .     | 590           | 10               | 16,500     | 4.2          | 30                 | 27           |
| Turkey . . .     | 1,060         | 18               | 17,000     | 3.2          | 15                 | 22           |
| Europe . . .     | 161,200       | 3,667            | 22,800     | 9.7          | 40                 | 44           |
| United States .  | 182,600       | 2,355            | 12,900     | 33.6         | 61                 | 250          |
| Canada . . .     | 16,960        | 186              | 11,000     | 37.0         | 5                  | 340          |
| Mexico . . .     | 7,380         | 92               | 12,000     | 7.6          | 10                 | 60           |
| W. Indies . . .  | 1,470         | 15               | 10,000     | 3.8          | 13                 | 36           |
| Cent. America .  | 600           | 6                | 10,000     | 2.4          | 4                  | 20           |
| Venezuela, &c. . | 860           | 9                | 10,000     | 1.4          | 7                  | 11           |
| Peru . . .       | 920           | 37               | 40,000     | 13.0         | 2                  | 31           |
| Chile . . .      | 2,500         | 23               | 9,200      | 8.5          | 10                 | 83           |
| Argentina . . .  | 9,000         | 102              | 11,300     | 25.5         | 8                  | 225          |
| Brazil . . .     | 8,090         | 72               | 8,900      | 6.0          | 3                  | 50           |
| Uruguay, &c. .   | 1,680         | 17               | 10,000     | 4.0          | 3                  | 55           |
| America . . .    | 232,060       | 2,914            | 12,500     | 24.0         | 18                 | 180          |



|                    | Length, Miles | Cost, Millions £ | £ per Mile | £ per Inhab. | Miles of Rail, to |              |
|--------------------|---------------|------------------|------------|--------------|-------------------|--------------|
|                    |               |                  |            |              | 1000 Sq. Miles    | 100,000 Pop. |
| E. Indies. . . .   | 22,170        | 223              | 10,100     | 7.0          | 22                | 10           |
| Japan . . . . .    | 2,500         | 30               | 12,000     | 7.5          | 16                | 6            |
| Asia Minor . . .   | 1,480         | 22               | 15,000     | 2.2          | 7                 | 15           |
| Asia . . . . .     | 26,150        | 275              | 10,500     | 0.5          | 2                 | 4            |
| Egypt . . . . .    | 1,220         | 18               | 15,700     | 2.0          | 2                 | 12           |
| Algeria, &c. . . . | 3,290         | 44               | 13,400     | 6.0          | 10                | 55           |
| Transvaal . . . .  | 720           | 7                | 10,000     | 28.0         | 6                 | 144          |
| Cape Col., &c. . . | 3,350         | 34               | 10,200     | 11.0         | ...               | ...          |
| Africa . . . . .   | 8,580         | 103              | 12,100     | 2.0          | 1                 | 7            |
| Australia . . . .  | 14,210        | 145              | 10,200     | 36.0         | 5                 | 355          |
| The World . . . .  | 442,200       | 7,104            | 16,100     | 6.0          | 10                | 32           |

In 1891, says the *Eisenbahnwesen*, 117,000 locomotives in the various countries ran 2325 millions of miles, or 25 times the distance of the earth from the sun, being an average of 6,600,000 miles daily.

The traffic, earnings, and expenses may be summed up thus:—

|                       | Millions   |            | Millions £ Sterling |          |
|-----------------------|------------|------------|---------------------|----------|
|                       | Passengers | Goods Tons | Receipts            | Expenses |
| England . . . . .     | 860        | 300        | 76.6                | 43.2     |
| Scotland . . . . .    | 94         | 52         | 10.1                | 5.1      |
| Ireland . . . . .     | 26         | 5          | 3.5                 | 1.9      |
| U. Kingdom . . . .    | 980        | 357        | 90.2                | 50.2     |
| France . . . . .      | 349        | 101        | 50.5                | 27.4     |
| Germany . . . . .     | 592        | 248        | 75.2                | 42.8     |
| Russia . . . . .      | 52         | 91         | 41.4                | 26.2     |
| Austria . . . . .     | 202        | 118        | 29.2                | 16.7     |
| Italy . . . . .       | 49         | 17         | 10.3                | 7.2      |
| Scandinavia . . . .   | 40         | 22         | 5.1                 | 3.3      |
| Holland . . . . .     | 25         | 10         | 3.0                 | 2.5      |
| Belgium . . . . .     | 100        | 55         | 7.9                 | 4.4      |
| Switzerland . . . .   | 43         | 12         | 4.5                 | 2.6      |
| Various . . . . .     | 28         | 12         | 10.7                | 5.7      |
| Europe . . . . .      | 2,460      | 1,043      | 328.0               | 189.0    |
| United States . . . . | 535        | 774        | 234.2               | 165.0    |
| Canada . . . . .      | 15         | 24         | 10.4                | 7.1      |
| Argentina . . . . .   | 15         | 8          | 6.2                 | 3.2      |
| Brazil, &c. . . . .   | 45         | 14         | 10.2                | 6.7      |
| America . . . . .     | 610        | 820        | 261.0               | 182.0    |
| India . . . . .       | 161        | 32         | 16.9                | 8.1      |
| Japan, &c. . . . .    | 65         | 6          | 5.1                 | 2.9      |
| Asia . . . . .        | 226        | 38         | 22.0                | 11.0     |
| Egypt . . . . .       | 10         | 3          | 1.8                 | 0.8      |
| Cape Colony . . . .   | 9          | 2          | 4.1                 | 1.9      |
| Algeria, &c. . . . .  | 5          | 2          | 3.4                 | 2.0      |
| Africa . . . . .      | 24         | 7          | 9.3                 | 4.7      |
| Australia . . . . .   | 60         | 12         | 10.7                | 6.3      |
| The World . . . . .   | 3,380      | 1,920      | 631.0               | 393.0    |

|                       | Averages Per Mile |          |          |                  |
|-----------------------|-------------------|----------|----------|------------------|
|                       | Receipts £        | Expen. £ | Profit £ | P. Cent. on Cap. |
| England . . . . .     | 5,210             | 2,930    | 2,280    | 3.96             |
| Scotland . . . . .    | 2,960             | 1,510    | 1,450    | 3.36             |
| Ireland . . . . .     | 1,090             | 600      | 490      | 3.90             |
| United Kingdom . .    | 4,230             | 2,360    | 1,870    | 3.87             |
| France . . . . .      | 2,245             | 1,215    | 1,030    | 3.50             |
| Germany . . . . .     | 2,600             | 1,480    | 1,120    | 5.64             |
| Russia . . . . .      | 1,520             | 960      | 560      | 3.72             |
| Austria . . . . .     | 1,570             | 900      | 670      | 3.42             |
| Italy . . . . .       | 1,240             | 870      | 370      | 1.80             |
| Sweden . . . . .      | 530               | 320      | 210      | 3.70             |
| Norway . . . . .      | 550               | 370      | 180      | 2.50             |
| Denmark . . . . .     | 840               | 630      | 210      | 2.00             |
| Holland . . . . .     | 1,760             | 1,470    | 290      | 1.30             |
| Belgium . . . . .     | 2,780             | 1,550    | 1,230    | 4.60             |
| Switzerland . . . .   | 1,920             | 1,110    | 810      | 4.22             |
| Europe . . . . .      | 2,040             | 1,170    | 870      | 3.80             |
| United States . . . . | 1,280             | 904      | 376      | 2.91             |
| Canada . . . . .      | 620               | 430      | 190      | 1.72             |
| Argentina . . . . .   | 690               | 360      | 330      | 2.95             |
| India . . . . .       | 830               | 400      | 430      | 4.30             |
| Japan . . . . .       | 1,480             | 640      | 840      | 7.00             |
| Egypt . . . . .       | 1,575             | 700      | 875      | 5.50             |
| Cape Colony . . . .   | 1,600             | 760      | 840      | 9.20             |
| Australia . . . . .   | 750               | 440      | 310      | 2.95             |
| The World . . . . .   | 1,430             | 890      | 540      | 3.35             |

Juraschek's summary of the railways of the world is as follows:—

|                     | Miles   |         | Cost Millions £ |       | £ Per Mile |        |
|---------------------|---------|---------|-----------------|-------|------------|--------|
|                     | 1880    | 1892    | 1880            | 1892  | 1880       | 1892   |
| Europe . . . . .    | 104,800 | 145,200 | 2,585           | 3,634 | 24,700     | 25,000 |
| America . . . . .   | 107,000 | 220,800 | 1,350           | 2,815 | 12,600     | 12,800 |
| Asia . . . . .      | 9,900   | 24,000  | 154             | 290   | 15,500     | 12,100 |
| Africa . . . . .    | 2,900   | 7,300   | 44              | 79    | 15,200     | 10,800 |
| Australia . . . . . | 4,700   | 12,800  | 58              | 128   | 12,300     | 10,000 |
| The World . . . . . | 229,300 | 410,100 | 4,191           | 6,936 | 18,200     | 16,900 |

The rolling-stock and traffic in 1892 were as follows:—

|                     | Number of |           |           | Millions of |            |
|---------------------|-----------|-----------|-----------|-------------|------------|
|                     | Engines   | Carriages | Trucks    | Passengers  | Goods Tons |
| U. Kingdom . . . .  | 17,440    | 40,100    | 602,800   | 864         | 315        |
| France . . . . .    | 10,070    | 24,700    | 267,800   | 305         | 106        |
| Germany . . . . .   | 15,740    | 29,600    | 313,800   | 501         | 237        |
| Russia . . . . .    | 7,160     | 8,200     | 151,200   | 50          | 72         |
| Austria . . . . .   | 5,750     | 11,700    | 133,700   | 130         | 110        |
| Italy . . . . .     | 2,760     | 8,200     | 48,100    | 51          | 17         |
| Spain . . . . .     | 1,660     | 4,700     | 32,000    | 25          | 11         |
| Portugal . . . . .  | 390       | 1,100     | 7,500     | 53          | 17         |
| Scandinavia . . . . | 1,350     | 3,300     | 29,500    | 29          | 14         |
| Holland . . . . .   | 780       | 2,000     | 10,100    | 22          | 8          |
| Belgium . . . . .   | 2,650     | 4,400     | 57,500    | 88          | 37         |
| Switzerland . . . . | 870       | 2,300     | 10,600    | 37          | 10         |
| Roumania, &c. . . . | 2,960     | 6,100     | 73,300    | 91          | 41         |
| Europe . . . . .    | 69,580    | 146,400   | 1,737,900 | 2,246       | 995        |
| U. States . . . . . | 35,280    | 24,900    | 1,177,000 | 576         | 761        |
| Canada . . . . .    | 1,950     | 1,800     | 55,500    | 14          | 22         |
| Argentina . . . . . | 880       | 1,300     | 24,900    | 10          | 2          |
| Brazil . . . . .    | 230       | 300       | 2,700     | 11          | 1          |
| Chile, &c. . . . .  | 5,190     | 3,800     | 170,400   | 83          | 106        |
| America . . . . .   | 43,530    | 32,100    | 1,430,500 | 694         | 892        |

|                 | Number of |           |           | Millions of |            |
|-----------------|-----------|-----------|-----------|-------------|------------|
|                 | Engines   | Carriages | Trucks    | Passengers  | Goods Tons |
| India . . .     | 3,760     | 10,600    | 71,900    | 127         | 27         |
| Japan . . .     | 320       | 1,400     | 4,600     | 27          | 4          |
| Java . . .      | 180       | 500       | 2,100     | 10          | 1          |
| Various . . .   | 910       | 2,700     | 16,800    | 25          | 5          |
| Asia . . .      | 5,170     | 15,200    | 95,400    | 189         | 37         |
| Egypt . . .     | 250       | 500       | 4,300     | 5           | 2          |
| Algeria . . .   | 300       | 700       | 6,300     | 3           | 2          |
| S. Africa, &c.  | 830       | 1,800     | 15,800    | 12          | 5          |
| Africa . . .    | 1,380     | 3,000     | 26,400    | 20          | 9          |
| Australia . . . | 2,010     | 3,700     | 41,800    | 97          | 12         |
| The World . . . | 121,670   | 200,400   | 3,332,000 | 3,246       | 1,945      |

The following table shows the State lines, distinct from those held by Companies, in 1898 :—

|                       | Miles   |           |         |
|-----------------------|---------|-----------|---------|
|                       | State   | Companies | Total   |
| United Kingdom . . .  | ...     | 21,280    | 21,280  |
| France . . .          | 1,700   | 24,320    | 26,020  |
| Germany . . .         | 26,240  | 2,640     | 28,880  |
| Russia . . .          | 19,180  | 8,090     | 27,270  |
| Austria . . .         | 12,830  | 6,270     | 19,100  |
| Italy* . . .          | ...     | 9,580     | 9,580   |
| Spain . . .           | ...     | 7,630     | 7,630   |
| Portugal . . .        | 910     | 540       | 1,450   |
| Sweden . . .          | 2,280   | 3,870     | 6,150   |
| Norway . . .          | 1,020   | 70        | 1,090   |
| Denmark . . .         | 1,070   | 360       | 1,430   |
| Holland . . .         | 900     | 800       | 1,700   |
| Belgium . . .         | 2,040   | 800       | 2,840   |
| Switzerland . . .     | 2,350   | ...       | 2,350   |
| Danubian States . . . | 2,780   | ...       | 2,780   |
| Greece . . .          | ...     | 590       | 590     |
| Turkey . . .          | ...     | 1,060     | 1,060   |
| Europe . . .          | 73,300  | 87,900    | 161,200 |
| United States . . .   | ...     | 182,600   | 182,600 |
| Canada . . .          | 1,350   | 15,610    | 16,960  |
| Spanish America . . . | 1,400   | 31,100    | 32,500  |
| America . . .         | 2,750   | 229,310   | 232,060 |
| India* . . .          | 6,150   | 14,240    | 20,390  |
| Japan . . .           | 630     | 1,870     | 2,500   |
| Egypt . . .           | 1,150   | 70        | 1,220   |
| Cape Colony . . .     | 2,250   | 250       | 2,500   |
| Natal . . .           | 400     | ...       | 400     |
| Australia . . .       | 13,570  | 640       | 14,210  |
| Various . . .         | 1,150   | 6,570     | 7,720   |
| The World . . .       | 101,350 | 340,850   | 442,200 |

Working expenses compared with earnings show the following percentages :—

|                     |                    |                    |
|---------------------|--------------------|--------------------|
| England . . . 56.2  | Germany . . . 56.9 | Sweden . . . 60.4  |
| Scotland . . . 51.0 | Russia . . . 63.2  | Norway . . . 67.3  |
| Ireland . . . 55.0  | Austria . . . 57.3 | Denmark . . . 75.0 |
| France . . . 54.1   | Italy . . . 70.0   | Holland . . . 83.5 |

\* There are in Italy 5400 miles of railways built by the State, but leased to joint-stock companies for 60 years; also 11,130 miles of State lines in India leased to similar companies.

|                        |                      |                      |
|------------------------|----------------------|----------------------|
| Belgium . . . 55.8     | Canada . . . 69.4    | Egypt . . . 44.4     |
| Switzerland . . . 57.8 | Argentina . . . 52.2 | Cape Colony 47.5     |
| Europe . . . 57.3      | India . . . 48.2     | Australia . . . 51.7 |
| United States 70.6     | Japan . . . 43.2     | The World . 62.0     |

The following table shows the proportion of passengers in each class, and the average number of miles to each traveller (in 1892).

|                     | In 1000 Passengers |           |           | Miles per Traveller |
|---------------------|--------------------|-----------|-----------|---------------------|
|                     | 1st Class          | 2nd Class | 3rd Class |                     |
| Great Britain . . . | 35                 | 72        | 893       | ...                 |
| France . . .        | 68                 | 273       | 659       | 21                  |
| Germany . . .       | 5                  | 102       | 893       | 15                  |
| Russia . . .        | 12                 | 62        | 926       | 65                  |
| Austria . . .       | 16                 | 135       | 849       | 20                  |
| Italy . . .         | 42                 | 249       | 709       | 28                  |
| Holland . . .       | 52                 | 207       | 741       | 16                  |
| Belgium . . .       | 35                 | 125       | 840       | 13                  |
| Switzerland . . .   | 15                 | 182       | 803       | 12                  |
| Roumania . . .      | 39                 | 156       | 805       | 42                  |
| Average . . .       | 32                 | 156       | 812       | 25                  |

The fare by ordinary train for a run of 10 miles is as follows :—

|                         | Pence per 10 Miles |           |           |
|-------------------------|--------------------|-----------|-----------|
|                         | 1st Class          | 2nd Class | 3rd Class |
| Great Britain . . . . . | 14.7               | 12.3      | 10.0      |
| France . . . . .        | 17.0               | 11.6      | 7.5       |
| Germany . . . . .       | 15.2               | 11.4      | 7.6       |
| Russia . . . . .        | 8.7                | 4.1       | 2.7       |
| Austria . . . . .       | 15.7               | 11.7      | 7.9       |
| Hungary . . . . .       | 18.2               | 13.7      | 9.1       |
| Italy . . . . .         | 17.1               | 12.0      | 7.7       |
| Switzerland . . . . .   | 15.8               | 11.0      | 7.9       |
| Holland . . . . .       | 10.1               | 12.9      | 8.0       |
| Belgium . . . . .       | 11.6               | 8.7       | 5.8       |
| Average . . . . .       | 15.0               | 11.0      | 7.5       |

Freight charge for carrying a ton 100 miles is as follows (1895):—

#### Pence per 100 Miles

|                   |                  |                  |
|-------------------|------------------|------------------|
| Great Britain 174 | France . . . 72  | Belgium . . . 68 |
| Ireland . . . 232 | Germany . . . 64 | Holland . . . 80 |
| United States 41  | Switzerland 140  | Italy . . . 160  |

The *Engineer* of January 1896 gives the maximum speed of trains as follows :—

#### Miles per Hour

|                  |                  |                  |
|------------------|------------------|------------------|
| United States 53 | France . . . 49  | Italy . . . 42   |
| Great Britain 51 | Belgium . . . 45 | Austria . . . 41 |
| Germany . . . 51 | Holland . . . 44 |                  |

The following are the quickest trains in Great Britain and United States :—

| Run                             | Miles | Hrs. Min. | Miles per Hour |
|---------------------------------|-------|-----------|----------------|
| Perth to Forfar . . . . .       | 32    | 0 32      | 60             |
| Grantham to York . . . . .      | 83    | 1 28      | 56             |
| Swindon to London . . . . .     | 77    | 1 27      | 54             |
| Carlisle to Aberdeen . . . . .  | 240   | 4 58      | 48             |
| Philadelphia to Atlantic City   | 56    | 0 48      | 69             |
| Syracuse to Rochester . . . . . | 80    | 1 20      | 60             |
| New York to Buffalo . . . . .   | 440   | 8 15      | 52             |

Gross receipts per train mile run, and expenses, are shown thus :—

|                     | Pence per Mile Run |          |        |
|---------------------|--------------------|----------|--------|
|                     | Receipts           | Expenses | Profit |
| United Kingdom . .  | 67                 | 37       | 30     |
| France . . . . .    | 52                 | 28       | 24     |
| Germany . . . . .   | 43                 | 25       | 18     |
| Russia . . . . .    | 56                 | 35       | 21     |
| Austria . . . . .   | 62                 | 36       | 26     |
| Italy . . . . .     | 52                 | 36       | 16     |
| Belgium . . . . .   | 34                 | 19       | 15     |
| Canada . . . . .    | 57                 | 40       | 17     |
| Australia . . . . . | 77                 | 45       | 32     |

## UNITED KINGDOM

Traffic of passengers and merchandise increased in 10 years as follows :—

|                    | Passengers, Mills. |      | Tons, Millions |      |
|--------------------|--------------------|------|----------------|------|
|                    | 1886               | 1896 | 1886           | 1896 |
| England . . . . .  | 642                | 860  | 216            | 300  |
| Scotland . . . . . | 65                 | 94   | 35             | 52   |
| Ireland . . . . .  | 19                 | 27   | 4              | 5    |
| United Kingdom . . | 726                | 981  | 255            | 357  |

Passenger traffic does not include season-ticket holders. Passengers showed an increase of 35 per cent., goods 40 per cent., in 10 years. Receipts, expenses, and profit in 1896 were as follows :—

|                    | Receipts,<br>£ | Expenses,<br>£ | Profit,<br>£ | Interest<br>on Cost |
|--------------------|----------------|----------------|--------------|---------------------|
| England . . . . .  | 76,600,000     | 43,150,000     | 33,450,000   | 3.97                |
| Scotland . . . . . | 10,050,000     | 5,120,000      | 4,930,000    | 3.35                |
| Ireland . . . . .  | 3,470,000      | 1,920,000      | 1,550,000    | 3.92                |
| U. Kingdom . . . . | 90,120,000     | 50,190,000     | 39,930,000   | 3.87                |

Earnings and expenses per mile showed as follows :—

|                    | Earnings, £ |       | Expenses, £ |       |
|--------------------|-------------|-------|-------------|-------|
|                    | 1886        | 1896  | 1886        | 1896  |
| England . . . . .  | 4,137       | 4,909 | 2,280       | 2,935 |
| Scotland . . . . . | 2,407       | 2,853 | 1,248       | 1,510 |
| Ireland . . . . .  | 1,046       | 1,074 | 580         | 605   |
| United Kingdom . . | 3,446       | 4,009 | 1,888       | 2,358 |

In the above table miscellaneous receipts are not included in earnings, which comprise only passenger and goods traffic; gross receipts would be 5½ per cent. higher than the above traffic earnings per mile.

Accidents on railways in the United Kingdom show the number of victims thus :—

|                    | Killed |      |      |
|--------------------|--------|------|------|
|                    | 1876   | 1886 | 1896 |
| Passengers . . . . | 38     | 8    | 50   |
| Employees . . . .  | 673    | 425  | 447  |
| Total . . . . .    | 711    | 433  | 497  |

|                    | Injured |       |       |
|--------------------|---------|-------|-------|
|                    | 1876    | 1886  | 1896  |
| Passengers . . . . | 1,279   | 615   | 388   |
| Employees . . . .  | 2,600   | 2,070 | 3,986 |
| Total . . . . .    | 3,879   | 2,625 | 4,374 |
|                    | Total   |       |       |
|                    | 1876    | 1886  | 1896  |
| Passengers . . . . | 1,317   | 623   | 438   |
| Employees . . . .  | 3,273   | 2,435 | 4,433 |
| Total . . . . .    | 4,590   | 3,058 | 4,871 |

The number of killed and wounded, as compared with 1886, has increased by 1813, or about 60 per cent., whereas passenger traffic has risen only 21, and goods traffic 40, per cent. In fact 13 persons are killed or wounded on the railways of the United Kingdom against 8 persons in 1886. At Clapham Junction 700 trains pass daily.

## FRANCE

A statement published in 1895 showed passenger traffic thus :—

| Class            | Million Passengers |      |      |
|------------------|--------------------|------|------|
|                  | 1886               | 1892 | 1894 |
| First . . . . .  | 8                  | 15   | 19   |
| Second . . . . . | 26                 | 60   | 104  |
| Third . . . . .  | 52                 | 106  | 197  |
| Total . . . . .  | 86                 | 181  | 320  |

First-class passengers show a falling ratio, being now only 6 per cent. of the total.

## UNITED STATES

Mileage and capital have been as follows :—

|                | Miles   | Millions £ | £ per Mile |
|----------------|---------|------------|------------|
| 1876 . . . . . | 76,810  | 929        | 12,100     |
| 1886 . . . . . | 133,560 | 1,682      | 12,600     |
| 1896 . . . . . | 178,550 | 2,297      | 12,700     |

The length and cost of railways in the several parts of the Union in 1896 were as follows :—

| States            | Miles   | Miles per<br>10,000 Pop. | Capital<br>Mills. £ | £ per<br>Mile |
|-------------------|---------|--------------------------|---------------------|---------------|
| New England . .   | 7,130   | 14                       | 97                  | 13,600        |
| Middle . . . . .  | 21,500  | 14                       | 545                 | 25,300        |
| South . . . . .   | 45,650  | 22                       | 403                 | 8,830         |
| Prairie . . . . . | 81,230  | 31                       | 1,015               | 12,500        |
| Pacific . . . . . | 23,040  | 53                       | 237                 | 10,300        |
| Union . . . . .   | 178,550 | 25                       | 2,297               | 12,700        |

The number of passengers carried, and the equivalent carried 100 miles, were :—

| Year           | Passengers<br>Millions | Miles<br>Millions | Average<br>Miles | Passengers<br>Millions<br>Carried<br>100 Miles |
|----------------|------------------------|-------------------|------------------|------------------------------------------------|
| 1882 . . . . . | 375                    | 10,484            | 28               | 105                                            |
| 1890 . . . . . | 520                    | 12,522            | 24               | 125                                            |
| 1896 . . . . . | 535                    | 13,055            | 25               | 131                                            |

With increase of population the average distance travelled by each passenger diminishes, being now 25 miles, against 28 miles in the year 1882.

Goods traffic shows as follows :—

| Year       | Million Tons | Miles Millions | Average Miles | Mill. Tons Carried 100 Miles |
|------------|--------------|----------------|---------------|------------------------------|
| 1882 . . . | 360          | 39,308         | 109           | 393                          |
| 1890 . . . | 691          | 79,193         | 115           | 792                          |
| 1896 . . . | 774          | 93,886         | 121           | 939                          |

The opening up of the Western States by new railways causes the average haulage of goods to increase, each ton being now carried 121 miles, against 109 miles in 1882. The average distance that merchandise was carried in 1882 was four times that of a passenger, and at present it is five times. The total mileage of passenger traffic rose 25 per cent. in 14 years, that of goods traffic 140 per cent. The latter is stimulated by the reduction of freight charges, viz. :—

|            |                                |
|------------|--------------------------------|
| 1882 . . . | 18 24 cents per ton 100 miles. |
| 1890 . . . | 93 " " "                       |
| 1896 . . . | 82 " " "                       |

This charge is less than one-fourth of the charge in Great Britain, and little more than half what is customary on the Continent of Europe. It seems that American engines are heavier than British, going up to 400 tons : thus the Pennsylvanian lines carry 1600 tons coal in one train, whereas the Midland coal train of England rarely exceeds 400 tons.

Each passenger-engine draws 66,000 passengers, and each freight-engine 40,000 tons of goods, yearly. In 1893 there were 1890 different railway companies, employing 874,000 persons, of whom 2730 were killed and 31,730 injured, that is, 3 per thousand killed. Forty companies own half the railways of the Union.

The railways in 1896 compared with area and population thus :—

| States            | Miles of Railway to |                     |
|-------------------|---------------------|---------------------|
|                   | 1000 Square Miles   | 100,000 Inhabitants |
| New England . . . | 105                 | 145                 |
| Middle . . .      | 190                 | 145                 |
| South . . .       | 56                  | 230                 |
| Prairie . . .     | 108                 | 325                 |
| Pacific . . .     | 19                  | 540                 |
| The Union . . .   | 61                  | 250                 |

#### CANADA

The progress of Canadian lines is briefly shown thus :—

| Year       | Length Miles | Miles Run  | No. of Passengers | Tons of Goods |
|------------|--------------|------------|-------------------|---------------|
| 1876 . . . | 5,160        | 18,100,000 | 5,500,000         | 6,300,000     |
| 1886 . . . | 10,700       | 30,500,000 | 9,900,000         | 15,700,000    |
| 1896 . . . | 16,270       | 44,500,000 | 14,800,000        | 24,300,000    |

In twenty years passengers have almost trebled, goods quadrupled. The gross receipts and expenses were :—

| Year       | Receipts £ | Expenses £ | Profit £  | Interest on Cost |
|------------|------------|------------|-----------|------------------|
| 1876 . . . | 4,040,000  | 3,280,000  | 760,000   | 1.27             |
| 1886 . . . | 6,950,000  | 5,040,000  | 1,910,000 | 1.54             |
| 1896 . . . | 10,510,000 | 7,280,000  | 3,230,000 | 1.73             |

This shows a steady improvement in traffic, the average earnings and expenses per mile of rail showing thus :—

| Year       | Receipts £ | Expenses £ | Profit £ | Pence Profit per Mile Run |
|------------|------------|------------|----------|---------------------------|
| 1875 . . . | 839        | 680        | 159      | 10                        |
| 1886 . . . | 646        | 470        | 176      | 15                        |
| 1896 . . . | 646        | 448        | 198      | 17                        |

The length and cost of the principal lines are shown thus :—

|                        | Miles  | Cost, £     | £ per Mile |
|------------------------|--------|-------------|------------|
| Canadian Pacific . . . | 6,220  | 66,600,000  | 10,700     |
| Grand Trunk . . .      | 3,160  | 69,600,000  | 22,100     |
| Intercolonial . . .    | 1,360  | 12,300,000  | 9,050      |
| Other lines . . .      | 5,650  | 38,700,000  | 6,850      |
| Total . . .            | 16,390 | 187,200,000 | 11,400     |

The increase of railway capital in five years is shown thus :—

|                  | 1891 £ Sterling | 1896 £ Sterling | Increase, £ |
|------------------|-----------------|-----------------|-------------|
| Shares . . .     | 71,100,000      | 77,000,000      | 5,900,000   |
| Debentures . . . | 60,800,000      | 70,000,000      | 9,200,000   |
| Subsidies . . .  | 38,100,000      | 40,200,000      | 2,100,000   |
| Total . . .      | 170,000,000     | 187,200,000     | 17,200,000  |

The subsidy by the Dominion Government amounts to £31,000,000, and those from local legislatures to £9,200,000.

The traffic on the principal lines in 1896 was as follows :—

|                     | Passengers Number | Tons Goods | Per Mile   |       |
|---------------------|-------------------|------------|------------|-------|
|                     |                   |            | Passengers | Tons  |
| Grand Trunk . . .   | 5,080,000         | 7,590,000  | 1,610      | 2,410 |
| Can. Pacific . . .  | 3,040,000         | 4,580,000  | 488        | 738   |
| Intercolonial . . . | 1,590,000         | 1,430,000  | 1,170      | 1,090 |
| Other lines . . .   | 5,100,000         | 10,670,000 | 903        | 1,880 |
| Total . . .         | 14,810,000        | 24,270,000 | 910        | 1,490 |

The goods traffic in 1896 compared with previous years as follows :—

|                    | Tons Carried |            |            |
|--------------------|--------------|------------|------------|
|                    | 1876         | 1886       | 1896       |
| Grain . . .        | 1,120,000    | 3,640,000  | 5,040,000  |
| Timber . . .       | 840,000      | 2,800,000  | 4,680,000  |
| Manufactures . . . | 150,000      | 2,260,000  | 3,420,000  |
| Sundries . . .     | 4,220,000    | 6,970,000  | 11,130,000 |
| Total . . .        | 6,330,000    | 15,670,000 | 24,270,000 |

The Grand Trunk has 30 per cent., the Canadian Pacific 20 per cent., of the goods traffic.

**RAINFALL**

The rainfall of London in 1897, and the average for eighty-two years, as well as the average rainfall of Dublin for twenty-two years to 1896, are shown as follows :—

|                   | London, Inches |         | Dublin  |
|-------------------|----------------|---------|---------|
|                   | 1897           | 1816-97 | 1875-96 |
| January . . . .   | 1.6            | 1.9     | 2.1     |
| February . . . .  | 2.4            | 1.5     | 2.1     |
| March . . . . .   | 3.4            | 1.6     | 1.9     |
| 1st Quarter . . . | 7.4            | 5.0     | 6.1     |
| April . . . . .   | 1.6            | 1.7     | 2.1     |
| May . . . . .     | 1.3            | 2.0     | 2.2     |
| June . . . . .    | 1.9            | 1.9     | 2.0     |
| 2nd Quarter . . . | 4.8            | 5.6     | 6.3     |
| July . . . . .    | 0.7            | 2.6     | 2.6     |
| August . . . . .  | 2.9            | 2.4     | 3.0     |
| September . . . . | 2.7            | 2.3     | 1.9     |
| 3rd Quarter . . . | 6.3            | 7.3     | 7.5     |
| October . . . . . | 0.5            | 2.8     | 3.0     |
| November . . . .  | 1.1            | 2.3     | 2.7     |
| December . . . .  | 2.1            | 2.0     | 2.4     |
| 4th Quarter . . . | 3.7            | 7.1     | 8.1     |
| Year . . . . .    | 22.2           | 25.0    | 28.0    |

Tables of rainfall yearly at 350 cities of the world will be found at pages 391, 392.

**REFORMATORIES**

The number of children in reformatories and industrial schools is shown thus :—

|                | G. Britain | Ireland | Total  |
|----------------|------------|---------|--------|
| 1859 . . . . . | 3,276      | 140     | 3,416  |
| 1866 . . . . . | 7,364      | 163     | 7,527  |
| 1886 . . . . . | 18,810     | 8,914   | 27,724 |
| 1897 . . . . . | 24,380     | 8,220   | 32,600 |

There are 144 industrial schools and reformatories in England, 42 in Scotland, and 76 in Ireland, in all 262, of which 138 are for boys, 124 for girls; 160 are for Protestant, 102 for Catholic, children. Since the establishment of these institutions the criminal records of England and Scotland show a great diminution of juvenile offenders (under sixteen years of age), viz. :—

|                | England | Scotland | G. Britain |
|----------------|---------|----------|------------|
| 1861 . . . . . | 8,801   | 1,212    | 10,013     |
| 1870 . . . . . | 9,998   | 1,204    | 11,202     |
| 1880 . . . . . | 5,579   | 1,188    | 6,766      |
| 1893 . . . . . | 4,036   | 741      | 4,777      |

The following table shows how many juveniles were in 1000 criminals :—

|                | England | Scotland |
|----------------|---------|----------|
| 1861 . . . . . | 79      | 65       |
| 1870 . . . . . | 63      | 42       |
| 1880 . . . . . | 34      | 23       |
| 1893 . . . . . | 25      | 14       |

The sexes were distinguished in 1897 thus :—

| <i>Reformatories</i>      |        |         |        |
|---------------------------|--------|---------|--------|
|                           | Males  | Females | Total  |
| England . . . . .         | 4,090  | 580     | 4,670  |
| Scotland . . . . .        | 780    | 130     | 910    |
| Ireland . . . . .         | 500    | 60      | 560    |
| U. Kingdom . . .          | 5,370  | 770     | 6,140  |
| <i>Industrial Schools</i> |        |         |        |
| England . . . . .         | 10,770 | 3,180   | 13,950 |
| Scotland . . . . .        | 3,480  | 1,370   | 4,850  |
| Ireland . . . . .         | 3,410  | 4,220   | 7,660  |
| U. Kingdom . . .          | 17,690 | 8,770   | 26,460 |
| <i>Total</i>              |        |         |        |
| England . . . . .         | 14,860 | 3,760   | 18,620 |
| Scotland . . . . .        | 4,260  | 1,500   | 5,760  |
| Ireland . . . . .         | 3,940  | 4,280   | 8,220  |
| U. Kingdom . . .          | 23,060 | 9,540   | 32,600 |

The number of children in reformatories per 100,000 inhabitants is 15 in England, 22 in Scotland, and 12 in Ireland.

For cost of maintenance, &c., see page 233.

**RELIGION**

Latest estimates and official returns show as follows :—

|                   | Christians  | Non-Christians | Total         |
|-------------------|-------------|----------------|---------------|
| Europe . . . . .  | 340,320,000 | 12,480,000     | 352,800,000   |
| America . . . . . | 124,740,000 | 170,000        | 124,910,000   |
| Australia . . . . | 3,800,000   | ...            | 3,800,000     |
| Asia and Africa . | 7,240,000   | 641,550,000    | 648,790,000   |
| The World . . . . | 476,100,000 | 654,200,000    | 1,130,300,000 |

The creeds of Europe, America, and Australia sum up 481,500,000 souls, of which 468,800,000 are Christians, 6,300,000 Jews, and 6,400,000 Mahometans. The Christian population is made up as follows :—

|                    | Number (000 omitted) |             |        |         |
|--------------------|----------------------|-------------|--------|---------|
|                    | Roman Catholics      | Protestants | Greeks | Total   |
| United Kingdom .   | 5,410                | 34,430      | ...    | 39,840  |
| France . . . . .   | 37,740               | 690         | ...    | 38,430  |
| Germany . . . . .  | 17,670               | 31,150      | ...    | 48,820  |
| Russia . . . . .   | 8,300                | 2,950       | 73,000 | 84,250  |
| Austria . . . . .  | 32,240               | 3,890       | 3,180  | 39,310  |
| Italy . . . . .    | 28,400               | 60          | ...    | 28,460  |
| Spain and Portugal | 22,690               | 10          | ...    | 22,700  |
| Scandinavia . . .  | 10                   | 9,280       | ...    | 9,290   |
| Belg. and Holland. | 7,990                | 2,710       | ...    | 10,700  |
| Finland and Luxem. | 210                  | 2,390       | 50     | 2,650   |
| Switzerland . . .  | 1,180                | 1,720       | ...    | 2,900   |
| Danubian States .  | 180                  | 20          | 9,730  | 9,930   |
| Turkey and Greece  | 290                  | 50          | 2,700  | 3,040   |
| Europe . . . . .   | 162,310              | 89,350      | 88,660 | 340,320 |
| United States . .  | 9,850                | 61,030      | ...    | 70,880  |
| Canada . . . . .   | 1,990                | 2,640       | ...    | 4,630   |
| Spanish America .  | 45,610               | 120         | ...    | 45,730  |
| West Indies . . .  | 2,480                | 1,030       | ...    | 3,510   |
| Australia . . . .  | 850                  | 2,880       | ...    | 3,730   |
| Total . . . . .    | 223,090              | 157,050     | 88,660 | 468,800 |

The American Statistical Society (1893) publishes the following:—

|                           | Number (ooo omitted) |         |         |         |         | Total     |
|---------------------------|----------------------|---------|---------|---------|---------|-----------|
|                           | Europe               | America | Asia    | Africa  | Oceania |           |
| Roman Catholics . . . . . | 160,200              | 58,400  | 3,010   | 2,660   | 6,570   | 230,840   |
| Protestants . . . . .     | 80,800               | 57,300  | 660     | 1,740   | 2,720   | 143,220   |
| Greeks . . . . .          | 89,200               | ...     | 8,830   | ...     | ...     | 98,030    |
| Mahometans . . . . .      | 6,600                | ...     | 109,500 | 36,000  | 24,700  | 176,800   |
| Jews . . . . .            | 6,500                | ...     | 200     | 400     | ...     | 7,100     |
| Pagans . . . . .          | ...                  | 1,300   | 667,800 | 91,000  | 4,400   | 764,500   |
| Total . . . . .           | 343,300              | 117,000 | 790,000 | 131,800 | 38,390  | 1,420,490 |

## AMERICA

|                           | Number (ooo omitted) |        |                 |         |
|---------------------------|----------------------|--------|-----------------|---------|
|                           | United States        | Canada | Spanish America | Total   |
| Roman Catholics . . . . . | 8,800                | 1,800  | 47,800          | 58,400  |
| Protestants . . . . .     | 50,300               | 3,000  | 4,000           | 57,300  |
| Idolaters . . . . .       | 280                  | ...    | 1,020           | 1,300   |
| Total . . . . .           | 59,080               | 4,800  | 52,620          | 117,000 |

## ASIA

|                         | Number (ooo omitted) |         |        |              | Total   |
|-------------------------|----------------------|---------|--------|--------------|---------|
|                         | India                | China   | Japan  | Siberia, &c. |         |
| Christians . . . . .    | 1,730                | 1,200   | 30     | 9,540        | 12,500  |
| Mahometans . . . . .    | 51,600               | 21,000  | ...    | 36,900       | 109,500 |
| Buddhists . . . . .     | 5,400                | 84,000  | 24,900 | 33,600       | 147,900 |
| Hindoo . . . . .        | 120,000              | ...     | ...    | ...          | 120,000 |
| Confucians, &c. . . . . | 46,000               | 256,000 | 14,070 | 84,030       | 400,100 |
| Total . . . . .         | 224,730              | 362,200 | 39,000 | 164,070      | 790,000 |

## OCEANIA

|                           | Number (ooo omitted) |             |           |        |
|---------------------------|----------------------|-------------|-----------|--------|
|                           | Australia            | Philippines | Java, &c. | Total  |
| Roman Catholics . . . . . | 850                  | 5,500       | 220       | 6,570  |
| Protestants . . . . .     | 2,500                | ...         | 220       | 2,720  |
| Mahometans . . . . .      | ...                  | ...         | 24,700    | 24,700 |
| Pagans . . . . .          | ...                  | ...         | 4,400     | 4,400  |
| Total . . . . .           | 3,350                | 5,500       | 29,540    | 38,390 |

See *Missions*, page 777, and *Churches*, page 656.

Roman Catholic authorities give the following particulars respecting English-speaking countries (1898):—

|                          | Bishops | Clergy | Churches | Souls      |
|--------------------------|---------|--------|----------|------------|
| Ireland . . . . .        | 28      | 3,440  | 2,760    | 3,550,000  |
| England . . . . .        | 17      | 2,700  | 1,480    | 1,500,000  |
| Scotland . . . . .       | 7       | 420    | 350      | 360,000    |
| Canada . . . . .         | 31      | 1,500  | 1,050    | 2,600,000  |
| Australia . . . . .      | 16      | 400    | 780      | 900,000    |
| India, &c. . . . .       | 42      | 1,790  | 240      | 2,590,000  |
| British Empire . . . . . | 141     | 10,250 | 6,660    | 11,500,000 |
| United States . . . . .  | 91      | 10,910 | 10,500   | 9,850,000  |
| Total . . . . .          | 232     | 21,160 | 17,160   | 21,350,000 |

In the United Kingdom there are 19 Privy Counsellors, 31 Peers, and 73 Members of Parliament who are Roman Catholics. In the United States there are 927 Catholic colleges, besides a large number of schools, attended by 828,000 children. England, Ireland, Canada, United States, and Australia, have each a cardinal. In India there are 745 European and 655 native priests, the Roman Catholic laity numbering 1,870,000 souls.

As regards Protestants in the British Empire and the United States, they sum up 103 millions of all denominations; they have various missionary societies, with an aggregate income of £2,600,000, maintaining 11,660 male and female missionaries, say £225 for each missionary, including the cost of schools, &c. For further details see *Church*, p. 115; and *Religion*, p. 512.

According to the *Statesman's Year-Book* there are one million Roman Catholics in China and 50,000 Protestants, the former having 25 bishops and a numerous clergy.

The United States *Catholic Register* gives the numbers of Roman Catholics thus:—

| Diocese                | Number  | Diocese                 | Number    |
|------------------------|---------|-------------------------|-----------|
| New York . . . . .     | 825,000 | Baltimore . . . . .     | 240,000   |
| Chicago . . . . .      | 650,000 | San Francisco . . . . . | 225,000   |
| Boston . . . . .       | 600,000 | St. Louis . . . . .     | 220,000   |
| Philadelphia . . . . . | 450,000 | St. Paul . . . . .      | 212,000   |
| New Orleans . . . . .  | 325,000 | Various . . . . .       | 5,860,000 |
| Milwaukee . . . . .    | 250,000 | Total . . . . .         | 9,857,000 |

See *Religion*, page 513; also *Churches*, pages 115 and 656; and *Missions*, page 777.

## ROADS

The value of existing streets, highways, railways, tramways, and canals in Europe is approximately:—

|                          | Millions £ Sterling |       |       |        | £ per inah. |
|--------------------------|---------------------|-------|-------|--------|-------------|
|                          | Streets             | Roads | Rails | Canals |             |
| U. Kingdom . . . . .     | 31                  | 125   | 1,044 | 35     | 1,235       |
| France . . . . .         | 14                  | 240   | 670   | 31     | 955         |
| Germany . . . . .        | 23                  | 210   | 580   | 23     | 836         |
| Russia . . . . .         | 16                  | 19    | 405   | 10     | 450         |
| Austria . . . . .        | 8                   | 73    | 370   | 17     | 468         |
| Italy . . . . .          | 8                   | 30    | 205   | 7      | 250         |
| Spain and Port. . . . .  | 4                   | 12    | 145   | 1      | 162         |
| Scandinavia . . . . .    | 2                   | 10    | 60    | 2      | 74          |
| Holland . . . . .        | 3                   | 7     | 40    | 20     | 70          |
| Belgium . . . . .        | 3                   | 6     | 78    | 7      | 94          |
| Switzerland, &c. . . . . | 3                   | 11    | 115   | 1      | 130         |
| Europe . . . . .         | 115                 | 743   | 3,712 | 154    | 4,724       |

See *Roads*, in Part I., pages 515-517.

### RYE

The area and product of this crop are shown as follows:—

|                       | Acres      | Tons       | Bushels per Acre | Per Inhab. |
|-----------------------|------------|------------|------------------|------------|
| France . . . . .      | 3,800,000  | 1,800,000  | 19               | 2.0        |
| Germany . . . . .     | 14,800,000 | 7,100,000  | 19               | 5.5        |
| Russia . . . . .      | 67,100,000 | 19,500,000 | 12               | 7.0        |
| Austria . . . . .     | 7,500,000  | 3,300,000  | 18               | 3.1        |
| Spain . . . . .       | 2,000,000  | 900,000    | 18               | 2.0        |
| Scandinavia . . . . . | 1,700,000  | 1,100,000  | 27               | 4.6        |

|                         | Acres       | Tons       | Bushels per Acre | Per Inhab. |
|-------------------------|-------------|------------|------------------|------------|
| Holland . . . . .       | 500,000     | 300,000    | 24               | 2.4        |
| Belgium . . . . .       | 700,000     | 500,000    | 28               | 3.2        |
| Italy . . . . .         | 350,000     | 100,000    | 13               | ...        |
| Roumania . . . . .      | 500,000     | 200,000    | 16               | ...        |
| United States . . . . . | 1,850,000   | 600,000    | 13               | ...        |
| Canada . . . . .        | 300,000     | 100,000    | 13               | ...        |
| Total . . . . .         | 101,100,000 | 35,500,000 | 14               | 3.2        |

See *Agriculture*, page 8, and *Food*, page 714

### S

### SALT

The production in various countries is as follows:—

|                          | Tons      | Lbs. per Inhab. |
|--------------------------|-----------|-----------------|
| United Kingdom . . . . . | 1,950,000 | 110             |
| Germany . . . . .        | 2,540,000 | 109             |
| France . . . . .         | 870,000   | 52              |
| Russia . . . . .         | 1,500,000 | 30              |
| Austria . . . . .        | 500,000   | 25              |
| Italy . . . . .          | 480,000   | 36              |
| Spain . . . . .          | 350,000   | 45              |
| United States . . . . .  | 1,720,000 | 53              |

One-third of the salt produced in the United Kingdom is exported, but the exportation is declining, viz:—

|                   | Tons Yearly | Value, £ |
|-------------------|-------------|----------|
| 1883-87 . . . . . | 890,000     | 610,000  |
| 1893-97 . . . . . | 690,000     | 520,000  |

Consumption in the United Kingdom averages 72 lbs. per head, including what is used for manufactures.

For further particulars see page 517.

### SHIPPING

The merchant shipping of the seventeenth and eighteenth centuries was as follows:—

| Flag                   | Tons      |           | Ratio |       |
|------------------------|-----------|-----------|-------|-------|
|                        | 1676      | 1774      | 1676  | 1774  |
| Dutch . . . . .        | 900,000   | 650,000   | 45.0  | 28.3  |
| British . . . . .      | 500,000   | 650,000   | 25.0  | 28.3  |
| Scandinavian . . . . . | 150,000   | 250,000   | 7.5   | 10.9  |
| French . . . . .       | 120,000   | 240,000   | 6.0   | 10.4  |
| Spanish . . . . .      | 110,000   | 180,000   | 5.5   | 7.8   |
| German . . . . .       | 100,000   | 120,000   | 5.0   | 5.2   |
| Italian, &c. . . . .   | 120,000   | 210,000   | 6.0   | 9.1   |
| Total . . . . .        | 2,000,000 | 2,300,000 | 100.0 | 100.0 |

Shipping increased sevenfold between 1774 and 1860, amounting in the latter year to 16,600,000 tons. Since 1860 the increase has been 50 per cent., the total now exceeding 24,000,000 tons, viz:—

| Flag                          | Tonnage, Nominal |            |            |
|-------------------------------|------------------|------------|------------|
|                               | Steam            | Sail       | Total      |
| United Kingdom . . . . .      | 6,280,000        | 2,740,000  | 9,020,000  |
| United States . . . . .       | 2,360,000        | 2,410,000  | 4,770,000  |
| Scandinavia . . . . .         | 650,000          | 1,770,000  | 2,420,000  |
| German . . . . .              | 880,000          | 620,000    | 1,500,000  |
| Canadian . . . . .            | 250,000          | 680,000    | 930,000    |
| French . . . . .              | 500,000          | 390,000    | 890,000    |
| Russian and Finnish . . . . . | 230,000          | 560,000    | 790,000    |
| Italian . . . . .             | 220,000          | 560,000    | 780,000    |
| Spanish . . . . .             | 530,000          | 190,000    | 720,000    |
| Australian . . . . .          | 180,000          | 190,000    | 370,000    |
| Greek . . . . .               | 90,000           | 230,000    | 320,000    |
| Japanese . . . . .            | 210,000          | 90,000     | 300,000    |
| Dutch . . . . .               | 190,000          | 100,000    | 290,000    |
| Austrian . . . . .            | 150,000          | 120,000    | 270,000    |
| Turkish . . . . .             | 40,000           | 150,000    | 190,000    |
| Brazilian . . . . .           | 75,000           | 65,000     | 140,000    |
| Chilian . . . . .             | 30,000           | 80,000     | 110,000    |
| Belgian . . . . .             | 90,000           | ...        | 90,000     |
| Portuguese . . . . .          | 40,000           | 50,000     | 90,000     |
| Chinese . . . . .             | 30,000           | 20,000     | 50,000     |
| Argentine . . . . .           | 20,000           | 30,000     | 50,000     |
| The World . . . . .           | 13,045,000       | 11,045,000 | 24,090,000 |

In 1860 the United States merchant navy surpassed that of Great Britain both in nominal tonnage and carrying power, but in 1896 the positions were reversed, viz:—

|                        | Tonnage    |            | Carrying Power |            |
|------------------------|------------|------------|----------------|------------|
|                        | 1860       | 1896       | 1860           | 1896       |
| G. Britain . . . . .   | 4,660,000  | 9,020,000  | 6,030,000      | 27,860,000 |
| Colonies . . . . .     | 1,050,000  | 1,380,000  | 1,190,000      | 2,740,000  |
| British . . . . .      | 5,710,000  | 10,400,000 | 7,220,000      | 30,600,000 |
| U. States . . . . .    | 5,350,000  | 4,770,000  | 7,960,000      | 11,850,000 |
| Scandinavian . . . . . | 970,000    | 2,420,000  | 1,050,000      | 4,370,000  |
| German . . . . .       | 700,000    | 1,500,000  | 850,000        | 4,140,000  |
| French . . . . .       | 1,010,000  | 890,000    | 1,270,000      | 2,390,000  |
| Spanish . . . . .      | 470,000    | 720,000    | 510,000        | 2,310,000  |
| Russian . . . . .      | 400,000    | 790,000    | 520,000        | 1,480,000  |
| Italian . . . . .      | 550,000    | 780,000    | 610,000        | 1,440,000  |
| Dutch . . . . .        | 300,000    | 290,000    | 400,000        | 860,000    |
| Austrian . . . . .     | 250,000    | 270,000    | 340,000        | 720,000    |
| Greek . . . . .        | 200,000    | 320,000    | 220,000        | 590,000    |
| Turkish . . . . .      | 180,000    | 190,000    | 200,000        | 310,000    |
| Various . . . . .      | 510,000    | 760,000    | 650,000        | 2,140,000  |
| The World . . . . .    | 16,600,000 | 24,100,000 | 21,800,000     | 63,200,000 |

The proportions of the tonnage and carrying power of various flags is shown at the above dates thus :—

| Flag           | Tonnage |       | Carrying Power |       |
|----------------|---------|-------|----------------|-------|
|                | 1880    | 1896  | 1880           | 1896  |
| United Kingdom | 28.0    | 37.5  | 27.7           | 44.1  |
| Colonial       | 6.3     | 5.7   | 5.5            | 4.4   |
| British        | 34.3    | 43.2  | 33.2           | 48.5  |
| United States  | 32.2    | 19.8  | 36.5           | 18.7  |
| Scandinavian   | 5.8     | 10.1  | 4.8            | 6.9   |
| German         | 4.2     | 6.3   | 3.9            | 6.6   |
| French         | 6.1     | 3.7   | 5.8            | 3.8   |
| Spanish        | 2.8     | 3.0   | 2.3            | 3.7   |
| Russian        | 2.4     | 3.3   | 2.4            | 2.3   |
| Italian        | 3.3     | 3.3   | 2.8            | 2.3   |
| Dutch          | 1.8     | 1.2   | 1.8            | 1.4   |
| Various        | 7.1     | 6.1   | 6.5            | 5.8   |
| Total          | 100.0   | 100.0 | 100.0          | 100.0 |

The following table shows the average nominal tonnage of each steamer and sailing vessel of the various flags, as also the total number of merchant vessels, and the average carrying power in tons to each vessel, in 1896 :—

|                | Tons, Average |      | Number of Vessels | Average Carrying Power |
|----------------|---------------|------|-------------------|------------------------|
|                | Steam         | Sail |                   |                        |
| United Kingdom | 740           | 220  | 20,800            | 1,340                  |
| United States  | 360           | 150  | 22,630            | 530                    |
| Scandinavian   | 320           | 150  | 13,620            | 320                    |
| German         | 820           | 240  | 3,590             | 1,150                  |
| French         | 410           | 28   | 15,600            | 150                    |
| Spanish        | 1,010         | 150  | 1,780             | 1,280                  |
| Canadian       | 140           | 120  | 7,260             | 230                    |
| Russian        | 290           | 150  | 5,360             | 280                    |
| Italian        | 630           | 90   | 6,510             | 220                    |
| Japanese       | 210           | 66   | 1,530             | 600                    |
| Dutch          | 1,160         | 250  | 570               | 1,510                  |
| Austrian       | 1,030         | 420  | 300               | 2,400                  |
| Greek          | 510           | 40   | 6,160             | 90                     |

The relative proportion of trade done by steamers is increasing so rapidly that it seems as if sailing ships must ultimately disappear, carrying power being shown as follows :—

|              | Steam      |            | Sail       |            |
|--------------|------------|------------|------------|------------|
|              | 1888       | 1896       | 1888       | 1896       |
| U. Kingdom   | 17,400,000 | 25,120,000 | 3,120,000  | 2,740,000  |
| Colonial     | 1,060,000  | 1,720,000  | 1,320,000  | 870,000    |
| British      | 18,460,000 | 26,840,000 | 4,440,000  | 3,610,000  |
| U. States    | 7,080,000  | 9,440,000  | 2,540,000  | 2,410,000  |
| Scandinavian | 1,420,000  | 2,600,000  | 1,950,000  | 1,770,000  |
| German       | 2,000,000  | 3,520,000  | 730,000    | 620,000    |
| French       | 2,040,000  | 2,000,000  | 450,000    | 390,000    |
| Spanish      | 1,580,000  | 2,120,000  | 200,000    | 190,000    |
| Russian      | 560,000    | 920,000    | 610,000    | 560,000    |
| Italian      | 700,000    | 880,000    | 680,000    | 560,000    |
| Various      | 2,360,000  | 3,880,000  | 1,000,000  | 940,000    |
| The World.   | 36,200,000 | 52,200,000 | 12,600,000 | 11,050,000 |

In 1888 sailing vessels stood for one-fourth of the maritime carrying power; at present they are only one-sixth. The increasing preponderance of the British flag (including Colonial) is also remarkable; in 1888 it was under 47, and in 1896 it was over 48, per cent. of the

world's total. The relative increase of carrying power in the above interval of eight years was :—

|               | Per Cent. |           | Per Cent. |
|---------------|-----------|-----------|-----------|
| British       | 33        | Russian   | 27        |
| United States | 23        | Italian   | 5         |
| Scandinavian  | 30        | Japanese  | 160       |
| German        | 52        | Dutch     | 54        |
| Spanish       | 30        | The World | 29        |

French carrying power declined 100,000 tons or 4 per cent. in the same interval, a proof of the absurdity of Navigation Bounties. France pays 150 francs or £6 per 100 tons for every French vessel per thousand miles' run during the year, if built in France, or half that premium if built abroad. These premiums averaged £300,000 per annum from 1881 to 1890.

## SHIPBUILDING

The tonnage of vessels built in ten years in all countries has been as follows :—

| Year     | U. King. | U. States | Various | Total     |
|----------|----------|-----------|---------|-----------|
| 1888     | 570,000  | 220,000   | 180,000 | 970,000   |
| 1889     | 850,000  | 230,000   | 180,000 | 1,260,000 |
| 1890     | 810,000  | 290,000   | 190,000 | 1,290,000 |
| 1891     | 810,000  | 370,000   | 190,000 | 1,370,000 |
| 1892     | 800,000  | 200,000   | 200,000 | 1,200,000 |
| 1893     | 590,000  | 210,000   | 200,000 | 1,000,000 |
| 1894     | 660,000  | 130,000   | 210,000 | 1,000,000 |
| 1895     | 650,000  | 110,000   | 210,000 | 970,000   |
| 1896     | 740,000  | 230,000   | 220,000 | 1,190,000 |
| 1897     | 700,000  | 230,000   | 290,000 | 1,220,000 |
| Average. | 720,000  | 220,000   | 210,000 | 1,150,000 |

The total of vessels built in the United Kingdom (exclusive of British war vessels) in ten years was :—

|       | Tons      |         | Tons      |
|-------|-----------|---------|-----------|
| Steam | 5,950,000 | British | 5,030,000 |
| Sail  | 1,250,000 | Foreign | 1,270,000 |
| Total | 7,200,000 | Total   | 7,200,000 |

Vessels built in ten years in the United States were as follows :—

|       | Tons      |           | Tons      |
|-------|-----------|-----------|-----------|
| Steam | 1,260,000 | Sea-going | 1,220,000 |
| Sail  | 940,000   | Lakes     | 980,000   |
| Total | 2,200,000 | Total     | 2,200,000 |

The tonnage of vessels built in ten years (1881-90), including those built in British yards for foreigners, carried the following flags :—

| Flag          | Tons       | Ratio |
|---------------|------------|-------|
| British       | 5,610,000  | 49.8  |
| United States | 2,200,000  | 19.3  |
| German        | 1,110,000  | 9.7   |
| Scandinavian  | 1,300,000  | 11.4  |
| French        | 640,000    | 5.6   |
| Italian       | 370,000    | 3.2   |
| Dutch         | 190,000    | 1.6   |
| Total         | 11,420,000 | 100.0 |

Notwithstanding the great activity in shipbuilding the nominal tonnage shows but a slow increase, owing to the



number of sailing vessels and old steamers broken up or lost, as the following table shows:—

|                              | Tons       |
|------------------------------|------------|
| Vessels afloat in 1880 . . . | 22,540,000 |
| New built, 1881-96 . . .     | 18,160,000 |
| To be accounted for . . .    | 40,700,000 |
| Afloat in 1896 . . .         | 24,100,000 |

It appears, therefore, that in 16 years the tonnage of vessels broken up or lost was 16,600,000, that is, over one million tons yearly. The loss by maritime disaster and wreck averages 3 per cent., say 700,000 tons, and hence the vessels broken up must have been 300,000 tons yearly. The difference between the tonnage of vessels afloat in 1888 and 1896 is shown as follows:—

|                       | 1888       | 1896       |
|-----------------------|------------|------------|
| Steamer, tons . . . . | 9,050,000  | 13,045,000 |
| Sailing, " . . . .    | 12,600,000 | 11,045,000 |
| Total . . . .         | 21,650,000 | 24,090,000 |

Thus steamers have had an increase of 4 million tons (equal to 16 million tons carrying power), while sailing vessels have declined more than 1½ million tons, in eight years.

The unofficial statement published yearly as to ship-building in various countries differs materially from that on preceding pages, which is net tonnage. The unofficial statement is as follows:—

| Years        | In United Kingdom | Other Countries | Total     |
|--------------|-------------------|-----------------|-----------|
| 1891 . . . . | 1,130,000         | 470,000         | 1,600,000 |
| 1892 . . . . | 1,110,000         | 557,000         | 1,667,000 |
| 1893 . . . . | 870,000           | 340,000         | 1,210,000 |
| 1894 . . . . | 1,050,000         | 274,000         | 1,324,000 |
| 1895 . . . . | 1,100,000         | 370,000         | 1,470,000 |
| 1896 . . . . | 1,450,000         | 450,000         | 1,900,000 |
| 1897 . . . . | 1,050,000         | 520,000         | 1,570,000 |
| 1898 . . . . | 1,370,000         | 520,000         | 1,890,000 |

The shipbuilding of the world in 1897 was:—

| Built in         | Steam     | Sail    | Total Tons |
|------------------|-----------|---------|------------|
| U. Kingdom . . . | 1,022,000 | 28,000  | 1,050,000  |
| U. States . . .  | 106,000   | 126,000 | 232,000    |
| Germany . . .    | 140,000   | ...     | 140,000    |
| France, &c. . .  | 105,000   | 43,000  | 148,000    |
| Total . . .      | 1,373,000 | 197,000 | 1,570,000  |

In 1898 it was as follows:—

|               | British   | Various | Total, Tons |
|---------------|-----------|---------|-------------|
| Steam . . . . | 1,366,000 | 410,000 | 1,776,000   |
| Sail . . . .  | 4,000     | 110,000 | 114,000     |
| Total . . .   | 1,370,000 | 520,000 | 1,890,000   |

In 1897 the French built three large sailing-ships, ranging from 3000 to 3500 tons.

The largest vessels launched in 1897 were:—

| In U. Kingdom   | Tons   | In Germany       | Tons   |
|-----------------|--------|------------------|--------|
| Briton . . . .  | 10,200 | Kaiser Fritz . . | 12,500 |
| Brazilian . . . | 11,100 | Pretoria . . .   | 14,000 |
| Cymric . . . .  | 12,300 | Kaiser Wilhelm . | 14,300 |

Of the steamers built in the year, as regards tonnage, 99 per cent. were of steel, 1 per cent. built of iron; of the sailing vessels, 96 per cent. were of steel, and 4 per cent. were built of wood.

British and Irish shipyards in 1897 turned out 45 war vessels, 545 steamers, and 45 sailing vessels:—

| Owners          | Tons    | Owners         | Tons      |
|-----------------|---------|----------------|-----------|
| British . . . . | 848,000 | Dutch . . . .  | 19,000    |
| Japanese . . .  | 60,000  | Russian . . .  | 16,000    |
| German . . . .  | 30,000  | French . . . . | 14,000    |
| Colonial . . .  | 23,000  | Spanish . . .  | 13,000    |
| Scandinavian .  | 27,000  | Total . . . .  | 1,050,000 |

Vessels built in our dockyards for foreign owners usually form 20 or 25 per cent. of the total.

The increase of shipping in 1897 in the world was:—

|               | Steam Tons | Sail Tons | Total     | Carrying Power |
|---------------|------------|-----------|-----------|----------------|
| Built . . . . | 1,373,000  | 197,000   | 1,570,000 | 5,690,000      |
| Lost, &c. . . | 316,000    | 396,000   | 712,000   | 1,660,000      |

This shows an increase of 860,000 tons nominal, but of 4,030,000 tons of carrying power, equal to 6½ per cent. of the carrying power of the world's shipping in 1896.

The largest merchant steamers under the British, German, and French flags are:—

| Steamer          | Feet Long | Tons   | Horse-power | Speed Knots |
|------------------|-----------|--------|-------------|-------------|
| Oceanic . . . .  | 705       | 17,000 | 45,000      | ...         |
| Kaiser Wilhelm . | 645       | 14,000 | 30,000      | 25          |
| Touraine . . . . | ...       | 9,000  | 12,000      | 22          |

The *Oceanic*, launched at Belfast in January 1899, is the largest vessel ever built.

The quickest trips by steamers in 1897 were:—

| Steamer          | Route                   | Days | Hrs. |
|------------------|-------------------------|------|------|
| Lucania . . . .  | Liverpool to New York . | 5    | 7    |
| Paris . . . .    | " " " " . . . .         | 5    | 13   |
| Kaiser Wilhelm . | Southampton " " . .     | 5    | 23   |
| Lucania . . . .  | New York to Liverpool . | 5    | 9    |
| Kaiser Wilhelm . | " Southampton " " . .   | 5    | 15   |
| Scot . . . .     | Southampton to Cape .   | 16   | 0    |
| Dunottar . . . . | " " " " " " . .         | 15   | 20   |
| Norman . . . .   | Cape to Southampton .   | 15   | 6    |
| Dunottar . . . . | " " " " " " . .         | 14   | 23   |

The *Lucania* and *Kaiser Wilhelm* averaged 22 knots an hour, the *City of Paris* 20, the *Dunottar* and *Norman* 17. The increased size and speed of vessels is shown thus:—

| Year         | Steamer        | Horse Power | Knots per Hr. |
|--------------|----------------|-------------|---------------|
| 1850 . . . . | Asia . . . .   | 1,500       | 11            |
| 1856 . . . . | Persia . . . . | 3,600       | 13            |
| 1879 . . . . | Gallia . . . . | 5,000       | 15            |
| 1883 . . . . | Alaska . . . . | 10,500      | 18            |
| 1889 . . . . | Paris . . . .  | 17,300      | 20            |
| 1893 . . . . | Campania . .   | 30,000      | 21            |

In 1898 the *Britannic* had completed 500 ocean voyages in 23 years, in all 1,750,000 miles, carrying 222,000 passengers, and consuming 510,000 tons of coal in 114,000 hours of steaming, being 4½ tons per hour.

## PORT ENTRIES

The tonnage of shipping from the high seas entered into the ports of various countries was :—

| In                      | 1885        | 1895        | Increase   |
|-------------------------|-------------|-------------|------------|
| United Kingdom          | 31,860,000  | 40,000,000  | 8,140,000  |
| France . . . .          | 12,790,000  | 13,780,000  | 990,000    |
| Germany . . . .         | 8,260,000   | 11,920,000  | 3,660,000  |
| Russia . . . .          | 5,400,000   | 8,100,000   | 2,700,000  |
| Austria . . . .         | 5,940,000   | 9,490,000   | 3,550,000  |
| Italy . . . .           | 5,900,000   | 8,260,000   | 2,360,000  |
| Spain . . . .           | 7,470,000   | 13,000,000  | 5,530,000  |
| Portugal . . . .        | 3,550,000   | 5,950,000   | 2,400,000  |
| Scandinavia . . . .     | 10,000,000  | 12,950,000  | 2,950,000  |
| Holland . . . .         | 4,140,000   | 6,770,000   | 2,630,000  |
| Belgium . . . .         | 4,070,000   | 6,860,000   | 2,790,000  |
| Europe . . . .          | 99,380,000  | 137,080,000 | 37,700,000 |
| United States . . . .   | 12,290,000  | 16,730,000  | 4,440,000  |
| Canada . . . .          | 8,240,000   | 11,760,000  | 3,520,000  |
| Australia . . . .       | 12,570,000  | 18,170,000  | 5,600,000  |
| West Indies . . . .     | 6,300,000   | 8,670,000   | 2,370,000  |
| East Indies . . . .     | 26,100,000  | 37,200,000  | 11,100,000 |
| China and Japan . . . . | 3,060,000   | 7,160,000   | 4,100,000  |
| Africa . . . .          | 3,800,000   | 8,400,000   | 4,600,000  |
| South America . . . .   | 7,860,000   | 12,130,000  | 4,270,000  |
| The World . . . .       | 179,600,000 | 257,300,000 | 77,700,000 |

Port entries in 1895, distinguished between native and foreign flags, were as follows :—

| In                    | Native     | Foreign    | Total       |
|-----------------------|------------|------------|-------------|
| United Kingdom        | 29,200,000 | 10,800,000 | 40,000,000  |
| France . . . .        | 4,110,000  | 9,670,000  | 13,780,000  |
| Germany . . . .       | 5,010,000  | 6,910,000  | 11,920,000  |
| Russia . . . .        | 610,000    | 7,490,000  | 8,100,000   |
| Austria . . . .       | 8,440,000  | 1,050,000  | 9,490,000   |
| Italy . . . .         | 1,990,000  | 6,270,000  | 8,260,000   |
| Spain . . . .         | 6,200,000  | 6,800,000  | 13,000,000  |
| Portugal . . . .      | 450,000    | 5,460,000  | 5,950,000   |
| Scandinavia . . . .   | 6,070,000  | 6,880,000  | 12,950,000  |
| Holland . . . .       | 1,810,000  | 4,960,000  | 6,770,000   |
| Belgium . . . .       | 1,300,000  | 5,560,000  | 6,860,000   |
| Europe . . . .        | 65,230,000 | 71,850,000 | 137,080,000 |
| United States . . . . | 3,680,000  | 13,050,000 | 16,730,000  |
| Total . . . .         | 68,910,000 | 84,900,000 | 153,810,000 |

The percentage of native and foreign flags in port entries was as follows :—

| In                    | 1885   |         | 1895   |         |
|-----------------------|--------|---------|--------|---------|
|                       | Native | Foreign | Native | Foreign |
| United Kingdom        | 72     | 28      | 73     | 27      |
| France . . . .        | 35     | 65      | 30     | 70      |
| Germany . . . .       | 42     | 58      | 42     | 58      |
| Russia . . . .        | 8      | 92      | 8      | 92      |
| Italy . . . .         | 25     | 75      | 24     | 76      |
| Spain . . . .         | 38     | 62      | 48     | 52      |
| Portugal . . . .      | 6      | 94      | 8      | 92      |
| Scandinavia . . . .   | 48     | 52      | 47     | 53      |
| Holland . . . .       | 31     | 69      | 27     | 73      |
| Belgium . . . .       | 16     | 84      | 19     | 81      |
| Continent . . . .     | 29     | 71      | 29     | 71      |
| United States . . . . | 22     | 78      | 22     | 78      |

The proportion of trade done by the flag of the country has fallen considerably in France and Holland, while it has risen in Spain and Belgium, other countries showing but little change, and the ratio for the European continent collectively being the same now as in 1885, while

the same is true of the United States. The increase of trade, as measured by port entries, has been much greater than that of tonnage of vessels afloat, viz :—

|                      | 1885        | 1895        | Increase    |
|----------------------|-------------|-------------|-------------|
| Vessels afloat, tons | 21,100,000  | 23,700,000  | 8 per cent. |
| Port entries, ..     | 180,000,000 | 257,000,000 | 43 .. ..    |

In 1885 each vessel made 9 voyages, in 1895 it made 11, which is explained by the substitution of steamers for sailing vessels, as appears when we compare carrying power, viz :—

| Years        | Tons       |
|--------------|------------|
| 1885 . . . . | 44,500,000 |
| 1895 . . . . | 62,400,000 |

The increase of carrying power in ten years was 40 per cent., which is nearly the same as the increase of port entries shown above.

## UNITED KINGDOM

Port entries from the high seas and coastwise (the latter with cargoes only) were :—

|              | Millions of Tons |           |       |
|--------------|------------------|-----------|-------|
|              | High Seas        | Coastwise | Total |
| 1870 . . . . | 18               | 18        | 36    |
| 1880 . . . . | 29               | 26        | 55    |
| 1890 . . . . | 37               | 29        | 66    |
| 1896 . . . . | 42               | 32        | 74    |

From this it appears that in 26 years the entries from the high seas rose 133 per cent., and coasting trade nearly 80 per cent., the whole trade of our ports having more than doubled.

Port entries for the United Kingdom in 1896 compare with 1886 thus :—

| Flag             | Tons       |            |            |
|------------------|------------|------------|------------|
|                  | 1886       | 1896       | Increase   |
| British . . . .  | 22,740,000 | 30,290,000 | 7,550,000  |
| Foreign . . . .  | 8,300,000  | 12,190,000 | 3,890,000  |
| Coasting . . . . | 27,140,000 | 31,980,000 | 4,840,000  |
| Total . . . .    | 58,180,000 | 74,460,000 | 16,280,000 |

Tonnage of entries into British and Irish ports rose 20 per cent. in 10 years, the ratio of increase with foreign vessels being 47 per cent., with British 25 per cent. Entries from the high seas, exclusive of coasting trade, were as follows :—

|                     | 1886       | 1896       | Increase   |
|---------------------|------------|------------|------------|
| London . . . .      | 6,810,000  | 8,990,000  | 2,180,000  |
| Liverpool . . . .   | 5,020,000  | 5,640,000  | 620,000    |
| Cardiff . . . .     | 2,390,000  | 3,960,000  | 1,570,000  |
| Hull . . . .        | 1,670,000  | 2,260,000  | 590,000    |
| Shields . . . .     | 890,000    | 1,790,000  | 900,000    |
| Newcastle . . . .   | 1,870,000  | 1,720,000  | ...        |
| Southampton . . . . | 840,000    | 1,560,000  | 720,000    |
| Glasgow . . . .     | 910,000    | 1,290,000  | 380,000    |
| Middlesbro' . . . . | 560,000    | 1,010,000  | 450,000    |
| Various . . . .     | 10,080,000 | 14,260,000 | 4,180,000  |
| Total . . . .       | 31,040,000 | 42,480,000 | 11,440,000 |

Clearances from British ports, excluding coast trade, were as follows:—

| Date | British    | Foreign    | Total Tons |
|------|------------|------------|------------|
| 1773 | 770,000    | 55,000     | 825,000    |
| 1803 | 1,440,000  | 570,000    | 2,010,000  |
| 1853 | 5,210,000  | 4,240,000  | 9,450,000  |
| 1873 | 15,110,000 | 7,470,000  | 22,580,000 |
| 1896 | 31,200,000 | 11,800,000 | 43,000,000 |

British vessels constituted 55 per cent. in 1853, and 72 per cent. in 1896, of the total.

## UNITED STATES

Tonnage entries in American ports were as follows:—

| Year       | American  | British    | Various   | Total      |
|------------|-----------|------------|-----------|------------|
| 1870 . . . | 2,450,000 | 2,790,000  | 1,030,000 | 6,270,000  |
| 1880 . . . | 3,140,000 | 7,930,000  | 4,180,000 | 15,250,000 |
| 1890 . . . | 3,400,000 | 8,110,000  | 3,850,000 | 15,360,000 |
| 1897 . . . | 3,610,000 | 11,290,000 | 5,100,000 | 20,000,000 |

The proportions of American trade done by American and foreign flags were:—

| Flag           | 1870  | 1880  | 1890  | 1897  |
|----------------|-------|-------|-------|-------|
| British . . .  | 44.4  | 52.0  | 53.0  | 56.5  |
| American . . . | 39.0  | 20.6  | 22.2  | 18.0  |
| Various . . .  | 16.6  | 27.4  | 24.8  | 25.5  |
| Total . . .    | 100.0 | 100.0 | 100.0 | 100.0 |

The relative decline of the share corresponding to the American flag is very remarkable, while the British stands for more than half the total. The growth of the principal ports in the last ten years is shown thus:—

|                     | 1887       | 1897       | Increase  |
|---------------------|------------|------------|-----------|
| New York . . .      | 6,090,000  | 7,270,000  | 1,180,000 |
| Boston . . .        | 1,080,000  | 1,640,000  | 560,000   |
| Philadelphia . . .  | 1,290,000  | 1,530,000  | 240,000   |
| New Orleans . . .   | 720,000    | 1,400,000  | 680,000   |
| San Francisco . . . | 970,000    | 1,260,000  | 290,000   |
| Baltimore . . .     | 690,000    | 1,250,000  | 560,000   |
| Other Ports . . .   | 2,690,000  | 5,650,000  | 2,960,000 |
| Union . . .         | 13,530,000 | 20,000,000 | 6,470,000 |

Entries from the various countries were as follows:—

| From                   | 1887       | 1897       | Increase  |
|------------------------|------------|------------|-----------|
| Great Britain . . .    | 4,050,000  | 6,530,000  | 2,480,000 |
| British Colonies . . . | 2,230,000  | 3,330,000  | 1,100,000 |
| Germany . . .          | 1,060,000  | 1,670,000  | 610,000   |
| Cuba . . .             | 1,020,000  | 1,040,000  | 20,000    |
| Brazil . . .           | 400,000    | 910,000    | 510,000   |
| Belgium . . .          | 480,000    | 660,000    | 180,000   |
| Italy . . .            | 440,000    | 510,000    | 70,000    |
| France . . .           | 590,000    | 490,000    | ...       |
| Various . . .          | 3,260,000  | 4,860,000  | 1,600,000 |
| Total . . .            | 13,530,000 | 20,000,000 | 6,470,000 |

## SHIPWRECKS

The tonnage of vessels and number of lives lost by shipwreck or disaster to vessels of the United Kingdom showed yearly averages thus:—

| Years                 | Tons    | Lives |
|-----------------------|---------|-------|
| 1881-83 . . .         | 273,000 | 2,600 |
| 1884-86 . . .         | 220,000 | 1,470 |
| 1887-89 . . .         | 187,000 | 1,620 |
| 1890-92 . . .         | 197,000 | 1,600 |
| 1893-95 . . .         | 180,000 | 1,890 |
| General average . . . | 212,000 | 1,836 |

The loss of life in the last six years has been 15 per cent. less than in the years 1881-86, that of tonnage 23 per cent. less, although the merchant shipping of the United Kingdom has grown much in the interval.

## SICKNESS

According to a report published at the Turin Exhibition in 1898, the ratios of sick and invalided men, as also the death-rate, in the principal armies and navies were as follows during twelve months:—

|                | Per 1000 Men on Rolls |           |      |       |           |      |
|----------------|-----------------------|-----------|------|-------|-----------|------|
|                | Army                  |           |      | Navy  |           |      |
|                | Sick                  | Invalided | Died | Sick  | Invalided | Died |
| British . . .  | 922                   | 30.4      | 8.5  | 1,056 | 37.5      | 9.9  |
| French . . .   | 596                   | 16.9      | 9.0  | 1,050 | ...       | 9.9  |
| German . . .   | 825                   | 28.0      | 6.5  | 1,010 | 28.5      | 5.2  |
| Russian . . .  | 857                   | 10.0      | 8.2  | 1,076 | 9.0       | 11.7 |
| Austrian . . . | 1,130                 | 16.5      | 10.4 | 1,100 | 24.5      | 10.2 |
| Italian . . .  | 902                   | 15.8      | 9.2  | 525   | 7.2       | 7.2  |
| Average . . .  | 872                   | 19.6      | 8.6  | 970   | 21.4      | 9.0  |

This shows that, as a rule, 87 per cent. of soldiers and 97 per cent. of sailors are inscribed yearly on sick-list; but, of course, this includes repetitions, where one man may be entered two or three times. About 2 per cent. of soldiers and sailors are invalided yearly. Death-rate is less than 1 per cent. in all but the Austrian armies, and in all navies except Russian and Austrian.

In 1892 Bertillon compiled tables of sickness among certain Mutual Aid Societies, including the labours of Bodio, Hubbard, Neison, Ratcliffe, Finlayson, Ansell, Oliphant, Behm, &c., viz.:—

| Age            | Number of Days of Sickness Yearly for Men |          |        |         |       |         |
|----------------|-------------------------------------------|----------|--------|---------|-------|---------|
|                | England                                   | Scotland | France | Germany | Italy | Average |
| 20-25 . . .    | 5.7                                       | 4.0      | 3.1    | 5.8     | 5.0   | 4.7     |
| 25-30 . . .    | 6.0                                       | 4.2      | 3.4    | 5.1     | 5.4   | 4.8     |
| 30-35 . . .    | 6.8                                       | 4.6      | 3.4    | 5.6     | 5.1   | 5.1     |
| 35-40 . . .    | 8.1                                       | 5.0      | 4.3    | 6.3     | 6.0   | 6.0     |
| 40-45 . . .    | 9.6                                       | 6.0      | 5.3    | 7.8     | 6.2   | 7.0     |
| 45-50 . . .    | 12.0                                      | 8.3      | 5.9    | 7.7     | 6.8   | 8.1     |
| 50-55 . . .    | 15.9                                      | 11.4     | 8.0    | 8.5     | 7.9   | 10.3    |
| 55-60 . . .    | 22.5                                      | 14.9     | 8.4    | 16.3    | 9.2   | 14.3    |
| 60-65 . . .    | 32.1                                      | 23.0     | 11.2   | 12.5    | 11.2  | 18.0    |
| 65-70 . . .    | 55.8                                      | 55.6     | 16.7   | 18.9    | 13.4  | 32.1    |
| All ages . . . | 9.5                                       | ...      | 7.8    | ...     | 6.6   | 8.0     |

Bertillon's tables of sickness among operatives at Angers for thirty years down to 1894 show the proportions as regards age thus :—

| Age           | Cases   |         | Days Sick, Ratio |         | No. of Days |
|---------------|---------|---------|------------------|---------|-------------|
|               | 1864-79 | 1880-94 | 1864-79          | 1880-94 | 1880-94     |
| 17-24 . . .   | 122     | 30      | 167              | 42      | 5.2         |
| 25-34 . . .   | 393     | 330     | 305              | 278     | 3.6         |
| 35-44 . . .   | 383     | 365     | 390              | 320     | 4.2         |
| Over 44 . . . | 102     | 275     | 138              | 360     | 9.4         |
| Total . . .   | 1,000   | 1,000   | 1,000            | 1,000   | 4.4         |

Sickness prevails more among female than male operatives, viz. —

| Age           | Days of Sickness to each Person Yearly |        |       |        |
|---------------|----------------------------------------|--------|-------|--------|
|               | France                                 |        | Italy |        |
|               | Male                                   | Female | Male  | Female |
| 20-30 . . .   | 3.2                                    | 6.9    | 5.2   | 7.9    |
| 30-40 . . .   | 3.8                                    | 7.6    | 5.5   | 8.3    |
| 40-50 . . .   | 5.6                                    | 7.9    | 6.5   | 8.8    |
| 50-60 . . .   | 8.2                                    | 10.3   | 8.6   | 9.5    |
| 60-70 . . .   | 13.9                                   | 16.5   | 11.8  | 9.1    |
| General . . . | 7.8                                    | 9.4    | 6.6   | 8.5    |

In 1895 the Friendly Societies of France, comprising 1,584,000 members, published returns of sickness for ten years to December 1894, showing the averages as follows :—

|                       | Sick Days Yearly on No. of Hands | Days to Each Sick Person |
|-----------------------|----------------------------------|--------------------------|
| Men . . . . .         | 5.1                              | 17.3                     |
| Women . . . . .       | 3.8                              | 12.5                     |
| General average . . . | 5.0                              | 16.6                     |

Death-rate for all collectively averaged 16.4 per thousand yearly.

Sutton's report for Friendly Societies (England, 1896) is as follows :—

| Period        | Men, Yearly Average |            |           |
|---------------|---------------------|------------|-----------|
|               | Number              | Days Sick  | Per Man   |
| 1856-60 . . . | 722,000             | 8,160,000  | 11.3      |
| 1861-70 . . . | 1,790,000           | 22,400,000 | 12.4      |
| 1876-80 . . . | 1,663,000           | 22,030,000 | 13.2      |
| Period        | Women               |            |           |
|               | Number              | Days Sick  | Per Woman |
| 1856-75 . . . | 139,000             | 2,280,000  | 16.4      |

The following table shows death-rate per thousand yearly, and also average days of sickness in the year, to each worker according to age :—

| Age          | Death-rate | Sick Days |
|--------------|------------|-----------|
| 40 . . . . . | 10.7       | 9.6       |
| 60 . . . . . | 34.0       | 30.2      |
| 70 . . . . . | 72.3       | 85.7      |

The above shows that each worker of 40 lost 9½ days through sickness, and a worker of 60 lost 30 days: the

mean for all persons from 15 to 65 is supposed to be 13 days of sickness yearly.

In 1897 the sickness of the British navy averaged 2,838 men daily, or 4 per cent. of the force. Days of sickness during the year were 1,040,000, or 14 days to each man. The number invalided was 1987, or 27 per thousand.

Bodio's table as regards Italy (1881-85) is as follows :—

|                     | Days of Sickness Yearly According to Age |       |       |
|---------------------|------------------------------------------|-------|-------|
|                     | 15-30                                    | 30-45 | 45-60 |
| Booksellers . . .   | 3.2                                      | 4.0   | 4.5   |
| Clergy . . . . .    | 2.9                                      | 3.6   | 5.0   |
| Tailors . . . . .   | 3.1                                      | 4.1   | 7.0   |
| Butchers . . . . .  | 3.6                                      | 4.9   | 7.3   |
| Shoemakers . . .    | 5.7                                      | 5.6   | 7.4   |
| Carpenters . . .    | 5.6                                      | 5.8   | 8.0   |
| Painters . . . . .  | 8.1                                      | 5.5   | 8.0   |
| Bakers . . . . .    | 5.3                                      | 6.3   | 8.1   |
| Blacksmiths . . .   | 6.1                                      | 6.2   | 8.2   |
| Gardeners . . . .   | 5.9                                      | 6.1   | 8.3   |
| Servants . . . . .  | 5.1                                      | 5.6   | 8.5   |
| Cab-drivers . . .   | 4.0                                      | 6.1   | 8.6   |
| Chimney-sweepers .  | 6.6                                      | 7.8   | 8.7   |
| Masons . . . . .    | 4.8                                      | 6.2   | 8.9   |
| Millers . . . . .   | 4.1                                      | 4.5   | 9.2   |
| Street porters . .  | 6.9                                      | 9.4   | 9.3   |
| General average . . | 5.1                                      | 5.8   | 7.8   |

## SILK

China and Japan produce about 28 million pounds, say 12,500 tons, yearly, but no less than 60 per cent. is retained for native manufacture, and hence it is usual in estimating the world's crop to count in the case of China and Japan only the surplus available for exportation. An estimate of silk production published in 1890 was as follows :—

| Year           | Crop, Tons |                   | Crop of 1890 Tons |
|----------------|------------|-------------------|-------------------|
| 1886 . . . . . | 11,554     | China . . . . .   | 3,963             |
| 1887 . . . . . | 11,888     | Japan . . . . .   | 2,018             |
| 1888 . . . . . | 11,588     | Italy . . . . .   | 3,443             |
| 1889 . . . . . | 11,382     | Various . . . . . | 2,016             |
| 1890 . . . . . | 11,440     | Total . . . . .   | 11,440            |

An ounce of eggs produced 39,000 silkworms, which consume yearly one ton of mulberry leaves, and give 132 pounds of cocoons or 13 pounds of silk, worth £8 sterling.

The countries which export silk manufactures are as follows :—

|                   | Tons   |        | Value, £   |            |
|-------------------|--------|--------|------------|------------|
|                   | 1885   | 1895   | 1885       | 1895       |
| France . . . . .  | 6,000  | 7,000  | 8,900,000  | 10,800,000 |
| Germany . . . . . | 4,900  | 4,900  | 7,400,000  | 6,400,000  |
| Switzerland . . . | 2,800  | 3,350  | 4,400,000  | 5,300,000  |
| Italy . . . . .   | 200    | 450    | 600,000    | 1,200,000  |
| Total . . . . .   | 13,900 | 15,700 | 21,300,000 | 23,700,000 |

The production and consumption of silk manufactures in various countries is:—

|                          | Output<br>Millions £ | Consumption |                       |
|--------------------------|----------------------|-------------|-----------------------|
|                          |                      | Millions £  | Shillings<br>per Head |
| United Kingdom . . . . . | 6.0                  | 19.0        | 10.0                  |
| France . . . . .         | 28.2                 | 20.0        | 10.5                  |
| Germany . . . . .        | 16.5                 | 10.2        | 4.0                   |
| Switzerland . . . . .    | 6.4                  | 1.3         | 8.5                   |
| Italy . . . . .          | 4.2                  | 3.0         | 2.0                   |
| Austria . . . . .        | 4.5                  | 4.0         | 2.0                   |
| Russia, &c. . . . .      | 5.2                  | 7.5         | 1.0                   |
| Europe . . . . .         | 71.0                 | 65.0        | 3.5                   |
| United States . . . . .  | 19.0                 | 23.0        | 6.5                   |
| Total . . . . .          | 90.0                 | 88.0        | 4.0                   |

For further details see Part I., page 536.  
Silk manufacture has declined in Great Britain since 1870, viz:—

|                | Spindles  | Power-Looms | Operatives |
|----------------|-----------|-------------|------------|
| 1870 . . . . . | 1,130,000 | 12,400      | 48,100     |
| 1890 . . . . . | 1,030,000 | 11,400      | 41,300     |

There is a fall of 9 per cent. in spindles and 14 per cent. in the number of hands.

### SLAVES

Women slaves were sold at Cairo in September 1894 at prices averaging £18 per head.

For *Slave-trade* in various countries see page 540.

### SOUND

The following instances of sound travelling great distances are recorded:—

| Cannon at          | Heard at               | Miles | Date |
|--------------------|------------------------|-------|------|
| Waterloo . . . . . | Dover . . . . .        | 180   | 1815 |
| Cepeda . . . . .   | Buenos Ayres . . . . . | 160   | 1859 |
| Spithead . . . . . | Bridgwater . . . . .   | 100   | 1897 |

Mr. Glaisher in a balloon two miles from the earth heard a musket-shot and a dog's bark, and at four miles a railway train.

### SQUATTERS

There are 19,000 in Australia, who hold 690 million acres of Crown lands at one penny per acre, and 10,800 in South Africa, who hold 60 million acres: the former are sheep-farmers, whose average run is 36,000 acres, rent £150. African squatters' runs average 5500 acres.

### STATUES

Those of Babylon were valued at £21,000,000 sterling, that of Belus being worth £3,500,000.

### STEAM

The increase of steam-power\* since 1870 has been

\* The economic value of steam-power was thus set forth by the *Quarterly Review* in 1826: "Steam-power now enables a man to do as much work as 120 could fifty years ago. One bushel of coal, value threepence, will raise 20,000 gallons of water from a depth of 350 feet in a few minutes, which would take 20 men 10 hours to raise with a pump, at a cost of 40 shillings. Steam does for £1 what would cost £160 by hand."

more than 250 per cent., the various nations showing approximately as follows:—

|                         | Horse-Power |            |            |
|-------------------------|-------------|------------|------------|
|                         | 1870        | 1880       | 1896       |
| U. Kingdom . . . . .    | 4,040,000   | 7,600,000  | 13,700,000 |
| France . . . . .        | 1,850,000   | 3,340,000  | 5,920,000  |
| Germany . . . . .       | 2,480,000   | 5,120,000  | 8,080,000  |
| Russia . . . . .        | 920,000     | 1,740,000  | 3,100,000  |
| Austria . . . . .       | 800,000     | 1,560,000  | 2,520,000  |
| Italy . . . . .         | 330,000     | 500,000    | 1,520,000  |
| Spain . . . . .         | 210,000     | 470,000    | 1,180,000  |
| Portugal . . . . .      | 30,000      | 60,000     | 170,000    |
| Sweden . . . . .        | 100,000     | 220,000    | 510,000    |
| Norway . . . . .        | 40,000      | 90,000     | 410,000    |
| Denmark . . . . .       | 30,000      | 90,000     | 260,000    |
| Holland . . . . .       | 130,000     | 250,000    | 600,000    |
| Belgium . . . . .       | 350,000     | 610,000    | 1,180,000  |
| Switzerland . . . . .   | 140,000     | 230,000    | 580,000    |
| Roumania, &c. . . . .   | 120,000     | 320,000    | 570,000    |
| Europe . . . . .        | 11,570,000  | 22,200,000 | 40,300,000 |
| United States . . . . . | 5,590,000   | 9,110,000  | 18,060,000 |
| Colonies, &c. . . . .   | 1,300,000   | 3,040,000  | 7,740,000  |
| The World . . . . .     | 18,460,000  | 34,350,000 | 66,100,000 |

The respective shares of fixed, of railway, and of steam-boat engines were:—

|                      | 1870       | 1880       | 1896       |
|----------------------|------------|------------|------------|
| Fixed . . . . .      | 4,100,000  | 7,670,000  | 12,470,000 |
| Locomotive . . . . . | 11,740,000 | 21,440,000 | 40,420,000 |
| Steamer . . . . .    | 2,620,000  | 5,240,000  | 13,210,000 |
| Total . . . . .      | 18,460,000 | 34,350,000 | 66,100,000 |

The steam-power of war-vessels is omitted as regards all nations. It will be found at page 782.

The total in 1896 was made up approximately as follows:—

|                       | Horse-Power |            |            | Total      |
|-----------------------|-------------|------------|------------|------------|
|                       | Fixed       | Locom.     | Steamer    |            |
| U. Kingdom . . . . .  | 2,300,000   | 5,100,000  | 6,300,000  | 13,700,000 |
| France . . . . .      | 1,130,000   | 4,200,000  | 590,000    | 5,920,000  |
| Germany . . . . .     | 2,400,000   | 4,800,000  | 880,000    | 8,080,000  |
| Russia . . . . .      | 430,000     | 2,440,000  | 230,000    | 3,100,000  |
| Austria . . . . .     | 480,000     | 1,890,000  | 150,000    | 2,520,000  |
| Italy . . . . .       | 180,000     | 1,100,000  | 240,000    | 1,520,000  |
| Spain . . . . .       | 50,000      | 600,000    | 530,000    | 1,180,000  |
| Portugal . . . . .    | 10,000      | 120,000    | 40,000     | 170,000    |
| Sweden . . . . .      | 30,000      | 300,000    | 180,000    | 510,000    |
| Norway . . . . .      | 10,000      | 80,000     | 320,000    | 410,000    |
| Denmark . . . . .     | 10,000      | 100,000    | 150,000    | 260,000    |
| Holland . . . . .     | 80,000      | 330,000    | 190,000    | 600,000    |
| Belgium . . . . .     | 390,000     | 700,000    | 90,000     | 1,180,000  |
| Switzerland . . . . . | 90,000      | 480,000    | 10,000     | 580,000    |
| Roumania, &c. . . . . | 20,000      | 400,000    | 150,000    | 570,000    |
| Europe . . . . .      | 7,610,000   | 22,640,000 | 10,050,000 | 40,300,000 |
| U. States . . . . .   | 3,940,000   | 11,760,000 | 2,360,000  | 18,060,000 |
| Canada . . . . .      | 320,000     | 820,000    | 250,000    | 1,390,000  |
| Australia . . . . .   | 260,000     | 400,000    | 180,000    | 840,000    |
| Various . . . . .     | 340,000     | 4,800,000  | 370,000    | 5,510,000  |
| The World . . . . .   | 12,470,000  | 40,420,000 | 13,210,000 | 66,100,000 |

See *Steam*, page 545.

## STREETS

The annual sum spent on maintenance and cleaning of streets in European cities is as follows :—

|              | Sum<br>£ | Pence<br>per<br>Sq. Yd. |              | Sum<br>£ | Pence<br>per<br>Sq. Yd. |
|--------------|----------|-------------------------|--------------|----------|-------------------------|
| Paris . . .  | 800,000  | 9.2                     | Dresden . .  | 48,000   | 2.0                     |
| Berlin . . . | 123,000  | 1.7                     | Buda-Pesth . | 46,000   | 1.6                     |
| Rome . . .   | 60,000   | 3.4                     | Naples . . . | 46,000   | 4.8                     |
| Vienna . . . | 85,000   | 2.2                     | Brussels . . | 24,000   | 1.1                     |
| Hamburg . .  | 86,000   | 2.2                     | Milan . . .  | 30,000   | 3.4                     |

The mean expenditure for the ten cities was about 3½ pence (3.6) per square yard. Some of them, however, include only cleaning and watering expenses.

The street area, compared with population, is as follows :—

|               | Sq. Yds.<br>(000 omitted) | Sq. Yds.<br>per Inhab. |               | Sq. Yds.<br>(000 omitted) | Sq. Yds.<br>per Inhab. |
|---------------|---------------------------|------------------------|---------------|---------------------------|------------------------|
| London . . .  | 52,000                    | 12.0                   | Brussels . .  | 5,200                     | 10.0                   |
| Paris . . .   | 20,300                    | 8.0                    | Breslau . . . | 5,900                     | 16.0                   |
| Berlin . . .  | 17,300                    | 10.5                   | Rome . . .    | 4,200                     | 9.2                    |
| Vienna . . .  | 9,300                     | 7.0                    | Naples . . .  | 2,300                     | 4.4                    |
| Hamburg . .   | 9,500                     | 15.0                   | Milan . . .   | 2,200                     | 5.0                    |
| Dresden . .   | 5,800                     | 17.5                   | Genoa . . .   | 900                       | 4.0                    |
| Leipzig . . . | 3,000                     | 7.5                    | Florence . .  | 2,000                     | 10.0                   |
| Bordeaux . .  | 3,500                     | 13.5                   | Turin . . .   | 3,000                     | 8.6                    |

The above sixteen cities give an average of 10 yards of street per inhabitant. Paris has 4600 acres under streets and squares, or one-fourth of its area.

## STRIKES

## UNITED KINGDOM

The number of days lost in strikes and lock-outs has been :—

| Year       | No. of Days | Year        | No. of Days |
|------------|-------------|-------------|-------------|
| 1893 . . . | 30,800,000  | 1896 . . .  | 3,700,000   |
| 1894 . . . | 9,100,000   | 1897 . . .  | 10,400,000  |
| 1895 . . . | 5,500,000   | Average . . | 11,900,000  |

Thus the average for five years is the same as 119,000 men idle for 100 days. From 1890 to 1895 the number of strikes yearly averaged 878, with 392,000 hands on strike.

In 1897 there were 864 strikes in the United Kingdom, by 230,000 operatives, viz. :—

| Cause           | Numbers               |
|-----------------|-----------------------|
| Wages . . .     | 106,300               |
| Shorter hours . | 52,800                |
| Various . . .   | 71,900                |
| Total . . .     | 230,300               |
|                 | Men . . . 189,800     |
|                 | Women . . . 24,400    |
|                 | Children . . . 10,100 |
| Total . . .     | 230,300               |

The loss of labour amounted to 10,000,000 days, averaging 43 days per striker; whereas in 1893 the loss was 31,200,000 days, by 690,000 strikers, an average of 45 days each. The engineers' strike in 1897-98, by 47,500 men, caused a loss of 6,850,000 days, an average of 144 days each.

## UNITED STATES

In fourteen years, ending 1894, there were 14,390 strikes, involving 3,714,000 operatives, and causing a loss of £59,300,000 sterling. In 44 per cent. of strikes the operatives succeeded, at a loss of £39,500,000: the masters' loss was £19,800,000. The loss to each workman on strike averaged £10, 5s.: each strike cost £1,400 to masters.

In an interval of seven and a half years, ending June 1894, the aggregate of strikes and lock-outs in four principal cities was as follows :—

|                | Hands (000 omitted) |           |       | Loss, £ (000 omitted) |         |        |
|----------------|---------------------|-----------|-------|-----------------------|---------|--------|
|                | Strikes             | Lock-outs | Total | To Hands              | Masters | Total  |
| N. York . . .  | 248                 | 22        | 270   | 1,840                 | 910     | 2,750  |
| Chicago . . .  | 283                 | 49        | 332   | 3,080                 | 3,580   | 6,660  |
| Pittsburg . .  | 101                 | 12        | 113   | 2,810                 | 720     | 3,530  |
| Philadelphia . | 60                  | 9         | 69    | 560                   | 300     | 860    |
| 4 Cities . . . | 692                 | 92        | 784   | 8,290                 | 5,510   | 13,800 |

The annual average for the four cities collectively was 104,000 hands on strike, and a loss of £1,840,000 sterling.

## FRANCE

The number of strikes and of operatives engaged in them were :—

| Year       | Strikes | Hands   | Average |
|------------|---------|---------|---------|
| 1874 . . . | 22      | 2,730   | 124     |
| 1884 . . . | 91      | 23,700  | 260     |
| 1890 . . . | 313     | 118,900 | 380     |
| 1893 . . . | 634     | 170,100 | 270     |
| 1894 . . . | 391     | 54,600  | 140     |

The strikes of 1893 showed as follows :—

| At            | Number | Days Lost |
|---------------|--------|-----------|
| Mines . . .   | 22     | 1,510,000 |
| Factories . . | 612    | 1,664,000 |
| Total . . .   | 634    | 3,174,000 |

Each hand on strike (170,000) lost 18 days of work. The workmen gained their purpose in 57 per cent. of the strikes.

## AUSTRIA

Dr. Juraschek's tables contain the following :—

| Year       | Strikes | Hands  | Days lost |
|------------|---------|--------|-----------|
| 1891 . . . | 104     | 14,030 | 247,000   |
| 1894 . . . | 159     | 44,080 | 566,000   |

The average for four years was 134 strikes, with 25,000 hands on strike, and a loss of 370,000 days, equal to 15 days per hand.

## ITALY

Official returns are as follows :—

| Years        | Annual Average |        | 1896                 |
|--------------|----------------|--------|----------------------|
|              | Strikes        | Men    | Men                  |
| 1881-85. . . | 67             | 17,100 | Hatters . . 41,600   |
| 1886-90. . . | 104            | 26,400 | Miners . . . 31,000  |
| 1891-95. . . | 124            | 28,600 | Various . . . 23,500 |
| 1896. . .    | 210            | 96,100 | Total . . . 96,100   |

The loss of days was as follows :—

| <i>Annual Average</i> |         |                 |           |
|-----------------------|---------|-----------------|-----------|
| 1881-85 . . . .       | 124,000 | 1891-95 . . . . | 230,000   |
| 1886-90 . . . .       | 170,000 | 1896 . . . . .  | 1,150,000 |

See *Trade Unions*, p. 570.

### SUBSIDIES

Annual subsidies are given yearly in various countries for agriculture and technical schools, viz. :—

|                 | Agricul.<br>£ | Technical<br>£ | Total<br>£ | Pence<br>per<br>Inhab. |
|-----------------|---------------|----------------|------------|------------------------|
| France . . . .  | 1,870,000     | 1,070,000      | 2,940,000  | 19                     |
| Prussia . . . . | 680,000       | 560,000        | 1,240,000  | 9                      |
| Bavaria . . . . | 90,000        | 50,000         | 140,000    | 6                      |
| Wurtemberg . .  | 70,000        | 60,000         | 130,000    | 15                     |
| Denmark . . . . | 110,000       | 20,000         | 130,000    | 14                     |
| Holland . . . . | 60,000        | 50,000         | 110,000    | 6                      |
| Belgium . . . . | 110,000       | 40,000         | 150,000    | 6                      |
| Switzerland . . | 150,000       | 1,570,000      | 1,720,000  | 135                    |
| Austria . . . . | 950,000       | 600,000        | 1,550,000  | 16                     |
| Hungary . . . . | 1,700,000     | 1,800,000      | 3,500,000  | 46                     |
| Italy . . . . . | 320,000       | 280,000        | 600,000    | 5                      |
| United States . | 2,200,000     | ...            | ...        | ...                    |

### SUGAR

The world's crop of sugar has doubled since 1880, viz. :—

| Year         | Cane<br>Tons | Beet<br>Tons | Total     | Beet<br>Ratio<br>per cent. |
|--------------|--------------|--------------|-----------|----------------------------|
| 1880 . . . . | 1,860,000    | 1,810,000    | 3,670,000 | 49                         |
| 1894 . . . . | 3,200,000    | 3,790,000    | 7,050,000 | 54                         |
| 1895 . . . . | 3,140,000    | 4,690,000    | 7,830,000 | 60                         |
| 1896 . . . . | 2,560,000    | 4,330,000    | 6,890,000 | 63                         |
| 1897 . . . . | 2,430,000    | 4,780,000    | 7,210,000 | 66                         |
| 1898 . . . . | 2,850,000    | 4,650,000    | 7,500,000 | 62                         |

There are five principal countries that produce beet-sugar, viz. :—

|                  | Tons      |           |           |
|------------------|-----------|-----------|-----------|
|                  | 1876      | 1886      | 1897      |
| Germany . . . .  | 360,000   | 810,000   | 1,840,000 |
| Austria . . . .  | 200,000   | 430,000   | 930,000   |
| France . . . . . | 400,000   | 300,000   | 700,000   |
| Russia . . . . . | 160,000   | 350,000   | 700,000   |
| Belgium . . . .  | 70,000    | 70,000    | 280,000   |
| Various . . . .  | 40,000    | 80,000    | 330,000   |
| Total . . . .    | 1,230,000 | 2,040,000 | 4,780,000 |

Official returns for Germany show that a ton of roots gave the following percentage of beet-sugar at various dates :—

| Year           | Per cent. | Year           | Per cent. |
|----------------|-----------|----------------|-----------|
| 1850 . . . . . | 7.2       | 1880 . . . . . | 8.6       |
| 1860 . . . . . | 8.6       | 1890 . . . . . | 12.8      |
| 1870 . . . . . | 8.6       | 1896 . . . . . | 12.2      |

The average yield in Russia was 8 per cent. of sugar in 1885, and 11 per cent. in 1890-95. The production,

consumption, and export of beet-sugar in 1896 were estimated as follows :—

|                  | Tons       |             |           |
|------------------|------------|-------------|-----------|
|                  | Production | Consumption | Export    |
| Germany . . . .  | 1,620,000  | 720,000     | 900,000   |
| Austria . . . .  | 790,000    | 350,000     | 440,000   |
| Russia . . . . . | 780,000    | 680,000     | 100,000   |
| France . . . . . | 690,000    | 480,000     | 210,000   |
| Belgium . . . .  | 230,000    | 80,000      | 150,000   |
| Holland, &c. . . | 220,000    | 220,000     | ...       |
| Total . . . .    | 4,330,000  | 2,530,000   | 1,800,000 |

The consumption of sugar of all kinds in various countries per inhabitant is :—

|                 | <i>Pounds</i> |                  | <i>Pounds</i> |                  | <i>Pounds</i> |
|-----------------|---------------|------------------|---------------|------------------|---------------|
| U. Kingdom . 88 |               | Austria . . . 17 |               | Belgium . . . 27 |               |
| France . . . 28 |               | Russia . . . 15  |               | Canada . . . 80  |               |
| Germany . . 31  |               | Denmark . . 20   |               | U. States . . 63 |               |

Consumption has increased very notably in the United Kingdom and the United States, viz. :—

| Year         | Tons           |               | Pounds per head |               |
|--------------|----------------|---------------|-----------------|---------------|
|              | United Kingdom | United States | United Kingdom  | United States |
| 1875 . . . . | 940,000        | 880,000       | 63              | 44            |
| 1885 . . . . | 1,200,000      | 1,300,000     | 75              | 52            |
| 1895 . . . . | 1,540,000      | 1,950,000     | 88              | 63            |

The exports of sugar from the British Colonies averaged :

|                     | Tons Yearly |         |         |         |
|---------------------|-------------|---------|---------|---------|
|                     | 1881-85     | 1886-90 | 1891-94 | 1895    |
| Mauritius . . . .   | 115,000     | 120,000 | 110,000 | 115,000 |
| Guiana . . . . .    | 110,000     | 115,000 | 110,000 | 100,000 |
| W. Indian Islands . | 175,000     | 165,000 | 160,000 | 135,000 |
| Australia . . . .   | 20,000      | 40,000  | 55,000  | 75,000  |
| India, &c. . . . .  | 70,000      | 70,000  | 55,000  | 55,000  |
| Total . . . .       | 490,000     | 510,000 | 490,000 | 480,000 |

See *Sugar*, page 549.

### SUIOCIDE

Mayr's tables show an alarming increase of suicide in most countries during the last twenty years, viz. :—

|                   | Suicides Yearly per Million Inhabitants |         |         |          |
|-------------------|-----------------------------------------|---------|---------|----------|
|                   | 1871-77                                 | 1881-85 | 1886-93 | Increase |
| England . . . .   | 67                                      | 74      | 82      | 15       |
| Scotland . . . .  | 40                                      | 53      | 58      | 18       |
| Ireland . . . . . | 17                                      | 22      | 25      | 8        |
| France . . . . .  | 157                                     | 195     | 224     | 67       |
| Germany . . . .   | 143                                     | 209     | 205     | 62       |
| Russia . . . . .  | 30                                      | 31      | 29      | ...      |
| Austria . . . .   | 122                                     | 162     | 161     | 39       |
| Hungary . . . .   | ...                                     | 88      | 115     | 27       |
| Italy . . . . .   | 37                                      | 49      | 52      | 15       |
| Spain . . . . .   | 14                                      | 25      | 20      | 6        |
| Sweden . . . .    | 81                                      | 97      | 125     | 44       |
| Norway . . . .    | 73                                      | 69      | 65      | ...      |
| Denmark . . . .   | 258                                     | 249     | 256     | ...      |
| Holland . . . .   | 36                                      | 53      | 58      | 22       |
| Belgium . . . .   | 67                                      | 107     | 124     | 57       |
| Finland . . . .   | ...                                     | 39      | 43      | 4        |
| Servia . . . . .  | ...                                     | 38      | 37      | ...      |
| Switzerland . .   | 202                                     | 234     | 220     | 18       |
| Australia . . .   | 86                                      | 109     | 110     | 24       |

In all countries suicide is much more frequent among men than women, viz. :—

*Female Suicides among 100.*

|                  |                  |                        |
|------------------|------------------|------------------------|
| England . . . 26 | Italy . . . 20   | Holland . . . 16       |
| France . . . 21  | Spain . . . 29   | Belgium . . . 15       |
| Germany . . . 20 | Sweden . . . 23  | Switzerland . . . 12   |
| Russia . . . 21  | Norway . . . 24  | United States . . . 28 |
| Austria . . . 18 | Denmark . . . 23 | Average . . . 21       |

Bodio's tables for 1887-91 give the number of suicides yearly per million inhabitants for various countries as follows :—

|                   |                   |                       |
|-------------------|-------------------|-----------------------|
| England . . . 80  | Germany . . . 246 | Switzerland . . . 216 |
| Scotland . . . 56 | Prussia . . . 197 | Belgium . . . 122     |
| Ireland . . . 24  | Austria . . . 158 | Holland . . . 58      |
| France . . . 218  | Italy . . . 52    | Sweden . . . 119      |

The above rate for Germany is for urban population.

In a period of ten years down to 1897, in Prussia, 407 children (under 15 years of age) committed suicide, 331 being boys and 76 girls.

**UNITED KINGDOM**

The rates of suicide in various professions of persons aged between 25 and 65 years are :—

*Suicides Yearly of 1000 Males who Die*

|                      |                    |                         |
|----------------------|--------------------|-------------------------|
| Miner . . . 5        | Fisherman . . . 13 | Carpenter . . . 17      |
| Draper . . . 5       | Mason . . . 14     | Painter . . . 21        |
| Printer . . . 8      | Cabdriver . . . 16 | Butcher . . . 23        |
| Ploughman . . . 9    | Tailor . . . 16    | Baker . . . 26          |
| Gardener . . . 11    | Farmer . . . 17    | Publican . . . 26       |
| Blacksmith . . . 11  | Grocer . . . 17    | Com. traveller . . . 31 |
| Stonecutter . . . 11 | Shoemaker . . . 17 | Costermonger . . . 44   |

The average is 14; that is to say, of 1000 males who die between 25 and 65 years of age in England 14

commit suicide; but the rate is two or three times as heavy as regards publicans, commercial travellers, and costermongers.

**ITALY**

In the years 1894-96 the average was 1870 suicides, equal to 60 per million inhabitants. In the old kingdom of Naples the ratio is only 31, in Sicily 41, in Venetia 58, per million, whereas in Genoa it is 101, and in Rome 108. The total number of suicides in 1896 gives the following ratios :—

|                          | Males      | Females    | Total        |
|--------------------------|------------|------------|--------------|
| Single . . . . .         | 380        | 78         | 458          |
| Married . . . . .        | 325        | 95         | 420          |
| Widowed . . . . .        | 92         | 30         | 122          |
| <b>Total . . . . .</b>   | <b>797</b> | <b>203</b> | <b>1,000</b> |
| Under 20 years . . . . . | 53         | 18         | 71           |
| 20-40 . . . . .          | 313        | 87         | 400          |
| 40-60 . . . . .          | 270        | 63         | 333          |
| 60-80 . . . . .          | 152        | 31         | 183          |
| Over 80 . . . . .        | 9          | 4          | 13           |
| <b>Total . . . . .</b>   | <b>797</b> | <b>203</b> | <b>1,000</b> |

The seasons had the following ratios: spring 28, summer 31, autumn 20, and winter 21, per cent. of the total.

**UNITED STATES**

The ratios of age in suicides were :—

|                        |               |
|------------------------|---------------|
| Under 15 . . . . .     | 66            |
| 15-30 . . . . .        | 1,995         |
| 31-50 . . . . .        | 3,740         |
| 51-60 . . . . .        | 1,984         |
| Over 60 . . . . .      | 2,215         |
| <b>Total . . . . .</b> | <b>10,000</b> |

**T**

**TALLOW**

In 1897 Great Britain imported 100,000 tons, value £1,900,000.

See *Tallow*, Part I., page 550.

**TAXES**

In the section of Finances it will be seen (page 700) that 71 per cent. of the revenue of nations is raised by taxes, 14 per cent. is produced by State railways, and 15 per cent. arises from post-office, crown lands, and other public properties. Local taxation has also to be considered, and the subjoined table shows both approximately, and the ratio per head :—

|                   | National<br>£ | Local<br>£ | Total<br>£  | £ per<br>Head |
|-------------------|---------------|------------|-------------|---------------|
| U. Kingdom . . .  | 98,000,000    | 61,300,000 | 159,300,000 | 4.0           |
| France . . . . .  | 117,800,000   | 42,300,000 | 160,100,000 | 4.2           |
| Germany . . . . . | 84,500,000    | 48,000,000 | 132,500,000 | 2.5           |
| Russia . . . . .  | 98,000,000    | 16,400,000 | 114,400,000 | 1.0           |

|                         | National<br>£      | Local<br>£         | Total<br>£           | £ per<br>Head |
|-------------------------|--------------------|--------------------|----------------------|---------------|
| Austria . . . . .       | 68,000,000         | 16,500,000         | 84,500,000           | 2.0           |
| Italy . . . . .         | 59,700,000         | 29,000,000         | 88,700,000           | 2.9           |
| Spain . . . . .         | 29,900,000         | 9,600,000          | 39,500,000           | 2.2           |
| Portugal . . . . .      | 9,600,000          | 3,200,000          | 12,800,000           | 2.5           |
| Sweden . . . . .        | 4,800,000          | 4,200,000          | 9,000,000            | 1.8           |
| Norway . . . . .        | 2,500,000          | 1,300,000          | 3,800,000            | 1.9           |
| Denmark . . . . .       | 2,800,000          | 2,100,000          | 4,900,000            | 2.2           |
| Holland . . . . .       | 9,500,000          | 10,300,000         | 19,800,000           | 4.0           |
| Belgium . . . . .       | 7,800,000          | 5,400,000          | 13,200,000           | 2.1           |
| Switzerland . . . . .   | 2,100,000          | 4,000,000          | 6,100,000            | 2.0           |
| Greece . . . . .        | 3,300,000          | 700,000            | 4,000,000            | 1.6           |
| Roumania, &c. . . . .   | 31,700,000         | 5,700,000          | 37,400,000           | 2.0           |
| Europe . . . . .        | 630,000,000        | 260,000,000        | 890,000,000          | 2.3           |
| United States . . . . . | 71,800,000         | 98,000,000         | 169,800,000          | 2.3           |
| Canada . . . . .        | 6,500,000          | 2,900,000          | 9,400,000            | 1.9           |
| Australia . . . . .     | 11,700,000         | 4,100,000          | 15,800,000           | 3.6           |
| <b>Total . . . . .</b>  | <b>720,000,000</b> | <b>365,000,000</b> | <b>1,085,000,000</b> | <b>2.3</b>    |

See also *Taxes*, in Part I., pages 557 to 565.



National taxes are made up approximately as follows:—

|               | £ (000 omitted) |         |          |        |          |         |
|---------------|-----------------|---------|----------|--------|----------|---------|
|               | Customs         | Excise  | Property | Stamps | Sundries | Total   |
| U. King.      | 22,100          | 33,300  | 17,300   | 18,500 | 6,800    | 98,000  |
| France . .    | 17,200          | 43,200  | 19,200   | 30,100 | 8,100    | 117,800 |
| Germany . .   | 17,800          | 29,500  | 22,600   | 5,100  | 9,500    | 84,500  |
| Russia . .    | 16,900          | 37,200  | 19,100   | 7,100  | 17,700   | 98,000  |
| Austria . .   | 8,300           | 30,700  | 17,500   | 7,800  | 3,700    | 68,000  |
| Italy . .     | 11,900          | 14,800  | 20,800   | 7,400  | 4,800    | 59,700  |
| Spain . .     | 6,900           | 7,200   | 11,900   | 2,800  | 1,100    | 29,900  |
| Portugal . .  | 4,000           | 1,500   | 2,600    | 1,100  | 400      | 9,600   |
| Sweden . .    | 2,100           | 1,200   | 600      | 200    | 700      | 4,800   |
| Norway . .    | 1,300           | 400     | ...      | 200    | 600      | 2,500   |
| Denmark . .   | 1,400           | 300     | 500      | 400    | 200      | 2,800   |
| Holland . .   | 600             | 3,700   | 2,800    | 1,700  | 700      | 9,500   |
| Belgium . .   | 1,300           | 1,700   | 2,600    | 1,500  | 700      | 7,800   |
| Switzerland . | 1,700           | ...     | 100      | 100    | 200      | 2,100   |
| Turkey, &c.   | 6,500           | 6,300   | 13,400   | 4,000  | 4,800    | 35,000  |
| Europe . .    | 120,000         | 211,000 | 151,000  | 88,000 | 60,000   | 630,000 |
| U. States . . | 36,700          | 30,500  | ...      | ...    | 4,600    | 71,800  |
| Canada . .    | 4,000           | 1,900   | ...      | ...    | 600      | 6,500   |
| Australia . . | 8,300           | 2,600   | ...      | ...    | 800      | 11,700  |
| Total . .     | 169,000         | 246,000 | 151,000  | 88,000 | 66,000   | 720,000 |

In the above table Property-tax includes taxes on properties or individuals, whether in the form of income-tax, poll-tax, trade-licenses, or death-duties. See *Finances*, page 700, and *Taxes on Alcohol*, page 635.

The incidence of taxation compared with the earnings of nations gives the following result:—

|                    | Millions £ Sterling |          | Tax per Cent. |
|--------------------|---------------------|----------|---------------|
|                    | Earnings            | Taxation |               |
| United Kingdom . . | 1,421               | 159      | 11.2          |
| France . . . .     | 1,205               | 160      | 13.3          |
| Germany . . . .    | 1,285               | 133      | 10.4          |
| Russia . . . .     | 1,004               | 114      | 11.4          |
| Austria . . . .    | 707                 | 85       | 12.0          |
| Italy . . . .      | 436                 | 89       | 20.4          |
| Spain . . . .      | 277                 | 40       | 14.4          |
| Portugal . . . .   | 61                  | 13       | 21.0          |
| Sweden . . . .     | 102                 | 9        | 9.8           |
| Norway . . . .     | 40                  | 4        | 9.5           |
| Denmark . . . .    | 58                  | 5        | 8.3           |
| Holland . . . .    | 109                 | 20       | 18.0          |
| Belgium . . . .    | 169                 | 13       | 7.7           |
| Switzerland . . .  | 66                  | 6        | 9.1           |
| Roumania . . . .   | 75                  | 9        | 11.5          |
| Servia . . . .     | 28                  | 2        | 8.5           |
| Bulgaria . . . .   | 37                  | 4        | 10.4          |
| Greece . . . .     | 28                  | 4        | 14.5          |
| Europe . . . .     | 7,108               | 869      | 12.1          |
| United States . .  | 3,178               | 170      | 5.4           |
| Canada . . . .     | 186                 | 9        | 5.0           |
| Australia . . . .  | 213                 | 16       | 7.4           |
| Total . . . .      | 10,685              | 1,062    | 10.0          |

It appears from the above that 10 per cent. of the earnings of mankind are necessary for taxation, but this ratio is surpassed in most European countries, especially in Portugal and Italy, where it is over 20 per cent. The average of taxation on 455 million inhabitants of the above countries is 44 shillings per head, as compared with 125 shillings for food (see *Food*, page 715): every inhabitant of Europe, big or little, pays on an average

1½ pence daily in taxes, but the ratio in the United Kingdom is almost 3 pence daily.

It is shown by M. Yves Guyot that indirect taxation presses more heavily on the poor than on the rich, and that, nevertheless, the tendency of the age is to augment this kind of taxation. The table of M. Block for 1872 compares with later dates as follows:—

|                    | Percentage of Indirect Taxation |      |      |
|--------------------|---------------------------------|------|------|
|                    | 1872                            | 1889 | 1894 |
| United Kingdom . . | 85                              | 79   | 83   |
| France . . . .     | 75                              | 82   | 84   |
| Germany . . . .    | 66                              | 81   | 73   |
| Russia . . . .     | 80                              | 87   | 81   |
| Austria . . . .    | 54                              | 76   | 74   |
| Italy . . . .      | 49                              | 70   | 66   |
| Spain . . . .      | 56                              | 61   | 60   |
| Portugal . . . .   | 70                              | 85   | 73   |
| Sweden . . . .     | 76                              | 83   | 87   |
| Denmark . . . .    | 72                              | 80   | 82   |
| Holland . . . .    | 67                              | 73   | 70   |
| Belgium . . . .    | 69                              | 69   | 67   |

The excuse that is made by financiers for the increase of indirect taxation is that it is levied much more easily than direct. It is, nevertheless, most unequal in its incidence, because falling mostly on articles of consumption viz.:—

|                    | Ratios of Indirect Taxation |          |       |
|--------------------|-----------------------------|----------|-------|
|                    | Articles of Consum.         | Sundries | Total |
| United Kingdom . . | 68.5                        | 31.5     | 100.0 |
| France . . . .     | 61.0                        | 39.0     | 100.0 |
| Germany . . . .    | 76.3                        | 23.7     | 100.0 |
| Russia . . . .     | 68.0                        | 32.0     | 100.0 |
| Austria . . . .    | 67.5                        | 32.5     | 100.0 |
| Italy . . . .      | 62.0                        | 38.0     | 100.0 |
| Spain . . . .      | 78.0                        | 22.0     | 100.0 |
| Portugal . . . .   | 77.0                        | 23.0     | 100.0 |
| Sweden . . . .     | 78.0                        | 22.0     | 100.0 |

In order to have the burthen fairly adjusted between rich and poor, taxation should be 50 per cent. direct, 50 per cent. indirect.

#### UNITED KINGDOM

The amount of Government taxes levied in the United Kingdom, as already shown, is £98,000,000, but of this amount about 10 millions is handed over to the local authorities. The total burthen of national and local taxes stands approximately thus:—

|                  | National, £ | Local, £   | Total, £    |
|------------------|-------------|------------|-------------|
| England . . . .  | 72,000,000  | 58,500,000 | 130,500,000 |
| Scotland . . . . | 9,000,000   | 8,400,000  | 17,400,000  |
| Ireland . . . .  | 7,000,000   | 4,400,000  | 11,400,000  |
| United Kingdom   | 88,000,000  | 71,300,000 | 159,300,000 |

Comparing taxation with earnings, we find as follows:—

|                    | Millions £ Sterling |       | Ratio of Taxes |
|--------------------|---------------------|-------|----------------|
|                    | Income              | Taxes |                |
| England . . . .    | 1,144               | 130.5 | 11.4 p.c.      |
| Scotland . . . .   | 187                 | 17.4  | 9.3 "          |
| Ireland . . . .    | 90                  | 11.4  | 12.7 "         |
| United Kingdom . . | 1,421               | 159.3 | 11.2 "         |

This shows that the incidence of taxation is 36 per cent. heavier in Ireland than in Scotland, and 12 per cent. heavier than in England. If we compare taxation with wealth, the account stands thus:—

|                    | Millions £ Sterling |          | Taxes on<br>£1000<br>of Wealth |
|--------------------|---------------------|----------|--------------------------------|
|                    | Wealth              | Taxation |                                |
| England . . . .    | 10,062              | 130.5    | 26 shillings                   |
| Scotland . . . .   | 1,094               | 17.4     | 32 "                           |
| Ireland . . . .    | 650                 | 11.4     | 35 "                           |
| United Kingdom . . | 11,806              | 159.3    | 27 "                           |

According to this basis the tax incidence in Ireland is 35 per cent. more than in England, 9 per cent. more than in Scotland.

#### UNITED STATES

The total of taxes, national and local, is 170 millions sterling, equal to 5½ per cent. of the earnings of the nation, the incidence being heaviest in the south, viz.:—

|                   | Millions £ |          | Tax<br>Ratio |
|-------------------|------------|----------|--------------|
|                   | Earnings   | Taxation |              |
| New England . . . | 363        | 17       | 4.7          |
| Middle . . . .    | 976        | 45       | 4.6          |
| South . . . .     | 454        | 34       | 7.5          |
| West . . . .      | 1,385      | 74       | 5.3          |
| The Union . . . . | 3,178      | 170      | 5.4          |

#### TEA

The consumption in various countries was as follows:—

|                      | Million Lbs.<br>Yearly |         | Lbs. per<br>Inhabitant |         |
|----------------------|------------------------|---------|------------------------|---------|
|                      | 1880-84                | 1890-92 | 1880-84                | 1890-92 |
| United Kingdom . .   | 171                    | 201     | 4.7                    | 5.3     |
| United States . . .  | 71                     | 85      | 1.4                    | 1.3     |
| Russia . . . .       | 62                     | 71      | 0.7                    | 0.7     |
| Australia . . . .    | 23                     | 28      | 8.0                    | 7.0     |
| Canada . . . .       | 17                     | 20      | 3.7                    | 3.9     |
| Holland . . . .      | 5                      | 6       | 1.2                    | 1.3     |
| Germany . . . .      | 3                      | 5       | 0.7                    | 1.0     |
| Other Countries . .  | 8                      | 9       | ...                    | ...     |
| Total . . . .        | 360                    | 425     | ...                    | ...     |
| British Indian . . . | 53                     | 171     | ...                    | ...     |
| Chinese . . . .      | 307                    | 254     | ...                    | ...     |

#### TELEPHONES

The growth of telephones between 1883 and 1888 was as follows:—

|                   | Towns |       | Telephones |         |
|-------------------|-------|-------|------------|---------|
|                   | 1883  | 1888  | 1883       | 1888    |
| Europe . . . .    | 161   | 804   | 30,100     | 119,000 |
| America . . . .   | 126   | 739   | 47,200     | ...     |
| Australia . . . . | 5     | 23    | 900        | 3,300   |
| Asia, &c. . . .   | 11    | 101   | 700        | 2,000   |
| The World . . . . | 303   | 1,667 | 78,900     | ...     |

In 1895 the United States had 397,000 miles of telephones, worked by 11,000 officials, and counting 244,000

subscribers. The number in use in Europe in 1891 was as follows:—

|                |        |                |       |                 |       |
|----------------|--------|----------------|-------|-----------------|-------|
| Berlin . . . . | 15,300 | Rome . . . .   | 2,800 | Buda-Pesth . .  | 1,900 |
| Paris . . . .  | 6,200  | Leipzig . . .  | 2,100 | Breslau . . . . | 1,400 |
| Hamburg . . .  | 5,000  | Brussels . . . | 2,000 | Naples . . . .  | 1,000 |
| Vienna . . . . | 3,700  | Dresden . . .  | 2,000 | Genoa . . . .   | 1,000 |

The number in London is not known: the public generally make use of telephone stations belonging to companies, which charge threepence. In the Continental cities the annual charge for a telephone in a house ranges from £6 to £8 sterling.

#### CONTINENT

In 1895 the use of telephones was as follows:—

|                 | Towns | Miles  | Telephones | Messages    |
|-----------------|-------|--------|------------|-------------|
| France . . . .  | 415   | 26,000 | 63,400     | 75,600,000  |
| Germany . . . . | 397   | 97,000 | 184,400    | 425,000,000 |
| Italy . . . .   | 56    | ...    | 11,600     | ...         |
| Switzerland . . | 225   | 5,100  | 20,600     | 14,800,000  |

Receipts in France averaged one penny, and in Switzerland twopence, per message.

#### UNITED KINGDOM

In 1895 the National Telephone Company served the following number of towns and subscribers:—

|                    | Towns | Subscribers |
|--------------------|-------|-------------|
| England . . . .    | 537   | 57,400      |
| Scotland . . . .   | 17    | 12,700      |
| Ireland . . . .    | 5     | 3,300       |
| United Kingdom . . | 559   | 73,400      |

The number of messages conveyed was 280 millions, or about 9 millions daily (excluding Sundays) at an average cost of a halfpenny per dozen words. Average subscription, £9 a year.

#### TEMPLES

The following table shows the dimensions of the greatest Pagan temples of antiquity, and the number of persons they could hold:—

| Dedicated to    | At              | Length<br>Feet | Width<br>Feet | Capacity<br>Persons |
|-----------------|-----------------|----------------|---------------|---------------------|
| Diana . . . .   | Ephesus . . .   | 425            | 220           | 27,000              |
| Jupiter . . . . | Girgenti . . .  | 369            | 182           | 20,000              |
| Juno . . . .    | Samos . . . .   | 346            | 189           | 19,000              |
| ...             | Selinus . . . . | 330            | 160           | 16,000              |
| Apollo . . . .  | Miletus . . . . | 303            | 164           | 15,000              |
| Sun . . . .     | Baalbec . . . . | 290            | 160           | 14,000              |
| Venus . . . .   | Rome . . . .    | 350            | 116           | 12,000              |
| Jupiter . . . . | Athens . . . .  | 259            | 96            | 7,500               |
| Parthenon . . . | Athens . . . .  | 228            | 100           | 7,000               |
| Jupiter . . . . | Olympia . . .   | 230            | 95            | 7,000               |
| Neptune . . . . | Paestum . . .   | 195            | 79            | 4,600               |
| Sun . . . .     | Palmyra . . .   | 180            | 95            | 5,000               |

The temple of Diana at Ephesus could hold 1000 persons more than St. Paul's of London, and covered exactly half the superficial area of St. Peter's at Rome. The temple of Jupiter at Girgenti had the same capacity as Notre Dame at Paris, and the Madeleine in the latter city has precisely the capacity of the great temple of the Sun at Baalbec.

#### TENACITY

The tenacity of materials in pounds on square inch is:

|                 |        |                   |         |
|-----------------|--------|-------------------|---------|
| Pine . . . .    | 13,000 | Sheet copper . .  | 30,000  |
| Ash . . . .     | 17,000 | Bronze . . . .    | 36,000  |
| Oak . . . .     | 18,000 | Boiler plates . . | 50,000  |
| Cast iron . . . | 17,000 | Steel . . . .     | 100,000 |

See also Part I., page 335.

## THEATRES

The number of inhabitants to each theatre in the principal cities of Europe is as follows :—

|                      |         |                    |         |
|----------------------|---------|--------------------|---------|
| London . . . . .     | 115,000 | Dresden . . . . .  | 74,000  |
| Paris . . . . .      | 32,000  | Hamburg . . . . .  | 115,000 |
| Berlin . . . . .     | 81,000  | Bordeaux . . . . . | 84,000  |
| Vienna . . . . .     | 138,000 | Naples . . . . .   | 37,000  |
| Rome . . . . .       | 31,000  | Genoa . . . . .    | 26,000  |
| Buda-Pesth . . . . . | 86,000  | Florence . . . . . | 15,000  |

This gives an average of one theatre for 70,000 inhabitants, from which it appears that London, Vienna, and Hamburg, are ill supplied. London, in 1890, had 25 theatres, with 28,600 seats, that is, one seat for 150 inhabitants, the receipts nightly averaging £6000, that is, £1,860,000 a year, or 8 shillings per inhabitant. The receipts of the theatres in Paris were :—

| Year           | £ Sterling | Pence p. Inhab. |
|----------------|------------|-----------------|
| 1850 . . . . . | 330,000    | 80              |
| 1860 . . . . . | 580,000    | 80              |
| 1866 . . . . . | 680,000    | 95              |
| 1876 . . . . . | 860,000    | 105             |
| 1886 . . . . . | 1,000,000  | 103             |
| 1896 . . . . . | 1,200,000  | 115             |

The receipts of 1896 were as follows :—

|                    |           |                         |          |
|--------------------|-----------|-------------------------|----------|
| Opera . . . . .    | £ 130,000 | Opera Comique . . . . . | £ 60,000 |
| Français . . . . . | 80,000    | Various . . . . .       | 930,000  |

The average expenditure in Paris per inhabitant, on theatres, is 20 per cent. more than in London.

## TIN

The production of this metal has been approximately as follows :—

|                | Tons   |                | Tons   |
|----------------|--------|----------------|--------|
| 1860 . . . . . | 10,000 | 1882 . . . . . | 35,000 |
| 1870 . . . . . | 16,000 | 1892 . . . . . | 40,000 |

The production in 1882 and 1892 was as follows :—

|                         | Tons   |        |
|-------------------------|--------|--------|
|                         | 1882   | 1892   |
| Great Britain . . . . . | 9,200  | 9,000  |
| Australia . . . . .     | 14,500 | 9,000  |
| Java . . . . .          | 9,000  | 11,000 |
| Various . . . . .       | 2,300  | 11,000 |
| Total . . . . .         | 35,000 | 40,000 |

Great Britain imports 25,000 tons yearly.

## TITHES

The value of tithe rent-charge is shown thus :—

|                |         |                |        |                |        |
|----------------|---------|----------------|--------|----------------|--------|
| 1836 . . . . . | £ 100.0 | 1894 . . . . . | £ 74.2 | 1898 . . . . . | £ 68.7 |
| 1892 . . . . . | 75.9    | 1896 . . . . . | 71.5   | 1899 . . . . . | 68.1   |

Showing a fall of 10½ per cent. since 1892.

## TOBACCO

Production in 1884 and 1894 was estimated thus :—

|                     | Tons    |         |
|---------------------|---------|---------|
|                     | 1884    | 1894    |
| U. States . . . . . | 240,000 | 180,000 |
| India . . . . .     | 150,000 | 280,000 |
| Russia . . . . .    | 75,000  | 50,000  |
| Austria . . . . .   | 65,000  | 60,000  |
| Java . . . . .      | 40,000  | 28,000  |
| Brazil . . . . .    | 38,000  | 40,000  |
| Germany . . . . .   | 32,000  | 40,000  |
| France . . . . .    | 15,000  | 20,000  |
| Japan . . . . .     | 40,000  | 20,000  |
| Various . . . . .   | 69,000  | 62,000  |
| The World . . . . . | 770,000 | 780,000 |

## UNITED STATES

The crops during ten years averaged as follows :—

|                        | Million Lbs. | Acres   | Lbs. Per Acre |
|------------------------|--------------|---------|---------------|
| Kentucky . . . . .     | 180          | 250,000 | 720           |
| Virginia . . . . .     | 100          | 120,000 | 830           |
| N. Carolina . . . . .  | 45           | 80,000  | 560           |
| Tennessee . . . . .    | 33           | 50,000  | 660           |
| Maryland . . . . .     | 20           | 30,000  | 670           |
| Other States . . . . . | 102          | 140,000 | 730           |
| Union . . . . .        | 480          | 670,000 | 720           |

Consumption is as follows (1896) :—

|                      | Tons   | Oz. Per Head |
|----------------------|--------|--------------|
| U. Kingdom . . . . . | 30,500 | 28           |
| France . . . . .     | 40,000 | 37           |
| Germany . . . . .    | 85,000 | 56           |
| Russia . . . . .     | 90,000 | 32           |
| Austria . . . . .    | 55,000 | 45           |

Neumann Spallart estimated consumption (1885) in other countries thus : Italy 24, Scandinavia 45, Switzerland 80, Belgium 88, Holland 98, United States 106, ounces yearly per inhabitant.

## TRACTION

The same force that moves 1 ton on a smooth high-road will move 8 tons on a railway or 32 tons on a canal. The force that moves 1 ton on a canal at the speed of 8 miles an hour will move :—

|                              |
|------------------------------|
| 2½ tons at 5 miles per hour, |
| 5 " " 3½ " " "               |
| 10 " " 2½ " " "              |

See *Resistance and Gradients* (under *Railways*), at page 499.

## TRADE UNIONS

The progress of Trade Unions in the United Kingdom in thirty years may be seen by comparing the number of members whose deputies assisted at successive Trade Union Congresses, viz. :—

|                |         |                |           |
|----------------|---------|----------------|-----------|
| 1868 . . . . . | 118,000 | 1888 . . . . . | 675,000   |
| 1873 . . . . . | 256,000 | 1897 . . . . . | 1,093,000 |

The principal guilds are the following :—

| Members          |         | Members         |        |
|------------------|---------|-----------------|--------|
| Miners . . . .   | 250,000 | Carpenters . .  | 52,000 |
| Engineers . . .  | 94,000  | Shoemakers . .  | 41,000 |
| Weavers . . . .  | 81,000  | Ironfounders .  | 32,000 |
| Railwaymen . .   | 66,000  | Printers . . .  | 25,000 |
| Shipbuilders . . | 57,000  | Tailors . . . . | 22,000 |

The numbers for 1887 will be found at page 570.

The ratios of hands employed and unemployed were :—

| Year           | Per Cent. |            |
|----------------|-----------|------------|
|                | Employed  | Unemployed |
| 1893 . . . . . | 92.5      | 7.5        |
| 1894 . . . . . | 93.1      | 6.9        |
| 1895 . . . . . | 94.2      | 5.8        |
| 1896 . . . . . | 96.6      | 3.4        |

See *Friendly Societies*, page 737; *Strikes*, page 808.

#### FRANCE

The law permitting Trade Unions was passed in 1884 : the associations increased as follows :—

| Unions of       | 1884 | 1888  | 1891  |
|-----------------|------|-------|-------|
| Employers . . . | 101  | 859   | 1,127 |
| Workmen . . .   | 69   | 803   | 1,376 |
| Farmers . . . . | 5    | 461   | 750   |
| Total . . . . . | 175  | 2,123 | 3,253 |

See also *Trade Unions*, in Part I., page 570.

#### TRAMWAYS

In 1896 the length of lines in traffic was as follows :—

|                   | Miles |       |          |        |
|-------------------|-------|-------|----------|--------|
|                   | Horse | Steam | Electric | Total  |
| United Kingdom .  | 710   | 230   | 70       | 1,010  |
| France . . . . .  | 750   | 560   | 110      | 1,420  |
| Germany . . . . . | 940   | 240   | 410      | 1,590  |
| Russia . . . . .  | 270   | 20    | 20       | 310    |
| Austria . . . . . | 260   | 110   | 90       | 460    |
| Italy . . . . .   | 240   | 1,830 | 30       | 2,100  |
| Spain . . . . .   | 170   | 40    | 10       | 220    |
| Portugal . . . .  | 80    | 10    | 10       | 100    |
| Holland . . . . . | 450   | 330   | 10       | 790    |
| Belgium . . . . . | 100   | 740   | 30       | 870    |
| Switzerland . . . | 20    | 160   | 30       | 210    |
| Scandinavia . . . | 80    | ...   | 10       | 90     |
| Roumania, &c. . . | 90    | ...   | 10       | 100    |
| Europe . . . . .  | 4,160 | 4,270 | 840      | 9,270  |
| United States . . | 2,650 | 1,120 | 12,130   | 15,900 |
| Total . . . . .   | 6,810 | 5,390 | 12,970   | 25,170 |

#### UNITED KINGDOM

Mileage and traffic have advanced in ten years :—

|                    | Miles |       | Passengers Millions |      |
|--------------------|-------|-------|---------------------|------|
|                    | 1886  | 1896  | 1886                | 1896 |
| England . . . . .  | 706   | 792   | 303                 | 585  |
| Scotland . . . . . | 73    | 96    | 60                  | 128  |
| Ireland . . . . .  | 86    | 122   | 22                  | 46   |
| United Kingdom .   | 865   | 1,010 | 385                 | 759  |

At present the traffic averages yearly 800,000 passengers per mile, against 445,000 in 1886. Earnings and expenses in 1896 showed as follows :—

|                 | Receipts<br>£ | Expenses<br>£ | Profit, £ | Interest<br>on Cost |
|-----------------|---------------|---------------|-----------|---------------------|
| England . . . . | 3,320,000     | 2,490,000     | 830,000   | 7.4                 |
| Scotland . . .  | 545,000       | 400,000       | 145,000   | 9.6                 |
| Ireland . . . . | 285,000       | 215,000       | 70,000    | 4.8                 |
| U. Kingdom . .  | 4,150,000     | 3,105,000     | 1,045,000 | 7.4                 |

The average receipts for every 100 passengers carried were : 102 pence in Scotland, 136 in England, and 149 in Ireland.

In 1898 the tramways of the United Kingdom had 1064 miles in length (450 miles municipal property), representing a capital cost of £15,900,000, or £15,000 per mile. They had 590 locomotives, 39,000 horses, 5300 cars, and carried 859 million passengers in the year. Receipts, £4,560,000; expenses, £3,510,000; net profit, £1,050,000, or 7 per cent. on capital.

#### FRANCE

The returns of French tramways in 1895 were :—

|                 | Paris     | Provinces | Total      |
|-----------------|-----------|-----------|------------|
| Miles . . . . . | 210       | 1,100     | 1,310      |
| Cost, £ . . . . | 3,270,000 | 7,010,000 | 10,280,000 |
| Receipts, £ . . | 1,020,000 | 1,064,000 | 2,084,000  |
| Expenses, £ . . | 940,000   | 826,000   | 1,766,000  |
| Profit, £ . . . | 80,000    | 238,000   | 318,000    |

The tramway traffic of five cities in 1895 was as follows :—

|                  | Million<br>Passengers | Trips per<br>Inhabitant |
|------------------|-----------------------|-------------------------|
| Paris . . . . .  | 160                   | 66                      |
| Marseilles . . . | 27                    | 67                      |
| Lyons . . . . .  | 24                    | 54                      |
| Bordeaux . . . . | 15                    | 60                      |
| Lille . . . . .  | 10                    | 50                      |
| Total . . . . .  | 236                   | 60                      |

#### HOLLAND

In 1896 the trams carried 44 million passengers for £440,000, being at the rate of 2½ pence each.

#### ARGENTINA

Buenos Ayres trams carried 45 million passengers in 1898.

#### UNITED STATES

The following table shows the cost of construction :—

|                  | £           | Miles  | £ per<br>Mile |
|------------------|-------------|--------|---------------|
| Horse . . . . .  | 18,300,000  | 1,220  | 15,000        |
| Cable . . . . .  | 81,800,000  | 1,120  | 73,000        |
| Electric . . . . | 186,100,000 | 12,130 | 15,300        |
| Total . . . . .  | 286,000,000 | 14,470 | 19,800        |

The rolling stock, cost of working, and average fare per passenger in 1896 were:—

|                | No. of Cars | Working Expenses Cts. p. Mile | Fare, Cents per Passenger |
|----------------|-------------|-------------------------------|---------------------------|
| Horse . . .    | 5,380       | 18.2                          | 3.7                       |
| Cable . . .    | 7,820       | 14.1                          | 3.2                       |
| Electric . . . | 35,000      | 13.2                          | 3.8                       |

The cost of working is highest on horse lines, but the average fare is highest on electric lines.

The census of 1890 showed that the tramway traffic in that year for the Union was equivalent to 350,000 passengers per mile yearly, or about 1000 daily. At this rate the traffic in 1896 must have been 14½ million passengers daily, or 100 millions a week, against 15 millions a week in the United Kingdom. Thus each inhabitant of the United States makes 70 trips yearly, and of the United Kingdom only 17 trips yearly.

## V

## VITAL STATISTICS

Mayr shows that the general rates for Europe were:—

| Period             | Per 10,000 Inhabitants Yearly |        |                |
|--------------------|-------------------------------|--------|----------------|
|                    | Births                        | Deaths | Surplus Births |
| 1821-40 . . . . .  | 351                           | 307    | 44             |
| 1841-60 . . . . .  | 334                           | 304    | 30             |
| 1861-80 . . . . .  | 341                           | 297    | 44             |
| 1881-90 . . . . .  | 330                           | 277    | 53             |
| 70 years . . . . . | 340                           | 299    | 41             |

The following table shows the average number of births, marriages, and deaths in the last five recorded years, and the rate per 1000 inhabitants:—

|                 | Num. (000 omitted) |           |        | Per 1000 Pop. |           |        |
|-----------------|--------------------|-----------|--------|---------------|-----------|--------|
|                 | Births             | Marriages | Deaths | Births        | Marriages | Deaths |
| England . . .   | 908                | 228       | 545    | 30.3          | 7.6       | 18.2   |
| Scotland . . .  | 126                | 28        | 76     | 30.5          | 6.8       | 18.4   |
| Ireland . . .   | 106                | 23        | 83     | 23.0          | 4.9       | 18.0   |
| U. Kingdom . .  | 1,140              | 279       | 704    | 29.4          | 7.2       | 18.1   |
| France . . .    | 857                | 286       | 858    | 22.4          | 7.4       | 22.1   |
| Germany . . .   | 1,844              | 404       | 1,184  | 36.2          | 7.9       | 23.2   |
| Russia* . . .   | 4,079              | 705       | 3,022  | 55.9          | 9.7       | 41.4   |
| Austria . . .   | 910                | 192       | 678    | 37.7          | 7.9       | 27.6   |
| Hungary . . .   | 743                | 160       | 568    | 41.6          | 9.0       | 31.4   |
| Italy . . .     | 1,113              | 229       | 787    | 36.2          | 7.5       | 25.5   |
| Spain . . .     | 634                | 146       | 559    | 35.4          | 8.1       | 31.2   |
| Portugal . . .  | 164                | 35        | 112    | 32.8          | 7.0       | 22.4   |
| Sweden . . .    | 133                | 28        | 82     | 27.5          | 5.8       | 17.0   |
| Norway . . .    | 61                 | 13        | 34     | 30.3          | 6.5       | 16.8   |
| Denmark . . .   | 68                 | 16        | 42     | 30.3          | 6.9       | 18.5   |
| Finland . . .   | 77                 | 16        | 50     | 32.0          | 6.7       | 20.8   |
| Holland . . .   | 155                | 34        | 92     | 33.0          | 7.2       | 19.2   |
| Belgium . . .   | 181                | 47        | 126    | 29.2          | 7.6       | 19.9   |
| Switzerland . . | 84                 | 22        | 60     | 28.2          | 7.4       | 20.2   |
| Greece . . .    | 64                 | 16        | 44     | 34.5          | 9.0       | 25.0   |
| Roumania . . .  | 226                | 45        | 171    | 39.0          | 7.8       | 29.5   |
| Servia . . .    | 97                 | 23        | 65     | 44.1          | 10.4      | 29.5   |
| Bulgaria . . .  | 118                | 27        | 82     | 36.4          | 8.2       | 25.2   |
| Europe . . .    | 12,748             | 2,723     | 9,320  | 38.2          | 8.1       | 28.0   |
| Australia . . . | 126                | 26        | 51     | 31.4          | 6.5       | 12.7   |
| Canada . . .    | 125                | 31        | 64     | 25.0          | 6.2       | 12.8   |
| Japan . . .     | 1,186              | 350       | 874    | 28.6          | 8.4       | 21.1   |

In the preceding table it will be seen that the rates for

\* Returns for the Greek Church only, comprising 73 million inhabitants, or 70 per cent. of the population, including Poland, but not Finland and the Caucasus.

Russia are much higher than for other countries. If Russia be excluded, the rates for the rest of Europe are:

|                     | Number    | Per 1000 Pop. |
|---------------------|-----------|---------------|
| Births . . . . .    | 8,669,000 | 32.1          |
| Marriages . . . . . | 2,018,000 | 7.4           |
| Deaths . . . . .    | 6,298,000 | 23.3          |

The surplus of births over deaths yearly in Europe, exclusive of Russia, is 2,371,000, equal to 8.8 per 1000 of the population, but if Russia be included it is 3,428,000, or 10.2 per 1000 yearly.

## AUSTRALIA

Returns for five years ending December 1895 give:—

|                      | Births  | Marriages | Deaths | Surplus Births |
|----------------------|---------|-----------|--------|----------------|
| New South Wales . .  | 39,600  | 8,000     | 15,400 | 24,200         |
| Victoria . . . . .   | 36,200  | 7,520     | 16,400 | 19,800         |
| New Zealand . . . .  | 18,300  | 4,040     | 6,700  | 11,600         |
| Queensland . . . . . | 14,600  | 2,700     | 5,300  | 9,300          |
| S. Australia . . . . | 10,600  | 2,140     | 4,100  | 6,500          |
| Tasmania . . . . .   | 4,900   | 900       | 2,000  | 2,900          |
| W. Australia . . . . | 2,100   | 470       | 1,100  | 1,000          |
| Total . . . . .      | 126,300 | 25,770    | 51,000 | 75,300         |

Births and deaths compared with population gave:—

|                       | Per 1000 Population |        |                  |
|-----------------------|---------------------|--------|------------------|
|                       | Births              | Deaths | Natural Increase |
| New South Wales . . . | 32.8                | 12.8   | 20.0             |
| Victoria . . . . .    | 31.0                | 14.1   | 16.9             |
| New Zealand . . . . . | 27.7                | 10.2   | 17.5             |
| Queensland . . . . .  | 34.1                | 12.5   | 21.6             |
| South Australia . . . | 31.5                | 12.2   | 19.3             |
| Tasmania . . . . .    | 32.2                | 13.2   | 19.0             |
| West Australia . . .  | 31.2                | 16.1   | 15.1             |
| Average . . . . .     | 31.3                | 12.7   | 18.6             |

## CANADA

The census of 1891 gave the following rates:—

|                        | Per 1000 Population |        |                |
|------------------------|---------------------|--------|----------------|
|                        | Births              | Deaths | Surplus Births |
| Ontario . . . . .      | 24.5                | 11.3   | 13.2           |
| Quebec . . . . .       | 36.9                | 18.9   | 18.0           |
| Nova Scotia . . . . .  | 25.4                | 14.6   | 10.8           |
| Prince Edward Island . | 24.5                | 12.3   | 12.2           |
| New Brunswick . . .    | 27.7                | 13.4   | 14.3           |
| Manitoba . . . . .     | 32.5                | 19.4   | 13.1           |
| British Columbia . .   | 23.2                | 13.9   | 9.3            |
| All Canada . . . . .   | 28.5                | 14.5   | 14.0           |

## NATURAL INCREASE

The following table shows the natural increase, *i.e.* the surplus of births over deaths in various countries, and the number of years in which this would suffice to double a population if there were no emigration:—

|                          | Natural Increase | Rate Per 1000 Pop. | Years to Double |
|--------------------------|------------------|--------------------|-----------------|
| England . . . . .        | 363,000          | 12.1               | 58              |
| Scotland . . . . .       | 50,000           | 12.1               | 58              |
| Ireland . . . . .        | 23,000           | 5.0                | 140             |
| United Kingdom . . . . . | 436,000          | 11.3               | 62              |
| France . . . . .         | ...              | ...                | ...             |
| Germany . . . . .        | 660,000          | 13.0               | 54              |
| Russia . . . . .         | 1,057,000        | 14.5               | 48              |
| Austria . . . . .        | 232,000          | 9.7                | 72              |
| Hungary . . . . .        | 175,000          | 9.7                | 72              |
| Italy . . . . .          | 326,000          | 10.6               | 66              |
| Spain . . . . .          | 75,000           | 4.2                | 167             |
| Portugal . . . . .       | 52,000           | 10.4               | 67              |
| Sweden . . . . .         | 51,000           | 10.5               | 67              |
| Norway . . . . .         | 27,000           | 13.5               | 52              |
| Denmark . . . . .        | 26,000           | 11.8               | 59              |
| Finland . . . . .        | 27,000           | 11.2               | 62              |
| Holland . . . . .        | 63,000           | 13.4               | 52              |
| Belgium . . . . .        | 55,000           | 8.9                | 78              |
| Switzerland . . . . .    | 24,000           | 8.0                | 88              |
| Greece . . . . .         | 20,000           | 9.5                | 73              |
| Roumania . . . . .       | 55,000           | 9.5                | 73              |
| Servia . . . . .         | 32,000           | 14.6               | 48              |
| Bulgaria . . . . .       | 36,000           | 11.2               | 62              |
| Japan . . . . .          | 312,000          | 7.5                | 93              |
| Australia . . . . .      | 75,000           | 18.5               | 38              |
| United States . . . . .  | 1,440,000        | 20.0               | 35              |
| Canada . . . . .         | 61,000           | 12.2               | 57              |

The natural increase is highest in Servia and Russia. There is no increase in France, the deaths of the last five years having equalled the births.

The following table shows the average rates of birth and death, and the natural increase, in various cities for ten years ending December 1891:—

|                      | Per 1000 Inhabitants Yearly |        |            |
|----------------------|-----------------------------|--------|------------|
|                      | Births                      | Deaths | Nat. Incr. |
| London . . . . .     | 33.0                        | 20.4   | 9.6        |
| Paris . . . . .      | 26.3                        | 23.8   | 2.5        |
| Berlin . . . . .     | 33.4                        | 23.1   | 10.3       |
| Vienna . . . . .     | 28.6                        | 21.5   | 7.1        |
| Rome . . . . .       | 29.5                        | 25.6   | 3.9        |
| Buda-Pesth . . . . . | 36.0                        | 30.9   | 5.1        |
| Brussels . . . . .   | 31.0                        | 24.4   | 6.6        |
| Hamburg . . . . .    | 35.1                        | 24.8   | 10.3       |
| Leipzig . . . . .    | 27.0                        | 17.2   | 9.8        |
| Dresden . . . . .    | 31.1                        | 21.9   | 9.2        |
| Breslau . . . . .    | 35.2                        | 29.2   | 6.0        |
| Bordeaux . . . . .   | 22.8                        | 24.0   | ...        |
| Naples . . . . .     | 33.6                        | 30.1   | 3.5        |
| Milan . . . . .      | 32.7                        | 28.1   | 4.6        |
| Turin . . . . .      | 29.5                        | 26.2   | 3.3        |
| Genoa . . . . .      | 28.2                        | 25.6   | 2.6        |
| Florence . . . . .   | 26.1                        | 26.5   | ...        |
| Palermo . . . . .    | 35.2                        | 25.3   | 9.9        |
| Venice . . . . .     | 30.1                        | 30.9   | ...        |
| Trieste . . . . .    | 34.1                        | 31.2   | 2.9        |
| Average . . . . .    | 30.9                        | 25.5   | 5.4        |

## UNITED STATES

Deaths recorded in the census year 1890 were 875,520, being 14 per thousand inhabitants. Birth-rate is shown by Dr. Billings (1886), on the basis of the previous census, to be 34 per thousand, so that the natural increase on a population of 72 millions is 1,440,000 yearly.

## MORTALITY

The following table (1881-90) shows the number of deaths yearly among 10,000 inhabitants:—

| Age               | England | France | Prussia | Italy | Sweden | Denmark | Holland | Belgium | Switzer. | Average |
|-------------------|---------|--------|---------|-------|--------|---------|---------|---------|----------|---------|
| 0-5 . . . . .     | 69      | 79     | 104     | 127   | 53     | 60      | 82      | 74      | 68       | 80      |
| 5-15 . . . . .    | 9       | 11     | 13      | 17    | 12     | 13      | 10      | 9       | 9        | 11      |
| 15-25 . . . . .   | 8       | 12     | 10      | 12    | 9      | 10      | 10      | 10      | 10       | 10      |
| 25-35 . . . . .   | 10      | 13     | 12      | 11    | 9      | 10      | 10      | 11      | 12       | 11      |
| 35-45 . . . . .   | 13      | 12     | 13      | 11    | 9      | 10      | 11      | 12      | 13       | 12      |
| 45-55 . . . . .   | 17      | 15     | 17      | 14    | 11     | 12      | 13      | 14      | 16       | 14      |
| 55-65 . . . . .   | 25      | 23     | 27      | 24    | 18     | 20      | 21      | 22      | 28       | 23      |
| 65-75 . . . . .   | 31      | 30     | 33      | 32    | 22     | 25      | 27      | 28      | 35       | 29      |
| Over 75 . . . . . | 28      | 26     | 31      | 34    | 25     | 23      | 27      | 29      | 32       | 28      |
| Total . . . . .   | 210     | 221    | 260     | 282   | 168    | 183     | 211     | 209     | 223      | 218     |

Infant mortality, during ten years ending 1893, showed the number of deaths yearly per thousand of each age:—

|                    | 0-1 | 1-2 | 2-3 | 3-4 |
|--------------------|-----|-----|-----|-----|
| England . . . . .  | 146 | 54  | 22  | 14  |
| Scotland . . . . . | 122 | 53  | 24  | 15  |
| Ireland . . . . .  | 96  | 36  | 19  | 12  |
| France . . . . .   | 168 | 48  | 25  | 17  |
| Prussia . . . . .  | 208 | 62  | 31  | 21  |
| Russia . . . . .   | 269 | 98  | 59  | 40  |
| Austria . . . . .  | 247 | 76  | 41  | 28  |
| Hungary . . . . .  | 256 | 94  | 61  | 46  |
| Italy . . . . .    | 190 | 96  | 47  | 29  |
| Spain . . . . .    | 192 | 127 | 89  | 44  |
| Sweden . . . . .   | 107 | 32  | 20  | 15  |
| Norway . . . . .   | 96  | 33  | 20  | 15  |
| Holland . . . . .  | 175 | 54  | 23  | 15  |
| Belgium . . . . .  | 163 | 51  | 25  | 16  |
| Roumania . . . . . | 198 | 83  | 55  | 40  |
| Japan . . . . .    | 132 | 45  | 29  | 20  |

Deaths from alcohol, in seven years ending 1893, averaged yearly per million inhabitants as follows:—

|                    |    |                   |    |
|--------------------|----|-------------------|----|
| England . . . . .  | 63 | Prussia . . . . . | 23 |
| Scotland . . . . . | 54 | Belgium . . . . . | 53 |
| Ireland . . . . .  | 30 | Sweden . . . . .  | 21 |

See *Births*, page 645, and *Deaths*, page 683.

*Longevity*.—The number of persons over 70 years of age in various countries is as follows:—

|                         | Number (000 omitted) |         |       | Per 1000 Pop. |
|-------------------------|----------------------|---------|-------|---------------|
|                         | Males                | Females | Total |               |
| England . . . . .       | 347                  | 454     | 801   | 28            |
| Scotland . . . . .      | 49                   | 75      | 124   | 31            |
| Ireland . . . . .       | 103                  | 111     | 214   | 45            |
| France . . . . .        | 895                  | 1,015   | 1,910 | 50            |
| Germany . . . . .       | 619                  | 757     | 1,376 | 28            |
| Austria . . . . .       | 304                  | 333     | 637   | 27            |
| Hungary . . . . .       | 195                  | 204     | 399   | 22            |
| Switzerland . . . . .   | 41                   | 47      | 88    | 30            |
| Spain . . . . .         | 227                  | 256     | 483   | 27            |
| Scandinavia . . . . .   | 168                  | 220     | 388   | 43            |
| Holland . . . . .       | 67                   | 84      | 151   | 33            |
| Belgium . . . . .       | 103                  | 123     | 226   | 37            |
| United States . . . . . | 811                  | 756     | 1,567 | 25            |
| Australia . . . . .     | 36                   | 25      | 61    | 16            |

Longevity is most frequent in countries of low birth-rate, such as France and Ireland. The *Journal des Debats* (November 1898) published the following statement of centenarians living in Europe:—

|                   |     |                   |     |                    |    |
|-------------------|-----|-------------------|-----|--------------------|----|
| Ireland . . . . . | 578 | France . . . . .  | 243 | Germany . . . . .  | 75 |
| Spain . . . . .   | 401 | England . . . . . | 146 | Scotland . . . . . | 46 |

See tables of *Longevity*, pages 355-357.

## W

## WAGES

Tables of wages in various countries from 1836 to 1886 will be found in Part I., pages 579-586. The Board of Trade returns (by Giffen) in 1891 gave the summary for Great Britain thus:—

| Working in           | Wages, Shillings Weekly |       |      |       |
|----------------------|-------------------------|-------|------|-------|
|                      | Men                     | Women | Boys | Girls |
| Collieries . . .     | 22.9                    | 8.2   | 10.7 | 5.6   |
| Iron mines . . .     | 16.5                    | 5.8   | 7.0  | 4.7   |
| Slate quarries . . . | 22.1                    | ...   | 8.0  | ...   |
| Cotton mills . . .   | 25.3                    | 15.3  | 9.3  | 6.8   |
| Woollen „ . . .      | 23.2                    | 13.3  | 8.5  | 7.4   |
| Linen „ . . .        | 19.7                    | 8.9   | 6.3  | 4.9   |
| Hemp „ . . .         | 23.5                    | 9.7   | 6.0  | 5.1   |
| Silk „ . . .         | 22.3                    | 10.1  | 7.2  | 5.7   |
| Carpet „ . . .       | 26.6                    | 11.4  | 8.3  | 6.9   |
| Hosiery „ . . .      | 24.4                    | 11.5  | 9.5  | 8.3   |
| Hair „ . . .         | 25.0                    | 9.8   | 7.4  | 5.9   |
| Average . . .        | 21.0                    | 9.4   | 7.3  | 5.5   |

In 1895 Mr. Bowley published a comparative table of wages since 1860 thus:—

| Employed in        | 1860 | 1874 | 1880 | 1883 | 1886 | 1891 |
|--------------------|------|------|------|------|------|------|
| Agriculture . . .  | 100  | 130  | 122  | 117  | 111  | 118  |
| Building . . .     | 100  | 126  | 125  | 125  | 126  | 128  |
| Cotton mills . . . | 100  | 148  | 134  | 146  | 155  | 176  |
| Woollen „ . . .    | 100  | 121  | 126  | 120  | 115  | 115  |
| Jute „ . . .       | 100  | 140  | 120  | 142  | 120  | 140  |
| Ironworks . . .    | 100  | 143  | 112  | 110  | 100  | 124  |
| Engineering . . .  | 100  | 124  | 120  | 127  | 126  | 126  |
| Gasworks . . .     | 100  | 125  | 128  | 130  | 130  | 149  |
| Seamen . . .       | 100  | 129  | 102  | 118  | 110  | 143  |
| Mining . . .       | 100  | 150  | 100  | 115  | 100  | 150  |
| Gen. average . . . | 100  | 134  | 119  | 125  | 119  | 137  |

## UNITED STATES

Mr. Carroll Wright, Director of Statistical Department, shows that wages rose 67 per cent. between 1860 and 1891, viz.:—

| Employment      | 1860  | 1880  | 1891  |
|-----------------|-------|-------|-------|
| Brewery . . .   | 100   | 176   | 225   |
| Carpen'er . . . | 100   | 143   | 173   |
| Leather . . .   | 100   | 131   | 138   |
| Lumber . . .    | 100   | 173   | 178   |
| Metals . . .    | 100   | 134   | 149   |
| Paper . . .     | 100   | 159   | 182   |
| Printer . . .   | 100   | 141   | 149   |
| Railroad . . .  | 100   | 144   | 146   |
| Stone . . .     | 100   | 129   | 165   |
| Textiles . . .  | 100   | 140   | 165   |
| Total . . .     | 1,000 | 1,470 | 1,670 |

The census of 1890, compared with previous ones, showed wages thus:—

| Year       | Wages, £    | Hands     | £ per Hand |
|------------|-------------|-----------|------------|
| 1850 . . . | 49,200,000  | 957,000   | 51         |
| 1860 . . . | 78,800,000  | 1,311,000 | 60         |
| 1870 . . . | 129,000,000 | 2,054,000 | 63         |
| 1880 . . . | 197,200,000 | 2,733,000 | 72         |
| 1890 . . . | 474,800,000 | 4,713,000 | 101        |

Comparing 1890 with 1860, we find the average earnings rose 67 per cent., precisely as Carroll Wright stated above. In 1897 he published a report on Wages, from which the following figures are taken:—

## Weekly Earnings, Shillings

|                   | Man | Woman |                  | Man | Woman |
|-------------------|-----|-------|------------------|-----|-------|
| Book-keeper . . . | 84  | 42    | Salesman . . .   | 46  | 42    |
| Carder . . .      | 30  | 23    | Shirtmaker . . . | 42  | 38    |
| Cigar-maker . . . | 46  | 41    | Shoemaker . . .  | 30  | 21    |
| Cook . . .        | 25  | 23    | Spinner . . .    | 32  | 25    |
| Paper-maker . . . | 56  | 21    | Tailor . . .     | 86  | 81    |
| Printer . . .     | 63  | 60    | Weaver . . .     | 29  | 25    |

## ITALY

Bodio's table, reduced to English money, is as follows:—

| Employment       | Pence Daily |      |      |      |      |
|------------------|-------------|------|------|------|------|
|                  | 1871        | 1881 | 1886 | 1891 | 1897 |
| Dyer . . .       | 17          | 21   | 21   | 20   | 20   |
| Engineer . . .   | 33          | 42   | 32   | 28   | 30   |
| Mason . . .      | 33          | 43   | 38   | 36   | 38   |
| Miner . . .      | 24          | 29   | 24   | 23   | 26   |
| Papermaker . . . | 13          | 17   | 19   | 24   | 25   |
| „ woman . . .    | 9           | 11   | 11   | 18   | 18   |
| Spinner . . .    | 8           | 9    | 10   | 12   | 12   |
| Waggoner . . .   | 19          | 21   | 24   | 24   | 20   |
| Weaver . . .     | 27          | 47   | 47   | 40   | 40   |
| „ woman . . .    | 14          | 16   | 17   | 15   | 15   |
| Average . . .    | 20          | 26   | 24   | 24   | 24   |

The mean wages in seven branches of industry for a working day of 10½ hours, and the number of days' labour equal to a ton of wheat, were as follows:—

| Year       | Wage, Pence Daily | Wheat, Shill. per Ton | Day's Wage to a Ton |
|------------|-------------------|-----------------------|---------------------|
| 1871 . . . | 17                | 250                   | 15                  |
| 1876 . . . | 20                | 236                   | 12                  |
| 1881 . . . | 22                | 218                   | 10                  |
| 1886 . . . | 24                | 176                   | 7                   |
| 1891 . . . | 25                | 202                   | 8                   |
| 1896 . . . | 25                | 180                   | 7                   |

It appears that in 1896 an operative could earn the price of a ton of wheat in half the time necessary in 1871.

## WAR

The campaigns against Bonaparte, 1793-1815, showed an annual death-rate in the British army of 57 per thousand, of whom only 7 per thousand were killed in action. Subsequent campaigns, being of shorter duration, show necessarily a higher annual death-rate, viz. :—

| Date    | War in    | Army     | Per 1000 Yearly |
|---------|-----------|----------|-----------------|
| 1855    | Crimea    | British  | 120             |
|         |           | French   | 103             |
| 1859    | Italy     | Austrian | 47              |
|         |           | French   | 56              |
|         |           | Italian  | 55              |
| 1864    | Schleswig | Prussian | 33              |
|         |           | Austrian | 40              |
| 1866    | Germany   | Prussian | 34              |
|         |           | Austrian | 56              |
|         |           | Bavarian | 51              |
| 1870-71 | France    | German   | 50              |

In the Franco-German war the German army had a medium strength of 888,000 men in the field, of whom 44,750 died, including 26,900 killed in action: the mortality among officers was much higher than among men, viz. :—

|          | Killed | Died | Total per Thousand |
|----------|--------|------|--------------------|
| Officers | 81     | 8    | 89                 |
| Men      | 31     | 14   | 45                 |

The British loss in the Crimea was very severe, the mortality in two years reaching one-fourth of the army in the field. For details see page 587.

## WATER

According to latest information the daily supply of water to the principal cities and the average charge per gallon are as follows :—

|            | Gallons     | Gall. per Inhab. | Pence Yearly |
|------------|-------------|------------------|--------------|
| London     | 183,000,000 | 40               | 2.5          |
| Paris      | 123,000,000 | 48               | 5.0          |
| Vienna     | 120,000,000 | 90               | 3.6          |
| Buda-Pesth | 176,000,000 | 300              | 2.0          |
| Rome       | 52,000,000  | 128              | 2.0          |
| Genoa      | 23,000,000  | 105              | 2.0          |
| Hamburg    | 26,000,000  | 42               | 2.5          |
| Berlin     | 21,500,000  | 13               | 2.5          |
| Bordeaux   | 12,300,000  | 48               | 2.4          |
| Palermo    | 9,500,000   | 33               | 1.8          |
| Naples     | 6,400,000   | 12               | 1.8          |
| Brussels   | 6,000,000   | 12               | 1.2          |

The volume of water discharged at Niagara is now computed at 1,500,000 tons, or 340 million gallons per minute, representing a force of 16 million horse power, which is equal to the energy contained in all the coal produced daily in the world, say 1,600,000 tons.

The water supply of London is provided by companies, whose shares and debentures sum up £22,300,000, but the market value in 1897 was £48,350,000, equal to a premium of 117 per cent. There is a project to bring a supply of 215 million gallons daily from Wales (162 miles) at a cost of £32,800,000.

See *Aqueducts*, page 636, and *Water*, page 582.

## WEALTH

The methods for estimating the wealth of nations are laid down at length in my book on *Industries and Wealth of Nations* (Longmans, London, 1896), from which the following tables are taken :—

|               | Millions £ Sterling |          |        |             |          |
|---------------|---------------------|----------|--------|-------------|----------|
|               | Farms               | Railways | Houses | Merchandise | Sundries |
| England       | 1,452               | 812      | 2,196  | 609         | 4,973    |
| Scotland      | 234                 | 134      | 232    | 114         | 380      |
| Ireland       | 391                 | 39       | 64     | 62          | 94       |
| U. Kingdom    | 2,077               | 985      | 2,492  | 805         | 5,447    |
| France        | 3,093               | 663      | 2,159  | 601         | 3,174    |
| Germany       | 2,508               | 555      | 1,755  | 677         | 2,557    |
| Russia        | 2,710               | 349      | 1,019  | 515         | 1,832    |
| Austria       | 1,797               | 371      | 719    | 367         | 1,258    |
| Italy         | 1,399               | 184      | 503    | 223         | 851      |
| Spain         | 1,212               | 108      | 280    | 148         | 632      |
| Portugal      | 164                 | 23       | 77     | 32          | 115      |
| Scandinavia   | 532                 | 54       | 221    | 117         | 372      |
| Holland       | 295                 | 46       | 178    | 104         | 257      |
| Belgium       | 354                 | 75       | 175    | 118         | 266      |
| Switzerland   | 172                 | 44       | 91     | 49          | 136      |
| Danub. States | 508                 | 36       | 136    | 83          | 263      |
| Greece        | 109                 | 6        | 31     | 15          | 61       |
| Europe        | 16,930              | 3,499    | 9,834  | 3,854       | 17,223   |
| U. States     | 4,142               | 2,260    | 4,446  | 1,593       | 3,939    |
| Canada        | 311                 | 186      | 145    | 103         | 264      |
| Australia     | 392                 | 139      | 174    | 88          | 283      |
| Argentina     | 198                 | 88       | 107    | 53          | 170      |
| Total         | 21,973              | 6,172    | 14,706 | 5,661       | 21,879   |

The following table shows the distribution of wealth among the whole population of each country; rural wealth, for example, is the ratio of same which would correspond not to the rural population but to all the inhabitants, and urban in like manner, viz. :—

|                   | £ Sterling per Inhabitant |       |       |      |          |
|-------------------|---------------------------|-------|-------|------|----------|
|                   | Rural                     | Urban | Total | Real | Personal |
| United Kingdom    | 53                        | 249   | 302   | 106  | 196      |
| France            | 80                        | 172   | 252   | 123  | 129      |
| Germany           | 48                        | 108   | 156   | 72   | 84       |
| Russia            | 26                        | 35    | 61    | 30   | 31       |
| Austria           | 41                        | 63    | 104   | 51   | 53       |
| Italy             | 45                        | 56    | 101   | 53   | 48       |
| Spain             | 69                        | 66    | 135   | 76   | 59       |
| Portugal          | 35                        | 52    | 87    | 46   | 41       |
| Sweden and Norway | 40                        | 74    | 114   | 53   | 61       |
| Denmark           | 115                       | 115   | 230   | 124  | 106      |
| Holland           | 61                        | 122   | 183   | 87   | 96       |
| Belgium           | 56                        | 98    | 154   | 75   | 79       |
| Switzerland       | 57                        | 107   | 164   | 76   | 88       |
| Danubian States   | 44                        | 46    | 90    | 49   | 41       |
| Greece            | 50                        | 51    | 101   | 57   | 44       |
| Europe            | 45                        | 94    | 139   | 64   | 75       |
| United States     | 59                        | 175   | 234   | 111  | 123      |
| Canada            | 60                        | 136   | 196   | 73   | 123      |
| Australia         | 93                        | 163   | 256   | 97   | 159      |
| Argentina         | 49                        | 105   | 154   | 58   | 96       |
| General average   | 48                        | 107   | 155   | 71   | 84       |



## GERMANY

The wealth of the principal States stands thus:—

|                   | Millions £ Sterling |         |        |            |         |
|-------------------|---------------------|---------|--------|------------|---------|
|                   | Prussia             | Bavaria | Saxony | Wurtemberg | Various |
| Farms . . .       | 1,583               | 341     | 72     | 130        | 382     |
| Railways . . .    | 348                 | 65      | 36     | 20         | 86      |
| Houses . . .      | 1,048               | 179     | 132    | 77         | 319     |
| Merchandise . . . | 403                 | 76      | 55     | 28         | 115     |
| Sundries . . .    | 1,558               | 288     | 161    | 115        | 435     |
| Total . . .       | 4,940               | 949     | 456    | 370        | 1,337   |
|                   |                     |         |        |            | 8,052   |

In two years (1896-98) *real estate* in Prussia increased 88 millions sterling. Molinari estimates that the wealth of Germany (real and personal) increased 600 millions sterling between 1893 and 1897, or 150 millions yearly.

## AUSTRIA

The shares that correspond to the two nations of the monarchy are as follows:—

|                   | Millions £ Sterling |         |       |
|-------------------|---------------------|---------|-------|
|                   | Austria             | Hungary | Total |
| Farms . . .       | 972                 | 825     | 1,797 |
| Railways . . .    | 217                 | 154     | 371   |
| Houses . . .      | 520                 | 199     | 719   |
| Merchandise . . . | 198                 | 169     | 367   |
| Sundries . . .    | 799                 | 459     | 1,258 |
| Total . . .       | 2,706               | 1,806   | 4,512 |

## SCANDINAVIA

The wealth of the three northern kingdoms shows as follows:—

|                   | Millions £ Sterling |        |      |       |
|-------------------|---------------------|--------|------|-------|
|                   | Sweden              | Norway | Den. | Total |
| Farms . . .       | 201                 | 77     | 254  | 532   |
| Railways . . .    | 33                  | 7      | 14   | 54    |
| Houses . . .      | 111                 | 41     | 69   | 221   |
| Merchandise . . . | 58                  | 22     | 37   | 117   |
| Sundries . . .    | 167                 | 73     | 132  | 372   |
| Total . . .       | 570                 | 220    | 506  | 1,296 |

## DANUBIAN STATES

The wealth of these States stands thus:—

|                   | Millions £ Sterling |        |          |       |
|-------------------|---------------------|--------|----------|-------|
|                   | Roumania            | Servia | Bulgaria | Total |
| Farms . . .       | 244                 | 110    | 154      | 508   |
| Railways . . .    | 26                  | 4      | 6        | 36    |
| Houses . . .      | 69                  | 28     | 39       | 136   |
| Merchandise . . . | 46                  | 15     | 22       | 83    |
| Sundries . . .    | 134                 | 54     | 75       | 263   |
| Total . . .       | 519                 | 211    | 296      | 1,026 |

## UNITED STATES

The various parts of the Union are represented approximately as regards wealth in the manner shown in the following table (houses including also public buildings):—

| States            | Millions £ Sterling |          |        |             |          |
|-------------------|---------------------|----------|--------|-------------|----------|
|                   | Farms               | Railways | Houses | Merchandise | Sundries |
| New England . . . | 142                 | 90       | 595    | 187         | 273      |
| Middle . . .      | 646                 | 310      | 1,967  | 480         | 994      |
| Southern . . .    | 713                 | 556      | 591    | 214         | 396      |
| Western . . .     | 2,641               | 1,304    | 2,182  | 681         | 1,388    |
| Union . . .       | 4,142               | 2,260    | 5,335  | 1,562       | 3,051    |
|                   |                     |          |        |             | 16,350   |

## AUSTRALIA

The several colonies stand as regards wealth (public works including railways, waterworks, telegraphs, &c.) thus:—

|                    | Millions £ Sterling |              |        |             |          |
|--------------------|---------------------|--------------|--------|-------------|----------|
|                    | Farms               | Public Works | Houses | Merchandise | Sundries |
| N. S. Wales . . .  | 131                 | 71           | 68     | 31          | 69       |
| Victoria . . .     | 77                  | 76           | 53     | 31          | 46       |
| New Zealand . . .  | 69                  | 29           | 25     | 18          | 25       |
| Queensland . . .   | 57                  | 22           | 8      | 11          | 16       |
| S. Australia . . . | 39                  | 19           | 12     | 7           | 18       |
| Tasmania . . .     | 12                  | 5            | 6      | 2           | 6        |
| W. Australia . . . | 7                   | 3            | 2      | 2           | 2        |
| Total . . .        | 392                 | 225          | 174    | 103         | 182      |
|                    |                     |              |        |             | 1,076    |

## CANADA

The distribution of wealth is approximately as follows:—

|                  | Millions £ Sterling |          |        |             |          |
|------------------|---------------------|----------|--------|-------------|----------|
|                  | Farms               | Railways | Houses | Merchandise | Sundries |
| Ontario . . .    | 186                 | 75       | 75     | 51          | 135      |
| Quebec . . .     | 67                  | 36       | 41     | 28          | 66       |
| Acadia . . .     | 32                  | 29       | 16     | 13          | 31       |
| North-West . . . | 26                  | 46       | 13     | 11          | 32       |
| Total . . .      | 311                 | 186      | 145    | 103         | 264      |
|                  |                     |          |        |             | 1,009    |

Acadia includes Nova Scotia and the other Atlantic provinces.

## WEIGHTS AND MEASURES

See pages 595-597.

## WHEAT

Canadian wheat crops were in tons as follows:—

|                      | 1896    | 1897      | 1898      |
|----------------------|---------|-----------|-----------|
| Ontario . . . . .    | 460,000 | 720,000   | 800,000   |
| Manitoba . . . . .   | 360,000 | 460,000   | 640,000   |
| North-West . . . . . | 40,000  | 40,000    | 60,000    |
| Quebec . . . . .     | 100,000 | 130,000   | 150,000   |
| Total . . . . .      | 960,000 | 1,350,000 | 1,650,000 |

In 1898 Argentina had 5,800,000 acres under wheat, probable crop 1,200,000 tons, one-half for export. Buenos Ayres had 1,100,000 acres, Santa Fé 2,650,000, Cordoba 1,240,000, Entre Rios 600,000, other provinces 210,000.

See *Agriculture*, page 613; *Food*, page 713; *Wheat*, page 597.

## WOOL

Production in 1894 was estimated as follows:—

|                       | Mil. Lbs.          | Mil. Lbs.             | Mil. Lbs.            |
|-----------------------|--------------------|-----------------------|----------------------|
| Australia . . . . .   | 670                | U. Kingdom 144        | Germany . . . . . 55 |
| River Plate . . . . . | 380                | France . . . . . 104  | Austria . . . . . 52 |
| United States 298     | South Africa 90    | India . . . . . 72    |                      |
| Russia . . . . . 262  | Spain . . . . . 66 | Various . . . . . 197 |                      |

Making a total of 2390 million pounds, or 1,070,000 tons. Consumption in the factories of the United States was as follows:—

| Year           | Million Pounds |          |       |
|----------------|----------------|----------|-------|
|                | Native         | Imported | Total |
| 1840 . . . . . | 36             | 10       | 46    |
| 1850 . . . . . | 53             | 18       | 71    |
| 1860 . . . . . | 60             | 25       | 85    |
| 1870 . . . . . | 162            | 47       | 209   |
| 1880 . . . . . | 233            | 124      | 357   |
| 1890 . . . . . | 276            | 102      | 378   |
| 1897 . . . . . | 259            | 342      | 601   |

Consumption in the United Kingdom has been as follows:—

| Year           | Million Pounds |         |       |
|----------------|----------------|---------|-------|
|                | British        | Foreign | Total |
| 1873 . . . . . | 158            | 195     | 353   |
| 1883 . . . . . | 109            | 219     | 328   |
| 1896 . . . . . | 125            | 385     | 510   |

Sir J. Behrens, Bradford, summed up the consumption during twenty years thus:—

| Year              | Million Pounds Yearly |          |       |
|-------------------|-----------------------|----------|-------|
|                   | British               | Imported | Total |
| 1860-64 . . . . . | 135                   | 126      | 261   |
| 1865-74 . . . . . | 144                   | 181      | 325   |
| 1875-84 . . . . . | 132                   | 235      | 367   |
| 1884 . . . . .    | 114                   | 280      | 394   |

He estimated the yearly output (1884) of woollen and worsted goods at £60,400,000, of which home consumption took £33,000,000, and exports were £27,400,000. The clip of British flocks averages 150 million lbs., of which one-fourth is exported.

The following table shows the average yearly production of wool from 1887 to 1894, and the equivalent in washed wool:—

|                         | Million Pounds |        | Yield Per Cent. |
|-------------------------|----------------|--------|-----------------|
|                         | Unwashed       | Washed |                 |
| Europe . . . . .        | 735            | 440    | 60              |
| Australia . . . . .     | 570            | 310    | 55              |
| River Plate . . . . .   | 345            | 120    | 35              |
| United States . . . . . | 290            | 220    | 75              |
| South Africa . . . . .  | 95             | 70     | 75              |
| Various . . . . .       | 215            | 130    | 60              |
| The World . . . . .     | 1,960          | 1,290  | 66              |

The countries which export woollen (and worsted) manufactures are:—

|                         | Millions £ Sterling |      |      |
|-------------------------|---------------------|------|------|
|                         | 1885                | 1890 | 1896 |
| Great Britain . . . . . | 24.4                | 25.7 | 26.9 |
| France . . . . .        | 14.6                | 15.8 | 14.2 |
| Germany . . . . .       | 9.7                 | 11.0 | 10.5 |
| Total . . . . .         | 48.7                | 52.5 | 51.6 |

Production and consumption of woollen goods are as follows:—

|                           | Output Millions £ | Consumption |                    |
|---------------------------|-------------------|-------------|--------------------|
|                           |                   | Millions £  | Shillings Per Head |
| United Kingdom . . . . .  | 61.7              | 45.0        | 23                 |
| France . . . . .          | 44.7              | 36.0        | 19                 |
| Germany . . . . .         | 42.2              | 39.8        | 15                 |
| Russia . . . . .          | 29.0              | 29.4        | 6                  |
| Austria . . . . .         | 14.5              | 14.1        | 7                  |
| Italy . . . . .           | 5.8               | 7.1         | 5                  |
| Spain . . . . .           | 6.6               | 6.9         | 8                  |
| Scandinavia . . . . .     | 4.2               | 6.2         | 14                 |
| Belgium . . . . .         | 5.3               | 5.5         | 17                 |
| Other Countries . . . . . | 9.0               | 12.0        | 8                  |
| Europe . . . . .          | 223.0             | 202.0       | 11                 |

Woollen manufacture in the United Kingdom has increased as follows:—

|                | Spindles  | Power-looms | Operatives |
|----------------|-----------|-------------|------------|
| 1870 . . . . . | 4,950,000 | 115,000     | 240,000    |
| 1890 . . . . . | 6,580,000 | 132,000     | 302,000    |

See *Wool*, page 701.

## Y

## YACHTS

According to Lloyd's List there are nearly 7000 yachts, of which 60 per cent. are owned in Great Britain, 40 per cent. abroad, viz. :—

|                                  | No.   | Tons    | Average Tons |
|----------------------------------|-------|---------|--------------|
| British . . . . .                | 4,104 | 155,000 | 38           |
| Foreign . . . . .                | 2,643 | 110,000 | 42           |
| Total . . . . .                  | 6,747 | 265,000 | 40           |
| Steam . . . . .                  | 1,436 | 172,000 | 120          |
| Sail . . . . .                   | 5,311 | 93,000  | 18           |
| Built in Great Britain . . . . . | 4,603 | 214,000 | 45           |
| Built abroad . . . . .           | 2,144 | 51,000  | 25           |

The yachts owned in the United Kingdom are as follows :—

|                 | No.   | Tons    | Average |
|-----------------|-------|---------|---------|
| Steam . . . . . | 898   | 94,000  | 105     |
| Sail . . . . .  | 3,206 | 61,000  | 19      |
| Total . . . . . | 4,104 | 155,000 | 38      |

## YARN

Exports of British yarn were as follows :—

| Year           | Millions Lbs. Yarn |         |            |       | Value, £   |
|----------------|--------------------|---------|------------|-------|------------|
|                | Cotton             | Woollen | Linen, &c. | Total |            |
| 1889 . . . . . | 252                | 45      | 48         | 345   | 17,300,000 |
| 1893 . . . . . | 207                | 50      | 46         | 303   | 15,300,000 |
| 1897 . . . . . | 253                | 57      | 70         | 380   | 16,600,000 |

The prices of yarn were :—

|                | Pence Per Pound |         |       |      |
|----------------|-----------------|---------|-------|------|
|                | Cotton          | Woollen | Linen | Jute |
| 1889 . . . . . | 11              | 23      | 15    | 3.0  |
| 1893 . . . . . | 10              | 22      | 15    | 2.5  |
| 1897 . . . . . | 9               | 20      | 13    | 2.4  |

The consumption of imported yarn in various countries in 1888 and 1895 was as follows :—

|                         | Millions Lbs. |              |       |        |              |       |
|-------------------------|---------------|--------------|-------|--------|--------------|-------|
|                         | 1888          |              |       | 1895   |              |       |
|                         | Cotton        | Woollen, &c. | Total | Cotton | Woollen, &c. | Total |
| China . . . . .         | 92            | ...          | 92    | 151    | ...          | 151   |
| Germany . . . . .       | 35            | 27           | 62    | 34     | 35           | 69    |
| Austria . . . . .       | 22            | 12           | 34    | 31     | 18           | 49    |
| India . . . . .         | 52            | ...          | 52    | 45     | ...          | 45    |
| Holland . . . . .       | 30            | 2            | 32    | 37     | 6            | 43    |
| Japan . . . . .         | 64            | ...          | 64    | 20     | 1            | 21    |
| Russia . . . . .        | 10            | 16           | 26    | 5      | 14           | 19    |
| France . . . . .        | 26            | ...          | 26    | 15     | ...          | 15    |
| Italy . . . . .         | 8             | 11           | 19    | 3      | 12           | 15    |
| Sweden . . . . .        | 4             | 3            | 7     | 7      | 6            | 13    |
| Spain and Port. . . . . | 2             | 12           | 14    | 2      | 11           | 13    |
| Roumania, &c. . . . .   | 13            | ...          | 13    | 17     | ...          | 17    |
| Total . . . . .         | 358           | 83           | 441   | 367    | 103          | 470   |

Austria exports 18 million lbs. of linen yarn, Belgium 62 million lbs. of linen and woollen yarns, Switzerland 20 million lbs. of all kinds.

## Z

## ZINC

Production of ores and of metal show approximately :—

|                         | Ore, Tons |           | Zinc, Tons |         |
|-------------------------|-----------|-----------|------------|---------|
|                         | 1888      | 1896      | 1888       | 1896    |
| Germany . . . . .       | 670,000   | 710,000   | 130,000    | 150,000 |
| Belgium . . . . .       | 20,000    | 20,000    | 90,000     | 110,000 |
| Great Britain . . . . . | 40,000    | 30,000    | 30,000     | 70,000  |
| United States . . . . . | 200,000   | 280,000   | 50,000     | 70,000  |
| Sweden . . . . .        | 50,000    | 30,000    | 20,000     | 40,000  |
| Spain . . . . .         | 40,000    | 50,000    |            |         |
| Austria . . . . .       | 30,000    | 30,000    |            |         |
| Italy, &c. . . . .      | 130,000   | 180,000   |            |         |
| France . . . . .        | 20,000    | 70,000    | 10,000     | 20,000  |
| Total . . . . .         | 1,200,000 | 1,400,000 | 330,000    | 460,000 |

The production of metallic zinc has doubled since 1880. The richest mines are in Prussia, the ores giving 21 per cent. of metal. Large quantities of metallic zinc are produced in Belgium and Great Britain, mostly from imported ores.

The total production of metallic zinc in 1880 was only 230,000 tons.

The price of this metal has been as follows per ton :—

|                | £    | £              | £    |
|----------------|------|----------------|------|
| 1882 . . . . . | 14.7 | 1888 . . . . . | 15.7 |
| 1885 . . . . . | 13.3 | 1890 . . . . . | 19.8 |
|                |      | 1893 . . . . . | 16.3 |
|                |      | 1897 . . . . . | 15.7 |

In 1897 Great Britain imported 70,000 tons of crude zinc, in cakes, value £1,200,000, besides 20,000 tons of zinc manufactures, value £440,000. Exports of zinc were only 8000 tons.

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